

Dinesh Manocha

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Dinesh Manocha is currently the Paul Chrisman Iribe Chair of Computer Science and Electrical & Computer Engineering and Distinguished University Professor at the University of Maryland at College Park. Earlier he was the Matthew Mason/Phi Delta Theta Distinguished Professor of Computer Science at the University of North Carolina at Chapel Hill. He has published more than 800 papers in the leading conferences and journals in computer graphics, robotics, computational geometry, databases, multimedia, high performance computing and symbolic computation, and received 22 best paper and test of time awards. He has also served as program committee member or program chair of more than 120 leading conferences and given more than 175 invited or keynote talks at conferences and distinguished lectures at other institutions. Manocha has served as a member of the editorial board or guest editor of eleven leading journals in computer graphics, robotics, geometry processing and scientific computing. He is a co-inventor of 19 patents, several of which have been licensed to industry. He has won many awards including NSF Career Award, ONR Young Investigator Award, Sloan Fellowship, IBM Fellowship, SIGMOD IndySort Winner, Honda Research Award, UNC Hettleman Prize, Amazon Research Awards, Facebook/Meta Distinguished Faculty Awards, Google Research Awards, Northrop Grumman Faculty Research Award, Verisk AI Faculty Research, etc. He is a Fellow of ACM, AAAS, AAAI, IEEE, NAI, member of ACM SIGGRAPH Academy and IEEE VR Academy, and recipient of Bézier Award from Solid Modeling Association and Jimmy Lin Award for Innovation and Invention at the University of Maryland. He received the Distinguished Alumni Award from Indian Institute of Technology, Delhi and the Distinguished Career in Computer Science Award from Washington Academy of Sciences.

Manocha has supervised more than 61 Ph.D. dissertations and is currently supervising 25+ PhD students. His research group has developed many well-known software packages for collision detection, triangulation, GPU-based algorithms, multi-agent simulation, texture compression, solid modeling, solving algebraic systems, etc. These packages have been downloaded by more than 500,000 users worldwide and licensed to more than 60 industrial organizations including Intel, Microsoft, Disney, Ford, Kawasaki, Siemens, Phillips Labs, MSC Software, Lockheed Martin, Raytheon etc. His group has actively collaborated with many industrial organizations including AMD/ATI, Amazon, ARA, Boeing, Disney, Dolby, Google, Lockheed, Intel, Microsoft, NVIDIA, Oculus, SAIC, Willow Garage, Samsung, etc. Manocha's research has been supported by ARO, ARL, Boeing, DARPA, IARPA, NASA, NIH, NRL, NSF, ONR, RDECOM, and many industrial partners; he has served as a Principal Investigator or Co-Principal Investigator on 120 grants with \$90M funding. He is a co-founder of three companies, including Impulsonic that developed physics-based audio simulation technologies and was acquired by Valve Inc in November 2016. The Phonon technology developed by UNC/Impulsonic has been widely released as Steam Audio SDK.

EDUCATION

University of California at Berkeley

Ph.D. in Computer Science, May 1992

Thesis title: Algebraic and Numeric Techniques for Modeling and Robotics

Thesis supervisor: John F. Canny

Major: Geometric and Solid Modeling, Computer Graphics, Numeric and Symbolic Computation, Robotics

Minors: Mathematics and Software Systems

M.S. in Computer Science, 1990

Specialization in Computer Graphics and Geometric Modeling

Indian Institute of Technology, Delhi, India

B.E. in Computer Science and Engineering, 1987

APPOINTMENTS

- Distinguished University Professor, University of Maryland, College Park, June 2020 –
- Paul Chrisman Iribe Chair of Computer Science and Electrical & Computer Engineering, University of Maryland, College Park, May 2018 –
- Technical Consultant, Dolby Labs, 2025-
- Member-at-Large, Information, Computing and Communication, AAAS, 2023-2025
- Co-founder and Technical Advisory Board, Inception Robotics, 2021-
- Phi Delta Theta/Matthew Mason Distinguished Emeritus Professor, Department of Computer Science, Professor, University of North Carolina at Chapel Hill, May 2018-
- Phi Delta Theta/Matthew Mason Distinguished Professor, Department of Computer Science, Professor, University of North Carolina at Chapel Hill, July, 2006 –April 2018.
- Consulting Professor, Zhejiang University, China, 2014-2016.
- Co-founder and Technical Advisory Board, Impulsonic Inc., 2011- 2016.
- Visiting Researcher, Microsoft Research, April – August, 2008.
- Professor, Department of Computer Science, University of North Carolina at Chapel Hill, January 2001-April 2018.
- Associate Professor, Department of Computer Science, University of North Carolina at Chapel Hill, January 1998-December 2000.
- Visiting Researcher, Microcomputer Research Lab (MRL) at Intel, Santa Clara, CA, May 1998-August 1998; May 1999-August 1999.
- Assistant Professor, Department of Computer Science, University of North Carolina at Chapel Hill, July 1992-December 1997.
- Post Doctorate Researcher, Department of Electrical Engineering and Computer Science, University of California at Berkeley, May 1992-August 1992.
- Research & Teaching Assistant, Department of Electrical Engineering and Computer Science, University of California at Berkeley, August 1988-May 1992.
- Research Visitor, General Motors Research Laboratory, May 1989-August 1989.
- Research Visitor, Olivetti Research Center, May 1988-August 1988.

HONORS AND AWARDS

1. 2025: Best Paper Award Nominee, EMNLP
2. 2024: Jimmy Lin Award for Innovation and Invention, University of Maryland

3. 2024: IEEE VR Academy Inductee
4. 2024: Honorary Professor, Amity University, Noida, India
5. 2023: Fellow, National Academy of Inventors (NAI)
6. 2023: Best Paper Award, IROS Workshop on Advances in Multi-agent Learning
7. 2023: Distinguished Faculty Award, Meta
8. 2023: Google Faculty Award
9. 2023: SIGGRAPH Seminar Paper Selection
10. 2023: Amazon Research Award
11. 2023: IEEE VR Conference, Best Paper Honorable Mention
12. 2022: Best Paper Award, ACM SIGGRAPH MIG (Motion, Interaction, Games) Conference
13. 2022: IEEE VR Conference, Best Paper Honorable Mention
14. 2022: Northrop Grumman Faculty Research Award
15. 2022: Verisk AI Faculty Research Award
16. 2022: University of Maryland Venture Invention of the Year Award Nominee
17. 2021: IEEE ISMAR Journal Track, Honorable Mention
18. 2021: IEEE VR Best Conference Paper Award
19. 2021: IEEE VR Journal Track, Honorable Mention
20. 2021: University of Maryland Venture Invention of the Year Award Nominee
21. 2020: Distinguished University Professorship, University of Maryland
22. 2020: Distinguished Faculty Award, Facebook
23. 2020: Pierre Bézier Award, Solid Modeling Association
24. 2019: Distinguished Career in Computer Science, Washington Academy of Sciences
25. 2019: Best Poster Award, ACM Symposium on Applied Perception (SAP)
26. 2019: Best Paper Award Nominee, IEEE Multi-Robot System (MRS) Conference
27. 2019: ACM SIGGRAPH Academy Inductee
28. 2019: Pioneer, Solid Modeling Association (SMA)
29. 2019: Distinguished Faculty Award, Facebook
30. 2018: Time of Test Award Paper Nominee, IEEE Conf. on Robotics and Automation, 2018
31. 2018: Fellow of Association for the Advancement of Artificial Intelligence (AAAI)
32. 2018: Honorable Mention, Journal on Computational Visual Media
33. 2018: Alibaba Innovation Award
34. 2017: Global Initiative of Academic Networks (GIAN) Award, Ministry of Education, India
35. 2017: Google DayDream Faculty Award
36. 2017: Best Poster Award, NC Acoustic Society
37. 2017: Ph.D. Advisee, Ravish Mehra, received IEEE VGTC Best Dissertation Award in VR
38. 2016: Best Poster Award, NC Acoustic Society
39. 2016: IEEE VR, Honorable Best Paper Award
40. 2015: Best Poster Award, NC Acoustic Society
41. 2015: High Performance Graphics Conference, Test of Time 2006 Award
42. 2015: Google Research Award
43. 2014: Ph.D advisee Ravish Mehra received UNC Dean's Dissertation Award in Mathematics, Physical Sciences and Engineering
44. 2014: 1000Talent Scholar National Professorship, Zhejiang University, China
45. 2013: Best Paper Award, NC Acoustic Society
46. 2012: Kenan Research Award, University of North Carolina at Chapel Hill
47. 2011: Distinguished Alumni Award, Indian Institute of Technology, Delhi
48. 2011: Fellow of Institute of Electrical and Electronics Engineers (IEEE)
49. 2011: Fellow of American Association for the Advancement of Science (AAAS)

50. 2010: Ph.D advisee Liangjun Zhang received UNC Dean's Dissertation Award in Mathematics, Physical Sciences and Engineering
51. 2010: IBM Smarter Planet Innovation Award
52. 2009: Fellow of Association for Computing Machinery (ACM)
53. 2008: Best Paper Award at Computer-Aided Design (CAD) Conference
54. 2008: NVIDIA Professor Partnership Award
55. 2008: Best Poster Award, Acoustical Society of America Meeting
56. 2007: 2nd Best Paper Award and Honorable Mention, Computer and Graphics
57. 2007: Best Paper Award at ACM VRST Conference
58. 2007: Simulation Technology Demonstration at the Capitol Hill (by invitation)
59. 2006: Awarded Phi Delta Theta/Matthew Mason Distinguished Professorship, UNC Chapel Hill
60. 2006: IndySort (Sort Benchmark) Co-winner, ACM SIGMOD Conference
61. 2005: Best Paper, Research and Development Track, I/ITSEC
62. 2005: Best Paper Award, IEEE VR Conference
63. 2004: Best Paper Award, Pacific Graphics Conference
64. 2003: Best Paper Award, ACM/SIGGRAPH Conference on Solid Modeling and Applications
65. 2001: Best Paper Award, ACM Multimedia Conference
66. 2001: Best Panel Award, IEEE Visualization Conference
67. 1999: Best Paper Award, Eurographics Conference
68. 1998: Hettleman Award for Scholarly Achievement, UNC Chapel Hill
69. 1998: Honda Research Award
70. 1997: Office of Naval Research Young Investigator Award
71. 1996: Best Paper Award, SuperComputing, 1996
72. 1995: National Science Foundation CAREER Award
73. 1995: Presidential Faculty Fellow nominee, The University of North Carolina at Chapel Hill
74. 1995: Alfred P. Sloan Fellow
75. 1993: Research Award from University Research Council, University of North Carolina at Chapel Hill
76. 1992: Junior Faculty Award at the University of North Carolina at Chapel Hill
77. 1992: Research award by Mitsubishi Electric Research Laboratory for research on inverse kinematics and its application to robotics and graphics
78. 1991: IBM Graduate Fellowship
79. 1988: Alfred and Chella D. Moore Fellowship for graduate studies in Computer Science at the University of California at Berkeley
80. 1983-87: Merit Prizes and Certificates for Academic Excellence at the Indian Institute of Technology, Delhi, India
81. 1983: Merit Prize and Certificate for obtaining VII position in All India Senior Secondary Certificate Examination
82. 1981-87: National Talent Scholarship by the Government of India
83. 1979-81: Junior Science Talent Scholarship by the Government of India

PROGRAM & GENERAL CHAIR

1. General Co-Chair: Workshop on Short-Form Video Understanding, ICCV, 2025.
2. General Co-Chair, IEEE International Conference on Multimedia Information Processing and Retrieval, 2025
3. General Co-Chair, RARA:L Grounding Documents with Reasoning, Agents, Retrieval and Attribution Workshop, ICDM, 2025

4. General Co-Chair, Generative Data Augmentation for Real-World Signal Processing Applications (GenDA), ICASSP Workshop, 2025
5. General Co-Chair, SALMA: Speech and Audio Language Models: Architectures, Data Sources, and Training Paradigms, ICASSP Workshop, 2025
6. Co-Chair, Workshop on Heterogeneity in Multi-Robot Systems, Theory, Practice and Applications, ICRA 2023
7. Co-Chair, Artificial Intelligence for Autonomous Mobile Robots (AI4AMR), IROS 2023
8. Co-Chair, ACM Multimedia Workshop on Generative AI and Multimedia LLM for Finance (GenAI4Finance), 2023
9. Co-Chair, IJCAI Joint Workshop of the 5th Financial Technology and Natural Language Processing (FinNLP) and 2nd Multimodal AI for Financial Forecasting (Muffin), 2023
10. Co-Chair, AAAI Workshop on Multimodal AI for Financial Forecasting, 2023
11. Co-Organizer, ICDAR Competition on Language-Guided Document Editing, 2023
12. Co-Chair, RSS Workshop on “Envisioning an Infrastructure for Multi-Robot and Collaborative Autonomy Testing and Evaluation”, 2022
13. Panels Chair, IEEE VR, 2021
14. Chair, Solid Modeling Association (SMA) Fellow Selection Committee, 2021
15. Panel Chair, “Artificial Intelligence and Machine Learning”, VAIBHAV, Vishwik Bharatiya Vaigyanik Summit, Government of India, 2020
16. Co-chair, NSF Workshop on “Speech for Robotics”, College Park, MD, 2020
17. Co-chair, “Audio for Mobile VR/AR”, International Congress on Acoustics (ICA), 2019, Germany
18. Co-Chair, “ICRA Workshop on Sound Source Localization and Applications”, 2019, Montreal
19. General Co-Chair, IEEE ROBIO 2018, Malaysia
20. Program Co-Chair, IEEE International Conference on Multimedia Big Data, 2018
21. General Co-Chair, Workshop on Autonomous Driving, CVPR 2018
22. General Co-Chair, Special Session on Simulation and Navigation for Intelligent Vehicles, IEEE Intelligent Vehicles Symposium, 2018, China.
23. General Co-Chair, International Conference on Computational Visual Media, 2018, China
24. Program Co-Chair, “Geometric Modeling and Processing”, 2017, China
25. Co-Chair, Workshop on “AI in Automation”, ICRA 2017
26. General Co-Chair, “Sound Propagation Modeling and Spatial Audio for Virtual Reality”, Acusticum Forum and ASA Meeting, Boston, 2017.
27. Co-Chair, Workshop on “Recent Advances in Planning and Manipulation for Industrial Robots”, RSS, 2016
28. Chair, ICRA (IEEE Conference on Robotics and Automation) Best Manipulation Award Committee, 2016
29. Chair, Workshop on Digital Media, 2015, New Delhi, India.
30. Workshop Co-chair, ICCV Workshop on 3D Reconstruction and Understanding with Video and Sound, 2015
31. General Co-Chair, ACM Virtual Reality Software and Technology Conference, 2014
32. General Co-Chair, Pacific Graphics, 2014
33. General Chair, Workshop on Motion Planning for Industrial Robots, ICRA 2014
34. Co-Chair, Computational Acoustics for Complex Indoor and Outdoor Spaces, ASA, 2012
35. General Co-Chair, Workshops at SIGGRAPH Asia (WASA), 2012
36. General Co-Chair, Workshop on Hybrid Multi-Core Computing, 2011
37. Co-Chair, Workshop on “Motion Planning for Physical Robots”, ICRA, Shanghai, 2011
38. Workshop Co-Chair, 1st IEEE Workshop on Modeling, Simulation and Visual Analysis of Large Crowds, ICCV, Barcelona, 2011.
39. Program Co-Chair, ACM Solid and Physical Modeling, Stony-Brook, NY, 2008

40. Workshop Co-Chair, Multi-Core and Many-Core Computing, ACM/IEEE SuperComputing Conference 2007
41. Program Co-Chair, ACM Solid and Physical Modeling, Beijing, 2007
42. Workshop Co-Chair, EDGE Computing Workshop, Chapel Hill, 2006
43. Program Co-Chair, Pacific Graphics, Macau, 2005.
44. Workshop Co-Chair, ACM Workshop on General Purpose Computation using Graphics Processors, ACM SIGGRAPH, Los Angeles, 2004.
45. Workshop Co-Chair, WIHAVE, Workshop on Intelligence, Human Augmentation and Virtual Environments, Chapel Hill, 2002.
46. Video Program Committee Chair: ACM Symposium on Computational Geometry, 2001.
47. Program Chair: ACM Workshop on Applied Computational Geometry, Philadelphia, PA, 1996.
48. Program Co-Chair: Workshop on Simulation, Behavior, and Action in Virtual Environments, Iowa (sponsored by ONR and ACM SIGGRAPH), 1995.

ADVISORY BOARDS & EXECUTIVE COMMITTEES

1. Steering Committee Member, American Association for the Advancement of Science (AAAS), 2024-2025
2. Advisory Board, KUCARS (Khalifa University Center for Autonomous Robotic Systems), Abu Dhabi, April 2019 – onwards
3. Advisory Board, Department of Computer Science & Engineering, IIT Delhi, 2018 – onwards
4. Member, Provost Task Force on Computing, University of Maryland, 2019 – 2021
5. Executive Committee Member, Maryland Robotics Center, University of Maryland, 2019 – onwards
6. Chair, Task Force on Artificial Intelligence, University of Maryland, 2018-2019
7. Technical Advisory Board, Baidu Research, Sunnyvale, CA, 2018 - onwards
8. SIGGRAPH Executive Committee, Director-At-Large, 2011 – 2014
9. Advisory Board, EU H2020 CrowdBot Project, 2018-2021
10. IEEE Technical Achievement Award Selection Committee, 2015-2016
11. External Advisory Board, Geometric Modeling and Scientific Visualization Center, KAUST, 2011-2015
12. Chair, Pierre Bézier Award Selection Committee, 2011
13. Chair, INRIA Review Panel on “Graphics and Interaction”, Paris, 2010
14. Advisory Board, SIGGRAPH ASIA Program Committee, 2008-2009

EDITORIAL DUTIES

1. Associate Editor, ACM AI Letters, 2025-onwards
2. Associate Editor, Frontiers in Virtual Reality, 2023-onwards
3. Associate Editor, International Symposium on Experimental Robotics, 2024
4. Editorial Board, ACM Books, 2022-onwards
5. Senior Editor, *IROS Conference Paper Review Board* (ICPRB), 2020-onwards
6. Senior Associate Editor, *ACM Transactions on Spatial Algorithms and Systems* (TSAS), 2013-onwards
7. Associate Editor, *IEEE Transactions on Emerging Topics in Computing (ETiC)*, 2019-2022
8. Associate Editor, *Collective Dynamics*, 2015 – onwards
9. Associate Editor, *IEEE Transactions on Computers*, 2016 – 2020
10. Advisory Board, *Graphical Models and Image Processing*, 2019 -
11. Special Issue Editor, *Engineering (Special Issue on Robotics)*, 2015
12. Special Issue Editor, *Advanced Robotics (Special Issue on Recent Advancements on Industrial Robot Technology)*, 2015-2016
13. Special Issue Editor, *IEEE Computer Graphics & Application (Special Issue on Virtual Reality)*, 2015
14. Associate Editor, *Journal of Applicable Algebra* (AAECC), 2003-2018

15. Associate Editor, *ACM Transactions on Graphics*, 2008-2017
16. Associate Editor, *International Journal of High-Performance Computing & Applications*, 2009-2016
17. Associate Editor, *Graphical Models and Image Processing*, 1999-2019
18. Associate Editor, *IEEE Transactions on Visualization and Computer Graphics*, 1999-2003
19. Guest Co-Editor, *International Journal of Robotics Research*, special issue on “*Motion Planning for Physical Robots*”, 2012-2013.
20. Guest Co-Editor, *International Journal on Computational Geometry and Applications*, two special issues on Applied Computational Geometry, 1998.
21. Guest Co-Editor, *IEEE Computer Graphics and Applications*, special issue on handling large datasets, 2007
22. Co-Editor, *Proceedings of IEEE*, Special issue on Edge Computing, 2007.
23. Guest Co-Editor, *Parallel Computing*, Special issue on “Computing with Accelerators”, 2007.
24. Guest Co-Editor, *Computer-Aided Design*, Special issue on Solid and Physical Modeling, 2007.
25. Guest Co-Editor, *Computer Aided Geometric Design*, Special issue on Solid and Physical Modeling, 2007.
26. Guest Co-Editor, *IEEE Transactions on Automation Science and Engineering*, Special issue on Solid and Physics Modeling, 2007.
27. Guest Co-Editor, *Computer-Aided Design*, Special issue on Solid and Physical Modeling, 2008.
28. Guest Co-Editor, *Computer Aided Geometric Design*, Special issue on Solid and Physical Modeling, 2008.
29. Guest Co-Editor, *IEEE Transactions on Automation Science and Engineering*, Special issue on Solid and Physics Modeling, 2008.

INVITED TALKS AND DISTINGUISHED LECTURES

1. Keynote Speaker, International Joint Conference on Natural Language Processing, India, 2025
2. Invited Speaker, Microsoft Research, India, 2025
3. Invited Speaker, Reliance/Jio, India, 2025
4. Keynote Speaker, Conference on Computer Vision and Image Processing (CVIP), India, 2025
5. Invited Speaker, Meta Reality Labs, 2025
6. Distinguished Speaker, Lehigh University, 2025
7. Invited Speaker, Universidad Nacional de San Antonio Abad del Cusco (UNSAAC), 2025
8. Distinguished Speaker, Indiana University, 2025
9. Invited Speaker, Purdue University, 2025
10. Invited Research Radar Talk, NVIDIA, 2025
11. Invited Speaker, Department of Computer Science, Indiana University, 2025
12. Keynote Speaker, ACM SIGGRAPH/Eurographics Symposium on Computer Animation, 2025
13. Invited Speaker, Military Robotics & Autonomous Systems Conference, 2025
14. Invited Speaker, Workshop on Resilient Off-road Autonomous Robotics (RSS-ROAR), 2025
15. Speaker, Workshop on Robotics for Asset Inspection and Management, ICRA 2025
16. Invited Speaker, Amazon Audio Tech Talk, 2025
17. ICASSP Workshop on Crossroads of Machine Learning and Signal Processing, 2025
18. Invited Speaker, University of Michigan, Robotics Seminar Series, 2025
19. Invited Speaker, General Motors Tech Center, 2025
20. Keynote Speaker, International Conference on Data Science and Management of Data (CODS-COMAD), India, 2024
21. Invited Speaker, Adobe Document Cloud Mini Summit, 2024
22. Distinguished Lecture Speaker, University of Virginia, Charlottesville, 2024
23. Invited Speaker, Texas A & M University, College Station, 2024

24. IEEE Signal Processing Society: SPS SA-TWG Webinar, 2024
25. Invited Speaker, IEEE IV 2024 Workshop on Offroad Autonomy, 2024
26. Keynote Speaker, Global AI Summit, New Delhi, India, 2024
27. Keynote Speaker, Workshop on Multimodal Representation and Retrieval (SIGIR), 2024
28. Invited Speaker, 2nd workshop on Multi-Agent Dynamic Games, ICRA, 2024
29. Distinguished Lecture Speaker, Cadence, 2023.
30. Distinguished Speaker, Cray Colloquium Series, University of Minnesota, 2023
31. Invited Speaker, AI Summit, Arlington, Virginia, 2023
32. Invited Speaker Keynote Speaker, Advances in Robotics Conference, Ropar, India, 2023
33. Keynote Speaker, International Conference on Haptics and Virtual Reality (ICHVR), 2023
34. Invited Speaker, Workshop on Generalizable Manipulation Policy Learning, RSS, 2023
35. Invited Speaker, Institute for Assured Autonomy, Johns Hopkins, 2023
36. Keynote Speaker, Human Robot Interactions Workshop, 2022
37. Invited Speaker, AV4D, ECCV Workshop on Visual Learning of Sounds in Spaces, 2022
38. Invited Speaker, ICRA Workshop on Future of Construction, 2022
39. Invited Speaker, USPTO Tech Fair (PETTP), 2022
40. Invited Speaker, ByteDance Intelligent Creation Lecture Series, 2022
41. Invited Speaker, I-Hub Foundation for Cobotics and IIT Delhi, 2022
42. Distinguished Lecture Series, Peking University, Jan 2022
43. Distinguished Lecture Series, Shanghai Tech University, Dec 2021
44. Invited Speaker, IROS Workshop on Perception and Navigation for Autonomous Robotics in Unstructured and Dynamic Environments, 2021
45. Keynote Speaker, JHU APL AI Workshop, 2021
46. Distinguished Lecture Speaker, Texas Instruments, 2021
47. Invited Speaker, ICRA Workshop on Representing and Manipulating Deforming Objects, 2021
48. Keynote Speaker, Workshop on 3D Content Creation for Simulated Training in Extended Reality, IEEE VR, 2021
49. Keynote Speaker, Sustainable Computing and Intelligent Systems Conference, India, 2021
50. Invited Speaker, Amazon Echo Summit, December 2020
51. Invited Speaker, Auto Electronics Technology E-Workshop, 2020
52. Invited Speaker, Workshop on Synthetic Data in AI/ML, Stanford, 2020
53. Keynote Speaker, Open Data Science Conference (ODSC), San Francisco, 2019
54. Invited Speaker, Workshop on Autonomous Driving, IROS, Macau, 2019
55. Plenary Speaker, IEEE ROMAN (Robot & Human Interactive Communication), New Delhi, India, 2019
56. Keynote Speaker, ICCSE, International Conference on Computer Science and Education, 2019, Toronto
57. Keynote Speaker, Baidu Create AI Event, July 2019, Beijing
58. Invited Speaker, Annual ShanghaiTech Symposium on Information Science & Technology (ASSIST), 2019
59. Invited Speaker, Workshop on Autonomous Driving, CVPR, 2019
60. Invited Speaker, ICRA Workshop on Long-Term Human Motion Prediction, 2019
61. Plenary Speaker, Times Higher Education Asia Universities Summit, Abu Dhabi, 2019
62. Distinguished Lecture Series Speaker, University of Pennsylvania, December 2018
63. Invited Speaker, Johns Hopkins University, November 2018
64. Invited Speaker, George Washington University, October 2018
65. Invited Speaker, SIGGRAPH Workshop on Autonomous Driving, August 2018
66. Invited Speaker, Postgraduate International Summer School, Zhengzhou University, July 2018
67. Keynote Speaker, Apolloscape Faculty Summit, Beijing, April 2018
68. Keynote Speaker, Fourth Workshop on Smart Robotics, Shanghai, April 2018
69. COE Distinguished Lecture Series Speaker, Nanyang Technological University, Singapore, Feb 2018

70. Invited GIAN (Global Initiative of Academic Networks) Course Speaker, IIT Delhi, Jan 2018
71. Invited Speaker, KAUST-NSF Conference on Environment Modeling, KAUST, S. Arabia, 2017
72. Keynote Speaker, ICVRV, International Conference on Virtual Reality and Visualization, China, 2017
73. ACM Keynote Speaker, China National Computer Congress (CNCC), China, 2017
74. Invited Speaker, World Robotics Conference, Beijing, China, 2017
75. Invited Speaker, Workshop on Pedestrian Dynamics: Modeling, Validation and Calibration, Providence, 2017
76. Invited Speaker, Workshop on Bridges to 3D, CVPR, Honolulu, 2017
77. Keynote Speaker, Workshop on Smart Robotics, CVM, Tianjin 2017
78. Keynote Speaker, SIGGRAPH Asia Workshop on Virtual Reality Meets Physical Reality: Modeling and Simulating Virtual Humans and Environments, Macau, 2016
79. Invited Speaker, SAE Augmented and Virtual Reality (AR/VR) Technologies Symposium, 2016
80. Keynote Speaker, 8th Workshop on Planning, Perception and Navigation for Intelligent Vehicles, IEEE Intelligent Transportation Conference, Brazil, 2016
81. Invited Speaker, ISAT Symbiotic Architectures for Social Simulation Workshop, USC, 2016
82. Invited Speaker, China Academy of Engineering International Forum on Disruptive Innovation in Information Technology, China, 2016
83. Invited Speaker, World Robotics Conference, Beijing, China, 2016
84. Invited Speaker, International Robotics Alliance Conference, Foshan, China, 2016
85. Invited Speaker, SAE AR/VR Symposium, Philadelphia, 2016
86. Keynote Speaker, Geometric Design Conference (GDC), Hefei, China, 2016
87. Invited Speaker, Workshop on Automation for Warehouse Logistics, CASE, 2016
88. Invited Speaker, Symposium on Immersion and Experience, Society for Arts and Technology, 2016
89. Distinguished Lecturer, IEEE International Symposium on Multimedia, 2015
90. Distinguished Lecture Speaker, Department of Computer Science, UC San Diego, December 2015
91. Invited Speaker, World Robotics Conference, Beijing, China, November 2015
92. Capstone Speaker, Workshop on Active Liquids, Leiden, September 2015
93. Invited Speaker, IROS Workshop, Task Planning for Intelligent Robot in Service/Manufacturing, 2015
94. Invited Speaker, International Conference on Real-time Computing and Robotics, China, June 2015.
95. Invited Speaker, Innovation in Transportation and Crowd Management Forum, S. Arabia, March 2015
96. Invited Speaker, Workshop on Computer Graphics, SIAT, Shenzhen, China, December 2014
97. Keynote Speaker, ACM SIGSPATIAL Conference, November 2014
98. Invited Speaker, Samsung Developers Conference, November 2014
99. Distinguished Lecture Speaker, Korea University, Seoul, October 2014
100. Distinguished Lecture Speaker, KUKA, Germany, July 2014
101. Invited Speaker, Google Research, California, June 2014
102. Invited Speaker, Disney Research, Los Angeles, May 2014
103. Invited Speaker, NASA Langley, May 2014
104. Invited Speaker, School of Informatics, University of Edinburgh, March 2014
105. Distinguished Lecture Speaker, Apple, California, December 2013
106. Keynote Speaker, VRIPhysics Conference, France, November 2013
107. Invited Speaker, Workshop on Wave-Based Acoustics, Aachen, Germany, November 2013
108. Invited Speaker, Workshop on "Motion Planning for Industrial Manipulators", IREX, Tokyo, November 2013
109. Invited Speaker, IROS Workshop on Humanoids, Tokyo, November 2013
110. Distinguished Lecture Series Speaker, Department of Computer Science, University of Kentucky, October 2013
111. Keynote Speaker, International Conference on Contemporary Computing, India, August 2013
112. Robotics Institute Seminar, Carnegie Mellon University, February 2013

113. Boeing Distinguished Researcher & Scholar Seminar, June 2012
114. Lindbergh Seminar speaker, University of Wisconsin, May 2012
115. Distinguished Lecture, AMD, March 2012
116. Distinguished Lecture, Tata's Computational Research Lab, December 2011
117. Distinguished Lecture, NVIDIA India, December 2011
118. University of Maryland Engineering Robotics Seminar Series, College Park, May 2011
119. Distinguished Lecture Series, Texas A & M University, April 2011
120. Distinguished Lecture Series, Lawrence Livermore National Labs, February 2011
121. Invited Speaker, Workshop on Hybrid Multi-Core Computing, Goa, India, December 2010
122. Keynote Speaker, ACM VRST Conference, Hong Kong, November 2010
123. Invited speaker, Workshop on "Motion Planning: From Theory to Practice", RSS, June 2010
124. Invited speaker, Workshop on "Search and Pursuit/Evasion", ICRA, May 2010
125. Invited speaker, Workshop on City Modeling, Shenzhen Institute of Advanced Technology, April, 2010
126. Distinguished Lecture Series Speaker, UNC Charlotte, February 2010
127. Distinguished Lecture Series Speaker, Columbia University, February 2010
128. IBM Series on Smart Planet, TJ Watson Research Center, February 2010
129. Invited speaker, Motion in Games, Zeist, Netherlands, 2009
130. Keynote speaker, IEEE International conference on Computer-Aided Design and Computer Graphics, 2009
131. Keynote speaker, Computer Animation and Social Agents (CASA), Seoul, Korea, 2008
132. Invited speaker, Workshop on Geometric Modeling, SUNY, Stony Brook, NY, 2008
133. Invited speaker, Workshop on programming massively parallel processors, NCSA, UIUC, 2008
134. Invited speaker, Workshop on Motion in Games (MiG), Utrecht, Holland, 2008
135. Keynote speaker, TCS Workshop on Virtual Reality, New Delhi, India, 2008
136. Keynote speaker, IAPR International Conf. on Discrete Geometry for Computer Imagery, 2008
137. Invited speaker, DARPA workshop on Virtual Cityscapes, Reno, 2008
138. Invited speaker, Workshop on Algorithmic Motion Planning, IROS, 2007
139. Invited speaker, Workshop on Geometric Processing, Tsinghua University, June 2007
140. Invited Speaker, Workshop on Many-Core Computing, Microsoft Research, 2007
141. Invited speaker, Workshop on Non-Linear Computational Geometry, IMA, May 2007
142. Invited Speaker, Swarms Workshop, Univ. of Pennsylvania, May 2007
143. Invited speaker, DARPA workshop on Constructive Simulation, San Diego, January 2007
144. Invited speaker, DARPA Workshop on Future Directions for High Performance Embedded Processing, Orlando, December 2006
145. Invited Speaker, GPGPU Workshop, ACM/IEEE SuperComputing 2006
146. Invited Workshop Speaker, Oak Ridge National Labs, September 2006
147. Invited Panel Speaker, NSF DMII PI Meeting, July 2006
148. Invited Speaker, Aiya Napa Workshop on Modeling and Rendering, June 2006
149. Keynote Speaker, Pacific Graphics, October 2005
150. First International Workshop on Data Management on New Hardware, Baltimore, MD, June 2005
151. Motion Planning Workshop, Toulouse, France, January 2005
152. Workshop on Modeling & Simulation: The Next Decade, Las Cruces, NM, December 2004
153. Inter-service/Industry, Training Simulation Conference (I/ITSEC), Orlando, FL, December 2004
154. Dist. Lecture Series Speaker, Arizona State University, November 2004
155. Keynote Speaker, Graphics Interface Conference, London, Ontario, May 2004
156. DIMACS Workshop on Computer-Aided Design and Manufacturing, Rutgers, NJ, October 2003
157. Dagstuhl workshop on hierarchical methods, Germany, June 2003
158. Workshop on Geometric Modeling and Animation, FoCM, Minneapolis, August 2002
159. Mini-Symposium on Computational Geometry, Curves and Surfaces Conference, St. Malo, June 2002

160. Mini-Symposium on Robustness, SIAM Conference on Geometric Design, Sacramento, CA, 2001
161. Workshop on Uncertainty in Geometric Computation, The University of Sheffield, July 2001
162. Workshop on Surgical Simulation, Stanford, CA, June 2001
163. NRL Workshop on Augmented Reality, Washington, DC, December 2000
164. AMS Symbolic Computation: Solving Equations in Algebra, Geometry, and Engineering, Mount Holyoke College, MA, 2000
165. Workshop on Key Research Issues and Opportunities in Motion Planning, LAAS Toulouse, France, 2000
166. Workshop on Image Synthesis and Interactive 3D Graphics, Dagstuhl, Germany, 2000
167. Workshop on Motion Support in Virtual Prototyping, Stanford, CA, May 1999
168. Mini-Symposium on Applications of Computer Algebra in Industry, SIAM Annual Meeting, Atlanta, GA, 1999
169. NSF/DOE Workshop on Large Scale Visualization and Data Management, Salt Lake City, Utah, May 1999
170. Eighth IMA Conference on Mathematics of Surfaces, University of Birmingham, England, 1998
171. Workshop on Hierarchical Methods in Computer Graphics, Dagstuhl, Germany, 1998
172. ACM Siggraph Course on Interactive Walkthroughs, Los Angeles, CA, 1997
173. Geometry Software Workshop, Nice, France, June 1997
174. ACM Symposium on Computational Geometry, Nice, France, 1997
175. American Mathematical Society Course on Computational Algebraic Geometry, San Diego, CA, 1997
176. 1st CGC Workshop on Computational Geometry, Johns Hopkins University, MD, October 1996
177. 2nd Workshop on Algorithmic Foundations of Robotics, Toulouse, France, July 1996
178. Graphicon'96: The 6th International Conference & Exhibition on Computer Graphics and Visualization, St. Petersburg, Russia, July 1996
179. Workshop on Software & Mathematical Visualization, Princeton, NJ, June 1996
180. East Coast Computer Algebra Day, IBM TJ Watson Research Center, April 1996
181. Workshop on Algebra for Solving Real Polynomials, Park City, UT, July 1995
182. Geometry Software Workshop, Geometry Center, University of Minnesota, January 1995
183. Invited Mini-Symposium Speaker, SIAM Conference on Geometric Design, Tempe, AZ, 1993
184. SPIE Conference on Curves and Surfaces for Computer Graphics, Boston, MA, 1992
185. Invited Mini-Symposium Speaker, SIAM Conference on Geometric Design, Tempe, AZ, 1991,

PROGRAM COMMITTEES AND AREA CHAIR

1. Area Chair, AAAI 2023, AAAI 2024
2. SPIE Conference on Defense + Commercial Sensing 2024
3. International Symposium on Robotics Research (ISRR), 2022
4. IEEE Automatic Speech Recognition and Understanding Workshop 2021
5. Area Chair, AAAI 2020, 2021
6. Area Chair, CVPR 2021
7. International Symposium on Robotics Research (ISRR), 2019
8. IEEE ICRA 2017, 2018
9. ACM Solid and Physical Modeling, 2017
10. Workshop on Robot Learning and Planning, RSS, 2016
11. High Performance Graphics, 2009-2017
12. ECCV workshop on Computer Vision for Audio-Visual Media (CVAVM), 2016
13. Workshop on Algorithmic Foundations of Robotics (WAFR) 2016
14. ACM SIGGRAPH Asia 2013-2014
15. ACM/Eurographics Symposium on Geometric Processing, 2011-2017

16. ACM Solid and Physical Modeling, 2011-16
17. Computer Animation and Social Agents, 2014-2016
18. ACM SIGGRAPH/Eurographics Symposium on Computer Animation, 2003-2010, 2012-2013, 2015-2017
19. International Symposium on Biomedical Simulation, 2014
20. ACM Symposium on Interactive 3D Graphics and Games, 2007-2017
21. Robotics: Science and System, 2014 (Area Chair)
22. IEEE Conference on Robotics and Automation, 2014, 2017
23. Eurographics, 2012-15
24. IEEE VR 2013
25. ACM Symposium on Computational Geometry, 2012
26. Motion in Games, 2011-2015
27. ACM SIGSPATIAL GIS, 2011-12
28. Shape Modeling, 2011-12
29. Pacific Graphics, 2011-12
30. Geometric Modeling and Processing, 2010
31. Workshop on Language, Compiler, and Architecture Support for GPGPU, 2010
32. Robotics: Science and Systems, 2009-12
33. Workshop on Exploiting Parallelism using Hardware-Assisted Methods, 2009
34. ACM Solid and Physical Modeling, 2003-2006, 2009-2011
35. EAA Auralization Symposium, 2009
36. ACM SIGGRAPH, 2007-2008
37. ACM SIGGRAPH Asia, 2008-09
38. Shape Modeling, 2009
39. IEEE Conference on Interactive Ray Tracing, 2006-2008
40. 3D Data Processing, Visualization and Transmission 2006-2008
41. Robotics: Science and System: 2006-2008
42. ACM SIGGRAPH/Eurographics Workshop on Graphics Hardware, 2004-20010
43. Computer Animation and Social Agents, 2003-20011
44. ACM/Eurographics Symposium on Geometry Processing, 2003-20013
45. Computer Graphics International, 1998-2005
46. Eurographics, 2002-2004
47. Pacific Graphics, 2004-2010
48. International Symposium on 3D Data Processing, Visualization and Transmission, 2004-2008
49. X Mathematics of Surfaces Conference, England, 2003
50. IEEE Visualization, 2001-2002, 2008-2010
51. IEEE VR Conference, 2000-2002
52. Computer Animation, 2001-2002
53. ACM SIGGRAPH, 2000
54. Indian Conference on Computer Vision, Graphics and Image Processing, 2000
55. Workshop on Algorithmic Foundations of Robotics, 2000
56. ACM Symposium on Solid Modeling, Ann Arbor, MI, 1997-2001
57. International Association of Science and Technology for Development (IASTED), Computer Graphics and Imaging, Canada, 1999
58. IEEE VRAIS'98 Conference, Atlanta, GA, 1998
59. 3rd ASME Design for Manufacturing Conference, Atlanta, GA 1998
60. ACM Symposium on Computational Geometry, Minneapolis, MN, 1998
61. International Association of Science and Technology for Development (IASTED), Computer Graphics and Imaging, Canada, 1998

62. Constructive Solid Geometry'98, Winchester, England, 1998
63. IEEE VRAIS'97 Conference, Albuquerque, NM, 1997
64. ACM Symposium on Computational Geometry, Nice, France, 1997
65. Workshop on Collaborative CA CAD, Atlanta, GA 1997
66. VRST'96 Conference, Hong Kong, 1996
67. IEEE VRAIS'96 Conference, San Francisco
68. Constructive Solid Geometry (CSG)'96 Conference, Winchester, England, 1996
69. 2nd IEEE Computer Society Workshop on Shape and Pattern Matching in Computational Biology, Boston, MA, 1995

ENTERPRENEURSHIP AND CONSULTING

- Co-founder of a startup from our research group
 - *Impulsonic Inc*: develops sound simulation technologies for gaming, VR and engineering design. Founded in March 2011; Acquired by Valve in January 2017.
 - *Inception Robotics*: spinoff company from my research group developing socially-compliant robot navigation technology. Awarded MII Innovation Grant, NSF and ARO SBIR Grants.
- Served as a consultant for major organizations including Intel, Microsoft, Samsung, Google, MSC Software, Altair, Disney, Battelle Labs, TC² Consortium, Institute for Infocomm Research (Singapore), Zhejiang University (China).

PATENTS

1. Anish Chandak, Lakulish Antani, Micah Taylor, and Dinesh Manocha, "*Methods, Systems and Computer Readable Media for Fast Geometric Sound Propagation Using Visibility Computations*", Issued 09/30/2014. Patent Number 8,847,965.
2. Lakulish Antani, Anish Chandak, Micah Taylor, and Dinesh Manocha, "*Methods and Systems for Direct-to-Indirect Acoustic Radiance Transfer*", Issued 03/31/2015. Patent Number 8,995,675.
3. Lakulish Antani, Dinesh Manocha, "*Aural Proxies and Directionally-Varying Reverberation for Interactive Sound Propagation in Virtual Environments*", issued 07/19/2016. Patent Number 9,398,393.
4. Ravish Mehra, Lakulish Antani, Dinesh Manocha, "*Methods, Systems, and Computer Readable Media for Source and Listener Directivity for interactive wave-based sound propagation*", Issued 01/31/2017. Patent Number 9,560,439.
5. Ravish Mehra, Dinesh Manocha, "*Methods, Systems, and Computer Readable Media for Simulating Sound Propagation in Large Scenes Using Equivalent Sources*," Issued, 07/19/2017, Patent Number 9,711,126.
6. Nicolas Morales, Dinesh Manocha, Ravish Mehra, "*Methods, Systems, and Computer Readable Media for Utilizing Parallel Adaptive Rectangular Decomposition (ARD) to Perform Acoustic Simulations* ", Issued 11/21/2017. Patent Number 9,824,166

7. A Meshram, D. Manocha, R. Mehra, E. Dunn, J. Frahm, H. Yang, "*Methods, Systems, and Computer Readable Media for Utilizing Adaptive Rectangular Decomposition (ARD) to Generate Head-Related Transfer Functions*", Issued 28/02/2018. Patent Number 9,906,884
8. Carl Schissler, Dinesh Manocha, "*Methods, Systems, and Computer Readable Media for Utilizing Ray-Parameterized Reverberation Filters*", Issued 04/10/2018, Patent Number 9,940,922
9. Carl Schissler, Dinesh Manocha, "*Methods, Systems, and Computer Readable Media for Conducting Interactive Sound Propagation and Rendering for A Plurality of Sound Sources in a Virtual Environment Scene*", Issued 5/22/2018, Patent Number 9,977,644
10. Carl Schissler, Dinesh Manocha, Ravish Mehra, "*Methods, Systems, and Computer Readable Media for Modeling Interactive Diffuse Reflections and Higher-Order Diffraction in Virtual Environment*", Issued, 06/09/2020, Patent Number 10,679,407
11. Carl Schissler, Dinesh Manocha, "*Methods, Systems, and Computer Readable Media for Acoustic Classification Optimization for Multi-Modal Rendering of Real-World Scenes*", Issued 04/02/2019, Patent Number 10,248,744
12. T. Mittal, U. Bhattacharya, R. Chandra, A. Bera, D. Manocha, "*System and Method for Multimodal Emotion Recognition*", Issued 11/28/2023, US 11,830,291.
13. T. Mittal, U. Bhattacharya, R. Chandra, A. Bera, D. Manocha, "*System and Method for Detecting Fabricated Videos*", Issued 06/03/2025 US 12322175B2.
14. T. Mittal, P. Guhan, U. Bhattacharya, R. Chandra, A. Bera, D. Manocha, "*Human Emotion Recognition in Images or Video*", Issued 01/02/2024 US 11,861,940 B2.
15. Z. Tang and D. Manocha, "*Scene-Aware Far-Field Automatic Speech Recognition*", US 2021/0390288A1, filed on 04/16/2021, pending.
16. A. Banerjee, A. Bera, U. Bhattacharya, P. Guhan, N. Rewkowski, D. Manocha, "*Transformer-Based Networks for Generating Emotive Gestures for Virtual Entities*", US 2023/0135769, filed on 10/31/2022, pending.
17. P. Mathur, V. Morarju, V. Kaynig-Fittkay, J. Gu, F. Deroncourt, Q. Tran, A. Nenkova, D. Manocha, R. Jain "*Generating Temporal Dependency Graphs*", US 2025001383. Filed on 07/07/2023, pending.
18. Puneet Mathur, Franck Deroncourt, Quan Hung Tran, Jiuxiang Gu, Ani Nenkova, Vlad Ion Morariu, Rajiv Bhawanji Jain, Dinesh Manocha, "*Position-Based Text-to-Speech Model*", US 18/528,116, Filed on 04/12/2023, pending.
19. Utsav Patel, A. Kathpal, A. Satyamoorthy, U. Joshi, and D. Manocha, "*AI-based System for Autonomous Navigation of Robotic Devices in Dynamic Human-Centric Environments and Method Thereof*", US 20250224727A1, Filed on 01/03/2025, pending.

CONTRACTS AND GRANTS (Total Funding as PI: \$33.4M; Co-PI \$45.2M)

Current Support

1. 2025-2027: "DataDriver: Enhanced Human Agent Teaming using Aerial-Ground Systems", U.S. Army Contracting Command, Army Research Lab, \$1.5M, 2024-2026.
2. 2025-2026: "Audio Processing using LLMs", NVIDIA, \$60K (direct costs), 2025-2026, PI.

3. 2023-2024: "Robot Navigation using Large Language Models", \$30K, Google Faculty Research Award, PI.
4. 2023-2026, "Dolby Innovation Labs", \$1.25 M (direct costs), PI.
5. 2023-2026: "Hardware-Algorithm Codesign for on-chip learning at the edge", \$315K, SRC, Co-PI.
6. 2023- 2024: "DeCentralized Simulation of Large UAS System using Multi-Agent Reinforcement Learning", \$160K, NAWCAD, PI.
7. 2023-2026: "RoboScout DTC: Emergency Response for Automated Intelligent Assessment of Mass Casualty Incidents", DARPA, \$2,25M, Co-PI.
8. 2026-2027: "Audio Intellicence", Amazon Research Award, PI, \$100K (direct costs).
9. 2023-2026: "Research in AI, Audio and Document Processing", Adobe Research, PI, \$220K (direct costs).
10. 2026-2027: "Research in Speech Processing", Sesame, PI, \$75K (direct costs).

Past Support

1. 2023-2024: "Multi-Agent Ground Autonomy Systems", \$449K, Army Research Office, PI.
2. 2023-2024: "Ensuring Fairness via Federated Learning Beyond Consensus", Amazon Research Award (Unrestricted Gift), Co-PI, \$50K.
3. 2022-2024: "Enabling Human-Centric Autonomous Systems", \$258K, Army Research Office, Co-PI.
4. 2022-2023: "Reducing Freezing Behavior for Mobile Robots in Unstructured Home Environments", \$50K, Amazon Lab126 (Unrestricted Gift), PI.
5. 2021-2025: "AI and Autonomy for Multi-Agent Systems", \$30.2M, Army Research Labs Cooperative Agreement, Co-PI (my share \$6.9M).
6. 2018-2023: "Research in computer graphics, audio and VR/AR", Adobe Research, \$780K (direct costs), PI.
7. 2020 – 2023 "Robotics Research and Fellowships", \$400K, Amazon, PI.
8. 2022-2023: "Effective Synthetic Datasets for AI Applications", \$70K, Verisk (Unrestricted Gift), PI.
9. 2019-2023: "Research in Explainable AI," \$750K, NIST, PI.
10. 2021-2022: "CCRI: Planning: Infrastructure for Collaborative Autonomy Testing", \$100K, National Science Foundation, Co-PI.
11. 2021-2022, "Research in Social Media", \$70K, ShareChat (Unrestricted Gift), PI.
12. 2021-2022: "Autonomous Delivery Robot with Learning-Based Dense Crowd Navigation Capabilities", \$115K, Maryland Innovation Initiative, PI.
13. 2021-2022: "Equipment Support for Cloud-based Intelligent VR Systems", \$225K, Army Research Office, Co-PI.
14. 2020-2021: "Developing an Artificial Intelligence Tool to Improve Caregiver Engagement for Rural Child Behavior Health Services", University of Maryland MPower Program, \$90K, Co-PI.
15. 2020 – 2021: "Learning Age and Gender Adaptive Gait Motor Control based Emotion using Deep Neural Networks and Affective Modeling", Brain and Behavior Initiative, \$80K, University of Maryland, Co-PI.
16. 2021-2022: "I-Corps: Learning-based Navigation Technology-enabled Service Robots for the Retail Industry", \$50K, National Science Foundation, PI.
17. 2019-2022: "Automatic Technologies for Perception and Navigation in Urban Scenarios", \$312K, SRC (Semiconductor Research Corporation), PI.
18. 2019-2022: "Efficient Computational Models for Simulating Large-Scale Heterogeneous Crowds", Army Research Office, \$450K, Co-PI.
19. 2020 – 2021: "CPR-COVID-19 Prevention Robot in Dense Areas", \$120K, National Science Foundation, PI.

20. 2018-2020: "Interactive Audio Simulation for AR/VR", Facebook Reality Lab, \$150K (direct costs), PI.
21. 2019-2021: "Equipment Support for Multi-Human Multi-Robot Interactions", Army Research Office, \$212,218, PI.
22. 2019 – 2021: "Real-time Architecture for Emotion and Behavior Insights from Real-time Gait-Analysis", \$600K, Office of the Undersecretary of Defense for Intelligence and Security (OUSDI), PI.
23. 2016-2020: "Training Self-Driving Vehicles using Synthetic Datasets", Intel, \$225,000, PI (direct costs).
24. 2020 – 2021: "Understanding the Commercial Landscape for Insider Threat Detection", \$200K, Office of the Undersecretary of Defense for Intelligence and Security (OUSDI), PI.
25. 2018-2021: "Acoustic Simulation in Real-World Scenes", Army Research Office, \$446K, PI.
26. 2018-2019: "Realtime Light Field Compression & Decompression for Interactive Rendering", Intel/NSF, \$102K (direct costs), PI.
27. 2016-2019: "Development of a Next-Generation Robot Assisted Surgery Simulator", QNRF, \$240,000, PI (direct costs only).
28. 2018-2019: "Research in High-DOF Motion Planning", Intel, \$70K (direct costs), PI.
29. 2018-2019: "Robust Semi-Autonomous Swarm Tactics for Situational Awareness in Uncertain Environments",
30. , \$646K, Co-PI.
31. 2018-2019: "Large Scale Behavior Learning for Dense Crowds", Alibaba Innovation Grants, \$126K, PI.
32. 2018-2019: "Psychoacoustically-Automated Reverberation Zones for Interactive Auralization" Google Research, \$74K (direct costs), PI.
33. 2016-2017: "Research in Physics-based Simulation and Learning", NVIDIA, \$50000, PI.
34. 2015-2019: "CyberManufacturing: A Modular System Design for Rapid Manufacturing of Customized Apparel", National Science Foundation, \$300K, Co-PI.
35. 2016-2018: "Fast and Accurate Hybrid Solver for Helmholtz Wave Equation", Oculus Research, \$180K, PI.
36. 2016-2018: "Efficient Computational Models for Simulating Large-Scale Heterogeneous Crowds", Army Research Office, \$450K, Co-PI.
37. 2015-2017: "Cloud-based Acoustic Simulation Service", National Science Foundation, \$692K, Investigator
38. 2014-2017: "Efficient Numeric and Geometric Computations using Heterogeneous Shared Memory Architectures", Army Research Office, \$450K, PI.
39. 2013-2017: "A New Robot Testbed for Real-Time Motion Strategies and Autonomous Personal Assistants", National Science Foundation, \$340K, PI.
40. 2010-2016: "Research in Crowd Simulation and Sound Rendering for Games", Intel, \$400K, Co-PI (direct costs)
41. 2015-2016: "Real-Time Motion Planning for High DOF robots in Dynamic and Human-like Environments", DARPA, \$200K, PI.
42. 2014-2016: "Realtime Texture Compression", Samsung Research, \$75K (direct costs), PI
43. 2015-2016: "Realtime Texture Encoding for Internet Images", Google Research, \$53K (direct costs), PI
44. 2013-2016: "Research in Crowd Simulation", Boeing, \$300K, PI
45. 2013-2016: "Neurosurgical Simulator", \$525K, Kitware (NIH Award), PI
46. 2011-2015: "Computing Robot Motions for Home Healthcare Assistance", National Science Foundation, \$350K Co-PI.

47. 2011 – 2015: “Interactive Acoustic Simulation in Urban Environments”, Army Research Office, \$850K, PI.
48. 2012-2014, “High-Performance Clusters for Computational Acoustics and Physics-Based Simulation”, Army Research Office, \$145K, Co-PI.
49. 2010-2014: “Interactive Computational Algorithms for Acoustic Simulation in Complex Environments”, ARO, PI, (\$550K)
50. 2013-2014: “Research in Uncertainty Quantification”, Sandia Labs, \$125K, PI
51. 2010-2014: “GPU-based Robot Algorithms”, Willow Garage, \$150K, PI (direct costs)
52. 2009-2014, “Interactive Auditory Displays”, NSF, Co-PI (about \$550K)
53. 2010-2014: “Digital Layout and Assembly of Large CAD Structures”, NSF, PI (about \$450K)
54. 2012-2013, “Research in Crowd Simulation”, Hajj Research Institute, \$150K (direct cost), PI.
55. 2009-2012, “PetaScale Acoustic Simulation”, NSF, PI (about \$850K)
56. 2011-2012: “Interactive Large-Scaled Crowd Simulation”, Boeing/KAUST, \$100K, PI.
57. 2006-2011: “Multiresolution Algorithms for Processing Giga-Models: Real-time Visualization, Reasoning, and Interaction”, Army Research Office, Co-PI, (about \$550K).
58. 2010-2011: “Traffic Simulation for IBM Smart Planet”, \$20K, PI, IBM (direct costs)
59. 2009-2010, “Interactive Sound Rendering for Computer Games”, Microsoft, Co-PI, \$80K (Direct Costs)
60. 2008-2010: “High Performance Many-Core Clusters for Modeling and Simulation”, Army Research Office, Co-PI (about \$150K)
61. 2009-2010: “Interactive Crowd & Traffic Simulation for Urban Training Environments”, Army, RDECOM, PI (about \$500K)
62. 2007-2010: “Research in GPGPU and Many-Core Computing”, Co-PI, Intel, \$225K (Direct Costs) + Equipment support.
63. 2008-2009: “Experiential Technologies for Urban Warfare and Disaster Response”, Army, RDECOM, PI (about \$725K).
64. 2008-2009: “Interactive Ray Tracing”, PI, NVIDIA, \$25K (Direct Costs) + Equipment Support
65. 2005-2009: “Exploiting Cyber-Infrastructure for Creation and Use of Multi-Disciplinary Engineering Models”, NSF, Co-PI, \$1.150M.
66. 2007-2008: “Research in Interactive Collision Detection and Cloth Simulation”, PI, Disney, \$50K (Direct Costs).
67. 2004-2009: “Multiresolution Algorithms for Virtual Prototyping of Massive CAD Models”, NSF, PI (about \$384K).
68. 2006 – 2008: “Research in Edge Computing”, Disruptive Technology Office, PI, \$200K.
69. 2006-2008: “High Performance Clusters for Modeling and Simulation”, Army Research Office, DURIP program, PI, \$82K.
70. 2002-2007: “Handling Complex Datasets: Representation, Interactive Display and Interaction”, Army Research Office, PI (about \$395K).
71. 2006: “Support for EDGE Workshop”, DARPA, DTO, NSF, NVIDIA and ATI, PI, \$65K.
72. 2005-2009: “Computer Generated Force Scalability, Army RDECOM, PI (about \$2.5M).
73. 2003-2007: “Enabling Real-Time Interaction for Moving Avatars in Virtual Environments”, Office of Naval Research, Co-PI (about \$660,000).
74. 2001-2006: “High Fidelity Virtual Touch: Algorithms, Applications and Evaluation”, National Science Foundation, Co-PI (about \$370K).
75. 2004-2006: “Portable Walkthrough and Computer Generated Force Computation”, DOD, PI (about \$80K).

76. 2005-2007: "Missile Plume Simulation Improvements using GPU Chemical Kinetics Coprocessor", \$50K, PI, MDA.
77. 2001-2005: "Real time Physically-Based Modeling and Interaction", Intel, Co-PI (\$225K, direct costs + \$75K equipment).
78. 2005-2006: "Efficient layouts of large datasets", DOE LLNL, PI (about \$30K)
79. 2004-2006: "Interactive OneSAF Computations using COTS Graphics Hardware", DARPA, PI (about \$875K).
80. 2000-2005: "Real Time Interaction in Virtual Environments", Office of Naval Research, Co-PI (about \$645K).
81. 1999-2005: "Research in Walkthroughs and Simulation", Alias/Wavefront, Principal Investigator (\$495K software donation).
82. 1999-2004: "Real-Time Walkthroughs of Serious Synthetic Environments", National Science Foundation, Principal PI (about \$480,000).
83. 2004: "Support for ACM Workshop on General Purpose Computation using Graphics Processors", NVIDIA, ATI, 3D Labs, RDECOM, PEO-STRI & Army Research office. Co-PI, (about \$35K).
84. 1999-2002: "Accurate Boundary Evaluation and Interactive Display of Large Solid Models", Army Research Office, PI (about \$250,000).
85. 1999-2003: "Interactive Display of Complex Datasets", Lawrence Livermore National Labs (DOE ASCI Program), PI (about \$1,250,000).
86. 2001-2003: "Instrumentation for Interactive Display of Complex Datasets", Army Research Office, PI (about \$173K).
87. 2000-2003: "Video Based Representations and Rendering of Large Real and Synthetic Environments", Office of Naval Research, PI (about \$315K).
88. 1998-2001: "Acquisition of a Graphics Supercomputer for Synthetic Environments Serving Science and Engineering", National Science Foundation, Co-Pr (about \$1,460,000).
89. 1997-2000: "Interactive Walkthrough of large CAD models", Office of Naval Research, PI (about \$375,000).
90. 1999-2000: "Support for Research in Collision Detection and Interactive Walkthroughs", Intel, PI (about \$130,000).
91. 1999-2000: "Web based Distance Education Curricula for Computer Graphics and Scientific Computing", UNC Chapel Hill, PI (about \$12,000).
92. 1998-2000: "Instrumentation for Interactive Synthetic Environments, Department of Defense DURIP Award, PI (about \$232,000).
93. 1997-99: "Interactive Computer Graphics", Intel Research Award, PI (about \$290,000).
94. 1997-98: "Virtual Reality Station", Office of Naval Research, PI (about \$160,000).
95. 1997-2000: "Technology for Education 2000 Program", Intel, Co-PI (about \$2,870,000).
96. 1996-2000: "CAREER: Algebraic and Geometric Techniques for Interference Detection in Static and Dynamic Environments", National Science Foundation, PI (about \$200,000).
97. 1996-97: "Interactive Modeling and Interactive Visualization of Complex Datasets", DOD DURIP Proposal, PI (about \$137,000).
98. 1996-99: "Modeling and interactive walkthrough of large CAD models", Army Research Office, PI (about \$246,000).
99. 1995-97: "Sloan Fellowship", (about \$30,000).
100. 1996-98: "Interactive Collision Detection for Virtual Environments", Ford Motor Company, PI (about \$22,500).
101. 1994-98: "Numeric and Symbolic Manipulation of Polynomial Systems", National Science Foundation, PI (about \$200,000).

102. 1996-97: "Supplemental Support for Interactive Model Construction, Display and Collision Detection for Virtual Environments", Office of Naval Research, PI (about \$25,000).
103. 1995-96: "Simulation-Based Design", DARPA Sub-Contract, Monitored by Lockheed Martin, Co-PI (about \$400,000).
104. 1996: "Travel support for ACM Workshop on Applied Computational Geometry", National Science Foundation, PI (about \$8,000).
105. 1995-96: "Model construction and interactive walkthrough of large CAD models", Army Research Office, PI (about \$125,000).
106. 1994-97: "Interactive Model Construction, Display and Collision Detection for Virtual Environments", Office of Naval Research, PI (about \$250,000).
107. 1994: "Modeling with Non-Linear Constraints", University Research Council, UNC Chapel Hill, PI (about \$2000).
108. 1994-95: "Workshop on simulation and interaction in virtual environments", Office of Naval Research, Co-PI (about \$10,000).
109. 1993-96: "Enabling Technologies and Application Demonstrations for Synthetic Environments", Advanced Research Projects Agency, Senior Investigator. Fred Brooks and Henry Fuchs, Principal Investigators (about \$3,300,000).
110. 1993: Junior Faculty Award, UNC Chapel Hill, PI (about \$3000).

PANELS

- NSF Panels on New Technologies, Visualization, Geometric Computing, CPA, Compilers, Graphics, Engineering Design, SBIR.
- NSF CISE Infrastructure Awards.

Courses, Tutorials, Workshops, and Mini-Symposiums

1. *Heterogeneity in Multi-Robot Systems: Theory, Practice and Applications (with N. Karapetyan and P. Tokekar)* 2023, ICRA
2. *Behavior-Driven Autonomous Driving in Unstructured Environments (with R. Chandra, A. Dragan, N. Mehr, D. Anguelov)*, 2022, IROS
3. *Simulation Technologies for Autonomous Driving (with R. Chandra)*, 2022, ACM SIGGRAPH
4. *AutoNUE: Autonomous Navigation in Unconstrained Environments (with M. Chandraker, C. Jawahar, V. Balasubramanian and A. Subramanian)*, 2021, CVPR.
5. *Audio for Mobile AR/VR*, International Congress on Acoustics (ICA), 2019, Aachen, Germany.
6. *Sound Propagation Modeling and Spatial Audio for Virtual Reality (with L. Savioja and P. Svensson)*, Acoustics 2017, Boston.
7. *Spatial Audio and Sound Propagation for VR: New Developments, Implementations, and Integration (with A. Chandak and N. Wakefield)* AES International Conference on Audio for Virtual and Augmented Reality, 2016.
8. *Recent Advances in Real-Time Collision and Proximity Computations for Games and Simulations (with S. Yoon, Y. Kim, E. Coumans and R. Tonge)*, ACM SIGGRAPH 2010
9. *Interactive Sound Rendering (with M. Lin, N. Tsingos, L. Savioja and P. Calamia)* ACM SIGGRAPH 2009
10. *Topologically Robust Computations in Geometric Modeling (with V. Shapiro, H. Edelsbrunner, T. Day and V. Pascucci)* SIAM/ACM Symposium on Solid and Physical Modeling, 2009.

11. *Interactive Massive Model Rendering & Ray Tracing* (with S. Yoon, D. Kasik, E. Gobbetti, R. Pajarola and P. Slusallek), IEEE Visualization 2009
12. *State of the Art in Massive Model Visualization* (with D. Kasik, B. Bruderlin, W. Correa, A. Dietrich, S. Yoon and P. Slusallek) ACM SIGGRAPH 2007, 2008, ACM SIGGRAPH Asia, 2008.
13. *State of the Art in Interactive Ray Tracing* (with P. Shirley, I. Wald, W. Mark and P. Slusallek) ACM SIGGRAPH 2006.
14. *Query Co-Processing on Commodity Processors* (with A. Ailamaki, N. Govindaraju and S. Harizopoulos), VLDB 2006. 1267
15. *Query Co-Processing on Commodity Processors* (with A. Ailamaki, N. Govindaraju and S. Harizopoulos), ICDE 2006.
16. *Realtime Interactive Massive Model Visualization* (with D. Kasik, I. Wald, B. Bruderlin, W. Correa, E. Gobbetti, Al. Hubrecht and P. Slusallek) Eurographics 2006.
17. *Query Co-processing on Commodity Hardware*, Co-organizer (with N. Govindaraju and Anastassia Ailamaki), International Conference on Data Engineering, 2006.
18. *Collision handling in dynamic simulation Environments*, Co-organizer (with M. Trescher), Eurographics, 2005.
19. *Interactive Geometric and Scientific Computations using Graphics Hardware*, Course Organizer, SIGGRAPH, 2003.
20. *Interactive Geometric Computations with Graphics Hardware*, Course Organizer, ACM SIGGRAPH, 2002.
21. *Handling Large Datasets: Interactive Walkthroughs and Proximity Queries*, Co-Organizer with Ming C. Lin, ACM Solid Modeling, 2002.
22. *Interactive Walkthroughs of Large Geometric Datasets*, Course Organizer, ACM Solid Modeling, 2001.
23. *Interactive Walkthroughs of Large Geometric Environments*, Co-Organizer with Daniel Aliaga, ACM SIGGRAPH, 2000.
24. *Interactive Walkthroughs of Large Geometric Datasets*, Course Organizer, ACM SIGGRAPH, 1999.

SELECTED PRESS COVERAGE

1. *MarketPost*, 2025
2. *Amazon Science*, 2024
3. *The Register*, 2024
4. *The TechPanda*, 2023
5. *MIT News*, 2022
6. *TechXplore*, 2022, 2023
7. *Brown Daily Herald*, 2022
8. *WebMD*, 2021
9. *Arts Technica*, 2021
10. *Science Daily*, 2021
11. *Federal News Network*, 2021
12. *International Mining*, 2021
13. *Construction Equipment*, 2021
14. *Global Construction Review (GCR)*, 2021
15. *CBS*, 2020
16. *Wired Magazine*, 2020

17. *Forbes*, 2020
18. *Animation Magazine*, 2020
19. *WebProNews*, 2020
20. *Sonderscheme.com*, 2019
21. *Maeli Business News Korea*, 2019
22. *FastCompany*, 2019
23. *CNN International* 2019
24. *TechExplorer* 2019
25. *The DiamondBack*, 2019
26. *Eastern Fortune News*, 2019
27. *Consumer Affairs*, 2019
28. *Science Daily*, 2019
29. *Asia Times*, 2019
30. *The Week Magazine*, 2019
31. *India West*, 2018
32. *AAAS Newsletter*, 2019
33. *ABC News Channel*, 2017
34. *UNC General Assembly Press*, 2017
35. *Endeavor Magazine*, 2017
36. *NPR*, 2017
37. *UploadVR*, *Tom's Hardware*, *Reddit*, *NeoGAF*, 2017
38. *IEEE Spectrum*, 2016
39. *UNC Global Health*, 2016
40. *Robot.ofweek.com*, 2015
41. *ZDNET.com*, 2015
42. *CNET*, 2015
43. *Boston Globe*, 2015
44. *Triangle Business Journal*, 2014
45. *Boston Globe*, 2014
46. *VRFocus*, 2014
47. *KUKA Employee Magazine*, 2014
48. *News and Observer*, March 2013
49. *Intel Visual Adrenaline*, March 2012
50. *Daily Telegraph*, September 2011
51. *Indian Express*, August 2011
52. *The Hindu*, August 2011
53. *Scientific Computing*, November 2010
54. *EE Times*, November 2010
55. *New Scientist*, July 2010
56. *Telegraph*, UK, July 2010
57. *The Times of India*, July 2010
58. *New Zealand Herald*, July 2010
59. *NSF Press Release*, March 2010
60. *UNC Press Release*, December 2009
61. *ACM Press Release*, December 2009
62. *Boeing News Release*, June 2009
63. *Endeavor Magazine*, *University of North Carolina*, May 2008
64. *Art and Science Magazine*, *College of Arts and Sciences*, *UNC*, April 2008
65. *Bio-IT World*, March 2008

66. *Wired Magazine*, November 2006
67. *New York Times*, November 2006
68. *Daily Tar-Heel*, October 2006
69. *Durham Herald*, October 2006
70. *Slashdot News*, May 2006
71. *DARPA Legacy Press Release*, August 2005
72. *Tom's Hardware Guide*, June 2005
73. *Slashdot News*, June 2005
74. *Interactive Shadow Generation*, Millimeter Magazine, June 2003.
75. *Shadow Generation*, ExtremeTech Magazine, April 2003.
76. *Virtual Dreams*, Silicon India, 2002.
77. *Painting with Feeling*, Computer Graphics World, 2001.
78. *Feeling the Brush*, Endeavor, 2001.
79. *Walkthrough of Big Structures*, Technology Research News, 2001.
80. *Painting Software's Brush with Realism*, NewScientist.com, 2001.
81. *Walkthru Project Renders Real-Time 3D Models for Engineering and Architecture*, NSF Press Release, 2001.
82. *Fast Collision Detection*, Gamasutra, 1999, 2000.

DEPARTMENT COMMITTEES

- Chair, APT (Appointments, Promotion and Tenure) Committee, Department of Computer Science (UMD)
- Faculty Search Committee (UNC, UMD)
- Graduate Admissions (UNC, UMD)
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COURSES TAUGHT

- COMP122: Design and Analysis of Algorithms (UNC)
- COMP136/COMP575: Introduction to Computer Graphics (UNC)
- COMP205: Scientific and Geometric Computation (UNC)
- COMP236/770: Computer Graphics (UNC)
- COMP258: Geometric and Solid Modeling (UNC)
- COMP259/768: Physically-based Modeling (UNC)
- COMP290: Advances in Modeling (UNC)

- COMP290: Rendering Curved Surfaces (UNC)
- COMP290/790: Robot Motion Planning (UNC)
- COMP290/70: General Purpose Computation using Graphics Processors (UNC)
- COMP 781: Robotics (UNC)
- COMP 790: Sound Simulation (UNC)
- CMSC 756/ENEE 756: Robotics (UMD)
- CMSC 498E: Robotics (UMD)
- ENEE 351: Algorithms and Data Structures (UMD)

SOFTWARE SYSTEMS (with more than 300,000 downloads)

1. I-COLLIDE (1995) Collision Detection System: A polyhedral collision detection system developed by J. Cohen, M. Lin, D. Manocha, B. Mirtich, K. Ponamgi and J. Canny. More than 15,000+ users have ftp'ed the code. The underlying technology has been licensed to Mechanical Design Inc., Division Inc., and Knowledge Revolution. Also used by researchers at Ford Motor Company, Intel, GE, White Sands Missile Range, Lockheed Martin, etc.
2. Polygon Triangulation Utility (1995) Developed by A. Narkhede and D. Manocha. More than 5700+ users worldwide have ftp'ed the code.
3. SPEED Rendering System (1996) A rendering system for interactive display of large NURBS models, developed by S. Kumar and D. Manocha
4. RAPID (1996) Interference Detection System: A general purpose polygonal interference detection system developed by S. Gottschalk, M. Lin and D. Manocha. More than 22,000 users have ftp'ed the code. The underlying technology has been licensed to Division Inc. Also used by researchers at ABB Engineering, Intel, Ford, White Sands Missile Range, etc.
5. V-COLLIDE (1997) Collision Detection System: A general purpose collision detection system for general large environments developed by J. Cohen, S. Gottschalk, T. Hudson, A. Pattekar, M. Lin and D. Manocha. More than 18,000 downloads.
6. BOOLE (1997) Solid Modeling System: An accurate solid modeling system for spline models developed by S. Krishnan, D. Manocha, A. Narkhede and J. Keyser. The system was being integrated with BRL-CAD, a public domain solid modeling system with more than 900 users worldwide. Also used by researchers at Air Force Labs.
7. KINEM (1998) Inverse Kinematics Utility: An inverse kinematics utility for general serial manipulators. The system has been used by researchers at Pratt & Whitney, Silma Inc. and Adelph Technologies.
8. MARS (1998) Equation Solver: A zero dimensional equation solver using Matlab and Maple. Developed by A. Wallack, I. Emiriz and D. Manocha.
9. MAPC (1999) Library: A package to represent and manipulate algebraic points and curves. Developed by J. Keyser, T. Culver, D. Manocha and S. Krishnan.
10. PQP (1999) Proximity Query System: A general purpose proximity query system for collision detection, distance computation and tolerance queries. Developed by E. Larsen, S. Gottschalk, M. Lin and D. Manocha. 23,000+ downloads.
11. PIVOT (2001) Proximity queries using graphics hardware. It provides support for different proximity queries. Developed by K. Hoff, A. Zaferakis, M. Lin and D. Manocha. 1800+ downloads.
12. DEEP (2002) A package for collisions and penetration computation between convex primitives. Developed by Y. Kim, M. Lin and D. Manocha. 450+ downloads as of July'06.
13. HAVOC (2003): A GPU-based library to compute distance fields of 3D objects and proximity query applications. 400+ download till.
14. GPUSORT (2005): A GPU-based Sorting algorithm and library. More than 2800 downloads..

15. OpenCCL (2005): A library to compute cache-oblivious layouts of large meshes and graphs. More than 600+ downloads.
16. LUGPULIB (2005): A library to compute LU decomposition of dense matrices using graphics hardware. 1500+ downloads.
17. GPUFFTW (2006): A library to compute 1D FFT using GPUs. 2200+ downloads.
18. DeformCD (2007): A library for collision detection between deformable models, 150+ downloads.
19. RVOLibrary (2008): A library for multi-agent simulation, 6,300+ downloads
20. HVRO Library (2009): A library for independent navigation of robots, 120+ downloads
21. SELFCCD (2010): A self-collision library for deformable models. 160+ downloads
22. FCL (2011): A general purpose collision detection library available as part of ROS
23. MCCD (2012): Multi-core, parallel collision detection library
24. FasTC (2013): Real-time Texture Compression
25. Menge (2014): Real-Time Crowd Simulation Framework
26. GST (2016): GPU-enabled Texture Compression
27. ITOMP (2016): Real-time Optimization-based Planning
28. AutoVi (2017): Autonomous Driving Simulator
29. GPUCloth (2018): Interactive GPU-based Cloth Simulator
30. TrackNPred (2019): Tracking and Prediction for Traffic Datasets
31. Pygsound (2020): Room impulse simulation for geometric sound propagation
32. Behavior-Driven Traffic Simulator (2021): Traffic simulator that incorporates driver behavior
33. IR-GAN (2021): Synthetic room impulse response generator for far-field speech recognition
34. MESH2IR(2022): Mesh-based neural network to generate acoustic impulse responses
35. Meerkat (2024)_ Audio-Visual Language Model
36. GAMA (2024): Large Audio-Language Model with advanced audio understanding
37. Audio-Flamingo 2 (2025): Audio Language Model with Long-Audio Understanding and Expert Reasoning
38. Audio Flamingo 3 (2025): Audio Language Model with Advanced Reasoning across speech, audio and music
39. Music Flamingo (2025): Scaling Music Understanding in Audio Language Models

PUBLICATIONS

Detailed citation information: http://scholar.google.com/citations?user=X08l_4IAAAAJ&hl=en

Books and Monographs

1. *Applied Computational Geometry: Towards Geometric Engineering*, edited by Ming C. Lin and Dinesh Manocha, Springer-Verlag, 1996.
2. *Applications of Computational Algebraic Geometry*, by David Cox, Bernd Sturmfels, Dinesh Manocha, Thomas Sederberg, Xenia Kramer, Rienhard C. Laubenbachs, Rekha Thomas and John Little, American Mathematical Society, 1997.
3. *Proceedings of Pacific Graphics*, edited by Dinesh Manocha, Craig Gotsman and Enhua Wu. Published as special issue of Visual Computer, 2005.
4. *Proceedings of ACM Solid and Physical Modeling*, edited by Dinesh Manocha and Bruno Levy, ACM Press, 2007.

5. *Proceedings of ACM Solid and Physical Modeling*, edited by Bruno Levy, Dinesh Manocha, and Hiromasa Suzuki, ACM Press, 2008.
6. *Edge Computing*, edited by Ming C. Lin and Dinesh Manocha, Special issue of “Proceedings of IEEE”, 2008.
7. *Massive Model Visualization*, Sungeui Yoon, Enrico Gobbetti, David Kasik and Dinesh Manocha. Morgan and Claypool Publishers. 2008.
8. *Modeling, Simulation, and Visual Analysis of Crowds*, edited by Saad Ali, Ko Nishino, Dinesh Manocha and Mubarak Shah, Springer-Verlag, 2013.
9. *Proceedings of 20th ACM Virtual Reality Software and Technology, VRST 2014*, Rynson Lau, Dinesh Manocha, Taku Komura, Aditi Majumder, Weiwei Xu, ACM Press, 2014.
10. *Sound Synthesis, Propagation, and Rendering*, Shiguang Liu and Dinesh Manocha,, Morgan and Claypool Publishers. 2022.
11. *Explainable and Interpretable Reinforcement Learning for Robotics*, Aaron Roth, Ram D. Sriram, Elham Tabassi, and Dinesh Manocha, Springer Nature, 2024.

Refereed Journal Publications

12. C. Shek, A. Bedi, A. Basak, D. Novoseller, N. Waytowich, P. Narayanan, D. Manocha, and P. Tokektar, “Learning Multi-Robot Coordination through Locality-Based Factories Multi-Agent Actor-Critic Algorithm”, *IEEE Robotics and Automation Letters and ICRA*, 2026, 8 pages.
13. S. Audia, D. Manocha, and M. Zwicker, “Accelerated, Memory-Efficient Far-Field Scattering Computation with Monte Carlo SBR”, *IEEE Transactions on Antennas and Propagation*, 2026, 12 pages.
14. J. Liang, Z. Deng, Z. Zhou, M. Sun, O. Ghasemalizadeh, C. Kuo, A. Sen, and D. Manocha, “Cross-Source-Context Indoor RGB-D Place Recognition”, *IEEE Robotics and Automation Letters and IROS*, 2025, 8 pages.
15. D. Song, J. Liang, X. Xiao, and D. Manocha, “VL-TGS: Trajectory Generation and Selection using Vision Language Models in Mapless Outdoor Environments”, *IEEE Robotics and Automation Letters and IROS*, 2025, 8 pages
16. J. Mullen, D. Kumar, X. Qi, R. Madhivanan, A. Sen, D. Manocha, and R. Kin, “ HomeEmergency - Using Audio to Find and Respond to Emergencies in the Home “, *IEEE Robotics and Automation Letters and IROS*, 2025, 8 pages.
17. S. Padi, G. Krishnan, C. Greenberg, B. Ravindran, D. Manocha, and R. Sriram, “LineConGraphs: Line Conversation Graphs for Effective Emotion Recognition using Graph Neural Networks,” *IEEE Transactions on Affective Computing*, 17 pages, 2025.
18. N. Williams, L. Stevens, A. Bera, and D. Manocha, “Sensitivity to Redirected Walking Considering Gaze, Posture, and Luminance”, *IEEE Transactions on Visualization and Computer Graphics (Proc. of IEEE VR)*, 11 pages, 2025.

19. A. Satyamoorthy, K. Weerakoon, M. Elnoor, J. Pusey, and D. Manocha, "Perception and Navigation Algorithms for Legged Robots", *Defense Systems Information Analysis Center (DSIAC)*, Vol. 9, Number 1, 2025.
20. D. Song, J. Liang, A. Payandeh A, Raj, X. Xueso and D. Manocha, "VLM-Social-Nav: Socially Aware Robot Navigation through Scoring using Vision-Language Models", *IEEE Robotics and Automation Letters*, 8 pages, 2024.
21. V. Dorbala, J. Mullen and D. Manocha, "Can an Embodied Agent find your Cat-Shaped Mug? LLM-Based Zero-Shot Object Navigation", *IEEE Robotics and Automation Letters and ICRA*, 8 pages, 2024.
22. Pooja Guhan, Naman Awasthi, Kathryn McDonald, Kristin Bussell, Gloria Reeves, Dinesh Manocha, Aniket Bera, "Developing Machine Learning based Effective and Automated Patient Engagement Estimator for Telehealth: Algorithm Development and Validation Study", *Journal of Medical Internet Research*, 12 pages, 2025.
23. P. Yu, M. Mishra, A., C. Busart, P. Narayan, D. Manocha, A. Bedi, and P. Tokekar, "Beyond Joint Demonstrations: Personalized Expert Guidance for Efficient Multi-Agent Reinforcement Learning", *Transactions on Machine Learning Research*, 2025, 18 pages.
24. M. Elnoor, A. Sathyamoorthy, K. Mudiyaeselage and D. Manocha, "ProNav: Proprioceptive Traversability Estimation for Legged Robot Navigation in Outdoor Environments", *IEEE Robotics and Automation Letters (RA-L)*, 2024, 8 pages.
25. J. Mullen, P. Goyal, R. Piramuthu, M. Johnston, D. Manocha, and R. Ghanadan, "Don't forget to put the milk back, Dataset for Enabling Embodied Agents to Detect Anomalous Situations", *IEEE Robotics and Automation Letters (RA-L)*, 2024, 8 pages.
26. T. Mittal, S. Chowdhury, P. Goohan, S. Chelluri, and D. Manocha, "Towards Determining Perceived Human Intent for Multimodal Social Media Posts using The Theory of Reasoned Action", *Scientific Reports*, 2024, 16 pages.
27. G. Lee, D. Lee, G. Su, and D. Manocha, "May I Speak?: Multi-modal Attention Guidance in Social VR Group Conversations", *IEEE Transactions on Visualization and Computer Graphics (TVCG)*, Presented at *IEEE VR*, 11 pages, 2024.
28. A. Roth, J. Liang, R. Sriram, E. Tabassi, and D. Manocha, "MSVIPER: Improved Policy Distillation for Reinforcement-Learning-Based Robot Navigation", *Journal of the Washington Academy of Sciences*, pp. 27-58, Volume 109, Number 2, 2023.
29. M. Saeedpour-Parizi, N. Williams, T. Wong, D. Manocha, and I. Erkelens, "Perceptual Thresholds to Radial Optic Flow Distortion in Near-Eye Stereoscopic Displays", *IEEE Transactions on Visualization and Computer Graphics (TVCG)*, Presented at *IEEE VR*, 11 pages, 2024
30. X. Hu, Y. Wang, Z. Zou, and D. Manocha, "TSDFFilter: Content-Aware Communication Planning for Remote 3D Reconstruction", *Communications in Information and Systems*, pp. 218-239, Vol, 23, 2023.

31. S. Ghosal, S. Chakraborty, J. Geiping, F. Huang, D. Manocha, and A. Bedi, "Towards Possibilities and Impossibilities of AI-Generated Text Detection: A Survey", *Transactions on Machine Learning Research*, 31 pages, 2024.
32. E. Childs, F. Mohammad, L Stevens, H. Burbelo, A. Awoke, N. Rewkowski, and D. Manocha, "An Overview of Enhancing Distance Learning Through Augmented and Virtual Reality Technologies", *IEEE Transactions on Visualization and Computer Graphics*, 14 pages, 2023.
33. K. Weerakoon, A. Satyamoorthy, U. Patel, J. Liang, T. Guan and D. Manocha, "GrASPE: Graph based Multimodal Fusion for Robot Navigation in Outdoor Environments", *IEEE Robotics and Automation Letters and ICRA*, 8 pages, 2023.
34. Z. Pan, M. Liu, X. Gao, and D. Manocha, "Joint Search of Optimal Topology and Trajectory for Planar Linkages", *International Journal of Robotics Research*, volume 42, pp. 176-195, 2023.
35. J. Mullen and D. Manocha, "PACE: Data-Driven Virtual Agent Interaction in Dense and Cluttered Environments", *IEEE Transactions on Visualization and Computer Graphics (Proceedings of IEEE VR)*, 2023, 12 pages.
36. V. Zinage, S. Arul, D. Manocha, and S. Ghosh, "3D-Online Generalized Sensed Shape Expansion: A Probabilistically Complete Motion Planner in Obstacle-Cluttered Unknown Environments", *IEEE Robotics and Automation Letters and IROS*, 8 pages, 2023.
37. J. Liang, K. Mudiyaşelage, T. Guan, N. Karapetyan, and D. Manocha, "AdaptiveON: Adaptive Outdoor Navigation Method for Stable and Reliable Actions", *IEEE Robotics and Automation Letter and IROS*, 8 pages, 2023.
38. A. Mavrogiannis, R. Chandra, and D. Manocha, "B-GAP: Behavior-Rich Simulation and Navigation for Autonomous Driving", *IEEE Robotics and Automation Letter and IROS*, 8 pages, 2022.
39. C. Cao, Z. An, Z. Ren, D. Manocha, K. Zhou, "A Psychoacoustic Quality Criterion for Path-Traced Sound Propagation", *IEEE Transactions on Visualization and Computer Graphics* 12 pages, 2022.
40. T. Guan, D. Kothandaraman, R. Chandra, A. Satyamoorthy, K. Weerakoon and D. Manocha, "GAN-av: Efficient Terrain Segmentation for Robot Navigation in Unstructured Outdoor Environments", *IEEE Robotics and Automation Letter and IROS*, 8 pages, 2022.
41. Q. Wu, J. Wang, J. Ling, X. Gong, and D. Manocha, "Image-Goal Navigation in Complex Environments via Modular Learning", *IEEE Robotics and Automation Letter and IROS*, 8 pages, 2022.
42. D. Wang, L. Gao, Z. Lan, W. Li, J. Ren, J. Zhang, P. Zhang, P. Zhou, S. Wang, J. Pan, D. Manocha, and R. Yang, "An Intelligent Self-Driving Truck System for Highway Transportation", *Frontiers in Neurorobotics*, 15 pages, 2022.
43. X. Jin, S. Li, G. Wang, and D. Manocha, "NeuralSound: Learning-based Modal Sound Synthesis with Acoustic Transfer", *ACM Trans. On Graphics (Proc. of ACM SIGGRAPH)*, 2022, 15 pages.

44. A. Satyamoorthy, U. Patel, M. Paul, N. Kumar, and D. Manocha, "CoMet: Modeling Group Cohension for Socially Compliant Robot Navigation in Crowded Scenes", *IEEE Robotics and Automation Letter* (Presented at ICRA), 8 pages, 2022.
45. R. Chandra and D. Manocha, "GamePlan: Game-Theoretic Multi-Agent Planning with Human Drivers at Intersections, Roundabouts, and Merging", *IEEE Robotics and Automation Letters* (Presented at ICRA), 8 pages, 2022.
46. C. Li, P. Lv, D. Manocha, H. Wang, Y. Li, B. Zhou, and M. Xu, "ACSEE: Antagonistic Crowd Simulation Model with Emotional Contagion and Evolutionary Game Theory", *IEEE Transactions on Affective Computing*, 16 pages, 2022.
47. X. Chen, M. Tang, C. Li, D. Manocha, R. Tong, "BADF: BVH-Centric Adaptive Distance Field Computation for Deformable Objects on GPUs", *Journal of Computer Science and Technology*, 2022, 11 pages.
48. Y. Li, M. Tang, R. Tong, Y. Yang, and D. Manocha, "N-Cloth: Predicting 3D Cloth Deformation with Mesh-Based Networks", *Computer Graphics Forum (Proc. of Eurographics)*, 12 pages, 2022.
49. Z. Pan, M. Liu, X. Wang, and D. Manocha, "Joint Search of Optimal Topology and Trajectory for Planar Linkages", *International Journal of Robotics Research*, 2022, 18 pages.
50. R. Chandra, A. Bera, and D. Manocha, "Using Graph-Theoretic Machine Learning to Predict Human Driver Behavior", *IEEE Transactions on Intelligent Transportation Systems*, 2022, 14 pages.
51. A. J. Satyamoorthy, U. Patel, M. Paul, Y. Savle, and D. Manocha, "COVID Surveillance Robot: Monitoring Social Distancing Constraints in Indoor Scenarios", *PLOS One*, 2021, 16 pages.
52. N. Williams, A. Bera, and D. Manocha, "Redirected Walking in Static and Dynamic Scenes using Visibility Polygons", *IEEE Transactions on Visualization and Computer Graphics (Proc. of ISMAR)*, 2021, 10 pages.
53. S. Li, S. Liu, and D. Manocha, "Binural Audio Generating via Multi-Task Learning", *ACM Trans. On Graphics (Proc. Of ACM SIGGRAPH Asia)*, 2021, 13 pages.
54. N. Wu, Q. Chao, Y. Chen, W. Xu C. Liu, D. Manocha, W. Sun, X. Yao, and X. Jin, "AgentDress: Realtime Cloth Synthesis for Virtual Agents using Plausible Deformations", *IEEE Transactions on Visualization and Computer Graphics (Proc. of ISMAR)*, 2021, 10 pages.
55. Matthew Marge, Carol Espy-Wilson, Nigel G. Ward, Abeer Alwan, Yoav Artzi, Mohit Bansal, Gil Blankenship, Joyce Chai, Hal Daumé, Debadeepta Dey, Mary Harper, Thomas Howard, Casey Kennington, Ivana Kruijff-Korbayová, Dinesh Manocha, Cynthia Matuszek, Ross Mead, Raymond Mooney, Roger K. Moore, Mari Ostendorf, Heather Pon-Barry, Alexander I. Rudnicky, Matthias Scheutz, Robert St. Amant, Tong Sun, Stefanie Tellex, David Traum, Zhou Yu, "Spoken language interaction with robots: Recommendations for future research", *Computer Speech & Language*, 2021.
56. N. Williams, A. Bera, and D. Manocha, "ARC: Alignment-based Redirection Controller for ReDirected Walking in Complex Environments", *IEEE Transactions on Visualization and Computer Graphics (Proc. of IEEE VR)*, 2021, 12 pages.

57. J. Liang, Y. Qiao, T. Guan, and D. Manocha, "OF-VO: Efficient Navigation among Pedestrians using Commodity Sensors", *IEEE Robotics and Automation Letters (RAL)*, 8 pages, 2021.
58. L. Zhang, J. Zhao, P. Long, L. Wang, L. Qian, F. Lu, X. Song, and D. Manocha, "An Autonomous Excavator System for Material Loading Tasks", *Science Robotics*, 12 pages, 2021.
59. T. Mittal, A. Bera, and D. Manocha, "Multimodal and Context-Aware Emotion Perception Model with Multiplicative Fusion", *IEEE Multimedia* special issue on MMAC: Multi-Modal Affective Computing of Large-Scale Multimedia Data, 2021, 10 pages.
60. S. Arul and D. Manocha, "SwarmCOO: Probabilistic Reactive Collision Avoidance for Quadrotor Swarms under Uncertainty", *IEEE Robotics and Automation Letters (RA-L)*, 8 pages, 2021. Also accepted and presented at ICRA 2021.
61. T. Fan, Z. Chen, X. Zhao, J. Liang, C. Shen, D. Manocha, J. Pan, and W. Zhang, "Autonomous Social Distancing in Urban Environments using a Quadraped Robot", *IEEE Access*, 2021, 9 pages.
62. Q. Wu, K. Xu, J. Wang, M. Xu, X. Gong, and D. Manocha, "Reinforcement Learning-based Visual Navigation with Information-Theoretic Regularization", *IEEE Robotics and Automation Letters*, 8 pages, 2021. Also accepted and presented at ICRA 2021.
63. S. Li, X. Gu, K. Yi, Y. Yang, G. Wang, and D. Manocha, "Self-Illusion: A Study on High-Level Cognition of Role-Playing in Immersive Virtual Environments from Non-Human Perspective", *IEEE Transactions on Visualization and Computer Graphics*, 12 pages, 2022.
64. C. Li, M. Tang, and D. Manocha, "P-Cloth: Interactive Cloth Simulation on Multi-GPU Systems using Dynamic Matrix Assembly and Pipelined Implicit Integrators", *ACM Trans. On Graphics (Proc. Of ACM SIGGRAPH Asia)*, 2020, 13 pages.
65. Q. Wu, X. Gong, K. Xu, D. Manocha, J. Dong, and J. Wang, "Towards Target-Driven Visual Navigation in Indoor Scenes via Generative Imitation Learning", *IEEE Robotics and Automation Letters*, 8 pages, 2021.
66. B. Gopalakrishnan, A. K. Singh, K. Madhav Krishna, and D. Manocha, "Solving Chance Constrained Optimization under Non-Parametric Uncertainty Through Hilbert Space Embedding", *IEEE Transactions on Control System Technology*, 2021, 16 pages.
67. Z. Lin, S. Li, X. Zeng, C. Zhang, J. Jia, G. Wang, and D. Manocha, "CPPM: Chi-Squared Progressive Photon Mapping", *ACM Trans. On Graphics (Proc. Of ACM SIGGRAPH Asia)*, 2020, 13 pages.
68. R. Chandra, T. Guan, S. Panuganti, T. Mittal, U. Bhattacharya, A. Bera, and D. Manocha, "Forecasting Trajectory and Behavior of Road-Agents using Spectral Clustering in Graph-LSTMs", *IEEE Robotics and Automation Letters (also Presented at IROS Conference)*, 8 pages, 2020.
69. M. Xu, C. Li, P. Lv, W. Chen, Z. Deng, B. Zhou, and D. Manocha, "Emotion-Based Crowd Simulation Model Based on Physical Strength Consumption for Emergency Scenarios", *IEEE Transactions on Intelligent Transportation Systems*, 15 pages, 2020.

70. A. Sathiamoorthy, U. Patel, T. Guan and D. Manocha, "Frozone: Freezing-Free, Pedestrian-Friendly Navigation in Human Crowds", *IEEE Robotics and Automation Letters (also Presented at IROS Conference)*, 8 pages, 2020.
71. M. Liu, Z. Pan, K. Xu, and D. Manocha, "New Formulation of Mixed-Integer Conic Programming for Globally Optimal Grasp Planning", *IEEE Robotics and Automation Letters (also Presented at IROS Conference)*, 8 pages, 2020.
72. Z. Hu, S. Li, K. Yi, G. Wang and D. Manocha, "Scene-Aware Audio Rendering via Deep Acoustic Analysis", *IEEE Transactions on Visualization and Computer Graphics*, 11 pages, 2020 (Special Issue on Proceedings of IEEE VR).
73. Z. Tang, N. Bryan, D. Li, T. Langlois and D. Manocha, "Scene-Aware Audio Rendering via Deep Acoustic Analysis", *IEEE Transactions on Visualization and Computer Graphics*, 11 pages, 2020 (Special Issue on Proceedings of IEEE VR).
74. X. Wang, Y. Qiu, S. Slattery, Y. Fang, M. Li, S. Zhu, Y. Zhu, M. Tang, D. Manocha, and C. Jiang, "A Massively Parallel and Scalable Multi-GPU Material Point Method", *ACM Transactions on Graphics (Proceedings of ACM SIGGRAPH)*, 16 pages, 2020.
75. J. Park and D. Manocha, "Efficient Probabilistic Collision Detection for Non-Gaussian Noise Distributions", *IEEE Robotics and Automation Letters*, 2020, 8 pages.
76. Q. Tan, Z. Pan, L. Gao, and D. Manocha, "Realtime Simulation of Thin-Shell Deformable Materials using CNN-Based Mesh Embedding", *IEEE Robotics and Automation Letters (also presented at ICRA Conference)*, 2020, 8 pages.
77. S. Poonganam, B. Gopalakrishnan, V. Avula, A. Singh, M. Krishnan, and D. Manocha, "Reactive Navigation under Non-Parametric Uncertainty through Hilbert Space Embedding of Probabilistic Velocity Obstacles", *IEEE Robotics and Automation Letters (also presented at ICRA Conference)*, 2020, 8 pages.
78. S. Arul and D. Manocha, "DCAD: Decentralized Collision Avoidance with Dynamics Constraints for Agile Quadrotor Swarms", *IEEE Robotics and Automation Letters (also presented at ICRA Conference)*, 2020, 8 pages.
79. T. Randhavane, A. Bera, E. Kubin, K. Gray, and D. Manocha, "Modeling Data-Driven Dominance Traits in Virtual Characters using Gait Analysis", *IEEE Transactions on Visualization and Computer Graphics*, 12 pages, 2019.
80. N. Morales, Z. Tang and D. Manocha, "Receiver Placement for Speech Enhancement using Sound Propagation Optimization", *Applied Acoustics*, 2019, 12 pages.
81. J. Ren, W. Xiang, Y. Xiao, R. Yang, D. Manocha, X. Jin, "Heter-Sim: Heterogeneous Multi-Agent Systems Simulation by Interactive Data-Driven Simulation", *IEEE Transactions on Visualization and Computer Graphics*, 2019, 13 pages.
82. S. Arul, A. Sathiamoorthy, S. Patel, M. Otte, H. Xu, M. Lin, and D. Manocha, "LSwarm: Efficient Collision Avoidance for Large Swarms with Coverage Constraints in Complex Urban Scenes", *IEEE Robotics and Automation Letters (also presented at IROS Conference)*, 2019, 8 pages.

83. Z. Hu, T. Han, P. Sun, J. Pan, and D. Manocha, "3D Deformable Object Manipulation using Deep Neural Networks", *IEEE Robotics and Automation Letters (also presented at IROS Conference)*, 2019, 8 pages.
84. T. Randhavane, A. Bera, K. Kapsaskis, K. Grey, and D. Manocha, "FVA: Modeling Perceived Friendliness of Virtual Agents using Movement Characteristics", *IEEE Transactions on Visualization and Computer Graphics (Proceedings of ISMAR)*, 2019, 11 pages.
85. J. Park, C. Park, and D. Manocha, "I-Planner: Intention-Aware Motion Planning using Learning Based Human Motion Prediction", *International Journal on Robotics Research*, 15 pages, 2019.
86. W. Li, C. Pan, R. Zhang, J. Ren, Y. Ma, J. Fang, F. Yan, Q. Geng, X. Huang, H. Gong, W. Xu, G. Wang, D. Manocha, and R. Yang, "AADS: Augmented Autonomous Driving Simulation using Data-Driven Algorithms", *Science Robotics*, vol. 4(28), March 2019, 10 pages.
87. Z. Hu, C. Zhang, S. Li, G. Wang and D. Manocha, "SGaze: A Data-Driven Eye-Head Coordination Model for Realtime Gaze Prediction", *IEEE Transactions on Visualization and Computer Graphics*, 9 pages, 2019 (Proceedings of IEEE VR).
88. S. Narain, A. Best, and D. Manocha, "Inferring User Intent using Bayesian Theory of Mind in Shared Avatar-Agent Virtual Environments", *IEEE Transactions on Visualization and Computer Graphics*, 11 pages, 2019 (Proceedings of IEEE VR).
89. T. Fan, X. Cheng, J. Pan, P. Long, W. Liu, R. Yang, and D. Manocha, "Getting Robots Unfrozen and Unlost in Dense Pedestrian Crowds", *IEEE Robotics and Automation Letters (also Presented at ICRA '2019)*, 8 pages, 2019.
90. M. Liu, Y. Shi, L. Zheng, K. Xu, H. Huang, and D. Manocha, "Recurrent 3D Attentional Networks for End-to-End Active Object Recognition", *Computational Visual Media*, 14 pages, 2019.
91. Z. Hu, J. Pan, T. Fan, R. Yang and D. Manocha, "Safe Navigation with Human Instructions in Complex Scenes", *IEEE Robotics and Automation Letters (also Presented at ICRA '2019)*, 8 pages, 2019.
92. B. Jia, Z. Pan, Z. Hu, J. Pan, and D. Manocha, "Cloth Manipulation using Random-Forest-based Imitation Learning Framework", *IEEE Robotics and Automation Letters (also Presented at ICRA '2019)*, 8 pages, 2019.
93. M. Tang, T. Wang, Z. Liu, R. Tong, and D. Manocha, "I-Cloth: Incremental Collision Handling for GPU-Based Interactive Cloth Simulation", *ACM Transactions on Graphics (Proc. Of ACM SIGGRAPH Asia)*, 2018, 10 pages.
94. J. Ren, W. Sun, D. Manocha, A. Li, and X. Jin, "Stable Information Transfer Network Facilitates the Emergence of Collective Behavior of Bird Flocks", *Physics Review E*, 8 pages, 2019.
95. E. Cheung, T. Wong, A. Bera, and D. Manocha, "LCrowdV: Generating Labeled Videos for Pedestrian Detectors Training and Crowd Behavior Learning", *NeuroComputing*, 2019, 12 pages.
96. S. Pratapa, T. Olson, A. Chalfin, and D. Manocha, "TexNN: Fast Texture Encoding using Neural Networks", *Computer Graphics Forum*, 10 pages, 2018.

97. H. Tian, C. Wang, D. Manocha, and X. Zhang, "Realtime Hand-Object Interaction with Learned Grasp Space for Virtual Environments", *IEEE Transactions on Visualization and Computer Graphics*, 13 pages, 2018.
98. Y. Luo, P. Cai, A. Bera, D. Hsu, W. Lee, and D. Manocha, "PORCA: Modeling and Planning for Autonomous Driving among Many Pedestrians: Models and Algorithms", *IEEE Robotics and Automation Letters*, 8 pages, 2018.
99. S. Kim, A. Bera, and D. Manocha, "Modeling Trajectory-Level Behaviors using Time Varying Pedestrian Movement", *Collective Dynamics*, 18 pages, 2018.
100. Z. Pan and D. Manocha, "Active Animations of Reduced Deformable Models with Environment Interactions", *ACM Trans on Graphics*, to appear, 2018, 17 pages. Presented at ACM SIGGRAPH Conference, 2018.
101. P. Ma, Y. Tian, Z. Pan, B. Ren, and D. Manocha, "Coupled Fluid/Rigid Control using Deep Reinforcement Learning", *Proc. of ACM SIGGRAPH (ACM Trans. On Graphics)*, 11 pages, 2018.
102. A. Rungta, N. Rewkowski, C. Schissler, R. Mehra, and D. Manocha, "Diffraction Kernels for Interactive Sound Propagation in Dynamic Environments", *IEEE Transactions on Visualization and Computer Graphics (Proceedings of IEEE VR)*, 10 pages, 2018.
103. X. L. Wang, M. Tang, D. Manocha, and R. F. Tong, "Efficient BVH-based Collision Detection Scheme with Ordering and Restructuring", *Computer Graphics Forum (Proc. Of Eurographics)*, 11 pages, 2018.
104. M. Tang and D. Manocha, "PSCC: Parallel Self-Collision Culling with Spatial Hashing on GPUs", *Proceedings of ACM (Special Issue on ACM Symposium on Interactive 3D Graphics)*, 10 pages, 2018.
105. S. Tonneau, A. Prete, J. Pettre, C. Park, D. Manocha, and N. Mansard, "An Efficient Acyclic Contact Planner for Multipled Robots", *IEEE Transactions on Robotics*, 10 pages, 2018.
106. S. Mitchell, M. Ebeida, M. Awad, C. Park, A. Patney, L. Swiler, D. Manocha, A. Rushdi and L. Wei, "Spoke-Darts for High-Dimensional Blue Noise Sampling", *ACM Trans. On Graphics*, 19 pages, 2018, to appear. Presented at ACM SIGGRAPH 2018.
107. C. Park, J. Park, and D. Manocha, "Fast and Bounded Probabilistic Collision Detection for High-DOF Trajectory Planning in Dynamic Environments", *IEEE Transactions on Automation Science and Engineering (TASE)*, 2018, 12 pages.
108. C. Schissler, S. Loftin, and D. Manocha, "Acoustic Classification and Optimization for Multi-Modal Rendering of Real-World Scenes", *IEEE Transactions on Visualization and Computer Graphics*, 14 pages, 2018. (**IEEE TVCG SpotLight Paper for March 2018**).
109. Z. Pan and D. Manocha, "Efficient Optimal Control of Smoke using Spacetime Multigrid", *ACM Trans. On Graphics*, 2017, 13 pages. Presented at ACM SIGGRAPH 2017.

110. T. Randhawane, A. Bera and D. Manocha, "F2FCrowds: Planning Agent Movements to Enable Face-to-Face Interactions", *Presence*, 2017, 12 pages.
111. N. Morales and D. Manocha, "Optimizing Source Placement for Noise Minimization using Hybrid Acoustic Simulation", *Computer Aided Design*, 2017, 14 pages.
112. M. Ye, Y. Zhang, D. Manocha, and R. Yang, "3D Reconstruction in the Presence of Glass and Mirrors by Acoustic and Stereo Fusion", *IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI)* 2017, 15 pages.
113. Z. Pan and D. Manocha, "Editing Smoke Animation using a Deforming Grid", *Computational Visual Media*, 2017, 10 pages.
114. K. Kullu, U. Gudukbay, and D. Manocha, "ACMICS: An Agent Communication Model for Interacting Crowd Simulation", *Autonomous Agents and Multi-Agent Systems*, 19 pages, 2017.
115. A. Rungta, N. Rewkowski, R. Klatzky, M. Lin, and D. Manocha, "Effects of Virtual Acoustics on Dynamic Auditory Distance Perception", *Journal of Acoustic Society of America (JASA) Express Letters*, 6 pages, 2017.
116. S. Narang, A. Best, A. Feng, S. Kang, D. Manocha, and A. Shapiro, "Motion Recognition of Self & Others on Realistic 3D Avatars", *Journal of Computer Animation and Virtual Worlds (CAVW)*, 10 pages, 2017 (Paper presented at CASA).
117. M. Tang, R. Tong, and D. Manocha, "Efficient and Reliable Self-Collision Culling using Unprojected Normal Cones", *Computer Graphics Forum*, 11 pages, 2017.
118. Q. Mo, Y. Yeh, M. Lin, and D. Manocha, "Outdoor Sound Propagation with Analytic Ray Tracer and Gaussian Beam", *Journal of Acoustic Society of America (JASA)*, 14 pages, 2017.
119. S. Narang, A. Best, and D. Manocha, "Interactive Simulation of Local Interactions in Dense Crowds using Elliptical Agents", *Journal of Statistical Mechanics: Theory and Experiment*, 17 pages, 2017.
120. N. Morales, V. Chavda, R. Mehra, and D. Manocha, "MPARD: A High Frequency Wave-Based Acoustic Solver for very Large Compute Clusters", *Applied Acoustics*, 18 pages, 2017.
121. P. Krajcevski and S. Pratapa and D. Manocha, "GST: GPU-decodable Supercompressed Textures", *ACM Trans. On Graphics (Proc. Of SIGGRAPH Asia)*, 10 pages, 2016.
122. C. Park, J. Pan and D. Manocha, "Parallel Motion Planning using Poisson-Disk Sampling" *IEEE Transaction on Robotics*, 13 pages, 2016.
123. A. Bera, S. Kim and D. Manocha, "Interactive Crowd-Behavior Learning for Surveillance and Training", *IEEE Computer Graphics & Application*, Special issue on Defense Applications, 2016, 9 pages
124. C. Cao, Z. Ren, C. Schissler, D. Manocha, and K. Zhou, "Interactive Sound Propagation with Bidirectional Path Tracing", *ACM Trans. On Graphics (Proc. Of SIGGRAPH Asia)*, 11 pages, 2016, 10 pages.

125. C. Schissler and D. Manocha, "Interactive Sound Propagation and Rendering for Large Multi-Source Scenes", *ACM Trans. On Graphics*, 13 pages, 2016.
126. K. Harada, K. Mombaur, T. Matsuno and D. Manocha, "Special Issue on Recent Advancements on Industrial Robot Technology", *Advanced Robotics*, 30(17-18): 1087, 2016.
127. W. Liu, R. Lau, X. Wang, and D. Manocha, "Exemplar-AMMs: Recognizing Crowd Movements from Pedestrian Trajectories", *IEEE Transactions on Multimedia*, 8 pages, 2016.
128. J. Pan and D. Manocha, "Fast Probabilistic Collision Checking for Sample-based Motion Planning using Locality-Sensitive Hashing", *International Journal of Robotics Research*, 19 pages, 2016.
129. A. Rungta, S. Rust, N. Morales, R. Klatzky, M. Lin, and D. Manocha, "Psychoacoustic characterization of Propagation Effects in Virtual Environments", *ACM Transactions on Perception*, 2016, 18 pages.
130. R. Jiapang, X. Wang, X. Jin, and D. Manocha, "Simulating Flying Insects using Dynamics and Data-Driven Noise Modeling to Generate Diverse Collective Behaviors", *PLOS One*, 2016, 31 pages.
131. N. Morales and D. Manocha, "Efficient Wave-based Acoustic Design Optimization", *Computer-Aided Design (Proc. Of Symposium on Solid and Physical Modeling)*, 2016, 12 pages.
132. W. Liu, R. Lau and D. Manocha, "Robust Individual and Holistic Features for Crowd Scene Classification", *Pattern Recognition*, 2016.
133. Q. Mo, H. Yeh, and D. Manocha, "Tracking Analytic Ray Curves for Light and Sound Propagation in Non-linear Media", *IEEE Transactions on Visualization and Computer Graphics*, 14 pages, 2016.
134. P. Krajcevski and D. Manocha, "Compressed Coverage Masks for Path Rendering for Mobile GPUs", *IEEE Transactions on Visualization and Computer Graphics* (Special Issue of Papers from Symposium on Interactive 3D Graphics and Games), 10 pages, 2016.
135. S. Curtis, A. Best, and D. Manocha, "Menge: A Modular Framework for Simulating Crowd Movement", *Collective Dynamics*, 16 pages, 2016.
136. M. Tang, H. Wang, R. Tang, and D. Manocha, "CAMA: Contact-Aware Matrix Assembly with Unified Collision Handling for GPU-based Cloth Simulation", 2016, 10 pages, *Computer Graphics Forum (Proc. of Eurographics)*.
137. P. Krajcevski, A. Golas, K. Ramani, M. Shebanow, and D. Manocha, "Hardware Architecture for Variable Bit-Rate Texture Encoding", 2016, 10 pages, *Computer Graphics Forum (Proc. of Eurographics)*.
138. A. Rungta, C. Schissler, R. Mehra, C. Malloy, M. Lin, and D. Manocha, "Interactive Coupled Sound Synthesis-Propagation for Virtual Environments", *IEEE Transactions on Visualization and Computer Graphics*, 10 pages, 2016, to appear (special issue of IEEE VR). **Received Honorable Best Award at IEEE VR.**
139. L. He, J. Pan, D. Li, and D. Manocha, "Penetration Depth Computation between Rigid Models using Contact Space Propagation Sampling", *IEEE Robotics and Automation Letters*, 8 pages (2016). Presented at IEEE International Conference on Robotics and Automation, 2016.

140. R. Mehra, A. Rungta, A. Golas, M. C. Lin, and D. Manocha, "WAVE: Interactive Wave-based Sound Propagation for Virtual Environments", *IEEE Transactions on Visualization and Computer Graphics* (Proc. of IEEE VR), 9 pages, 2015. Presented at ACM SIGGRAPH 2015.
141. Q. Mo, H. Yeh, M. Lin, and D. Manocha, "Analytic Ray Tracing for Outdoor Sound Propagation", *Applied Acoustics*, 10 pages, 2015.
142. A. Bera and S. Kim and D. Manocha, "Online Parameter Learning for Data-Driven Crowd Simulation and Content Generation", *Computer and Graphics*, 13 pages, 2015 (selected papers from Graphics Interface conference).
143. T. Zhang, S. Li, G. Wang, D. Manocha and H. Sun, "Quadratic Contact Energy Model for Multi-Impact Simulation", *Computer Graphics Forum* (Proc. of Pacific Graphics), 12 pages, 2015.
144. Z. Wang, M. Tang, R. Tong, and D. Manocha, "TightCCD: Efficient and Robust Continuous Collision Detection using Tight Error Bounds", *Computer Graphics Forum* (Proc. of Pacific Graphics), 10 pages, 2015.
145. J. Pan and D. Manocha, "Efficient Configuration Space Construction and Optimization for Motion Planning", *Engineering*, Vol. 1, pp. 46-57, 2015.
146. H. Tian, X. Zhang, C. Wang, J. Pan, and D. Manocha, "Efficient Global Penetration Depth Computation for Articulated Models", *Computer-Aided Design* (Proc. Of GDSPM), 12 pages, 2015.
147. N. Morales, R. Mehra, and D. Manocha, "A Parallel Time-Domain Wave Simulator Based on Rectangular Decomposition for Distributed Memory Architectures", *Applied Acoustics*, 14 pages, 2015.
148. S. Narang, A. Best, S. Curtis, and D. Manocha, "Generating Pedestrian Trajectories Consistent with the Fundamental Diagram based on Physiological and Psychological Factors", *PLOS One*, 18 pages, April 2015, 17 pages.
149. P. Krajcevski and D. Manocha, "Fast PVRTC Texture Compression using Intensity Dilation", *Journal of Computer Graphics Techniques*, Oct. 2014, 13 pages.
150. M. Tang, R. Tong, A. Wang, and D. Manocha, "Fast and Exact Continuous Collision Detection with Bernstein Sign Classification", *ACM Trans. on Graphics (Proc. of SIGGRAPH Asia)*, 8 pages, 2014.
151. J. Nah, J. Kim, J. Park, W. Lee, J. Park, S. Jung, W. Park, D. Manocha, and T. Han, "HART: A Hybrid Architecture for Ray Tracing Animated Scenes", *IEEE Transactions on Visualization and Computer Graphics*, 2014, 14 pages.
152. S. Kim, S. J. Guy, W. Liu, R. Lau, D. Wilkie, M. C. Lin, and D. Manocha, "BRVO: Predicting Pedestrian Trajectories using Velocity-Space Reasoning", *International Journal of Robotics Research*, 2014, 15 pages.
153. W. Liu, A. Chan, R. Lau, and D. Manocha, "Leveraging Long-Term Predictions and Online-Learning in Agent-based Multiple Person Tracking", *IEEE Transactions on Circuits and System for Video Technology*, 12 pages, 2015.

154. C. Schissler, R. Mehra and D. Manocha (2014). High-order Diffraction and Diffuse Reflections for Interactive Sound Propagation in Large Environments. *ACM Trans. On Graphics (Proc. of ACM SIGGRAPH)*, 12 pages.
155. R. Mehra, L. Antani, S. Kim and D. Manocha (2014). Source and Listener Directivity for Interactive Wave-based Sound Propagation. *IEEE Trans. On Visualization and Computer Graphics (Proc. of IEEE VR)*, 9 pages.
156. R. Mehra, N. Raghuvanshi, A. Chandak, D. Albert, K. Wilson, and D. Manocha (2014). Acoustic pulse propagation in an urban environment using a three-dimensional numerical simulation. *Journal of Acoustic Society of America (JASA)*, 14 pages.
157. S. Kim, S.J. Guy, K. Hillesland, A. Gutub, B. Zafar, and D. Manocha (2014). Velocity-Based Modeling of Physical Interactions in Dense Crowds. *The Visual Computer*, 16 pages, June 2014
158. J.H. Nah, H Kwon, D Kim, C. Jeong, J. Park, T. Han, D. Manocha, and W. Park (2014). RayCore: A ray-tracing hardware architecture for mobile devices. *ACM Trans. On Graphics*, 15 pages, 2014. Presented at ACM SIGGRAPH 2014.
159. C. Park, J. Pan, and D. Manocha (2014). High-DOF robots in Dynamic Environments using Incremental Trajectory Optimization, *International Journal of Humanoid Robotics*, 22 pages.
160. J.H. Nah and D. Manocha (2014). SATO: Surface-Area Traversal Order for Shadow Ray Tracing. *Computer Graphics Forum*, 9 pages, doi: 10.1111/cgf.12341
161. D. Wolinski, S. Guy, O. Anne-Helene, M. Lin, D. Manocha, and J. Pettre (2014). Parameter Estimation and Comparative Evaluation of Crowd Simulations. *Computer Graphics Forum (Proc. of Eurographics)*, 33(2), 303-312.
162. J. Pan, X. Zhang and D. Manocha, (2014). Efficient Penetration Computation using Active Learning. *ACM Trans. On Graphics (Proc. of ACM SIGGRAPH Asia)*, 32(6), 1476-1484.
163. J. P. Laumond and D. Manocha, (2013). Motion Planning for Physical Robots. Editorial Introduction, *International Journal of Robotics Research*, 32(9-10), 989-990.
164. M. Tang, D. Manocha, and Y. Kim (2014). Hierarchical and Controlled Advancement for Continuous Collision Detection of Rigid and Articulated Models. *IEEE Trans. On Visualization and Computer Graphics*, 20(5), 755-766.
165. H. Yeh, R. Mehra, Z. Ren, L. Antani, M. Lin and D. Manocha (2013). Wave-ray coupling for interactive sound propagation in large, complex scenes. *ACM Trans. On Graphics (Proc. of ACM SIGGRAPH Asia)*, 11 pages.
166. H. Kwon, J. Nah, D. Manocha, W. Park, (2013). Effective traversal algorithms and hardware architecture for pyramidal inverse displacement mapping. *Computer & Graphics*, 10 pages, (special issue on CAD/Graphics).

167. R. Mehra, N. Raghuvanshi, L. Antani, A. Chandak, S. Curtis, and D. Manocha (2013). Wave-based Sound Propagation in Large Open Scenes using an Equivalent Source Formulation. *ACM Trans. on Graphics*, (ACM SIGGRAPH), 12 pages.
168. X. Zhang, Young J. Kim and D. Manocha (2013). Continuous Penetration Depth. *Computer-Aided Design*, (Special issue on Proceedings of SIAM Conference on Geometric and Physical Modeling), 12 pages.
169. M. Tang, R. Narain, R. Tong, C. Meng and D. Manocha (2013). A GPU-based streaming algorithm for high-resolution cloth simulation. *Computer Graphics Forum*, Proc. of Pacific Graphics, 8 pages.
170. L. Antani and D. Manocha (2013). Aural Proxies and Spatially-Varying Reverberation for Interactive Sound Propagation in Virtual Environments. *IEEE Transactions on Visualization and Computer Graphics* (Proc. of IEEE VR), 9 pages.
171. S. Curtis, B. Zafar, A. Gutub, and D. Manocha (2013). Right of Way: Asymmetric Agent Interactions in Crowds. *Visual Computer*, 29(12), 1277-1292.
172. S. Guy, J. van den Berg, W. Liu, R. Lau, M. Lin, and D. Manocha (2013). A Statistical Similarity Metric for Aggregate Crowd Dynamics. *ACM Trans. on Graphics* (Proc. of SIGGRAPH Asia), 31(6), 11 pages.
173. C. Wang and D. Manocha (2013). Efficient Boundary Extraction of BSP Solids Based on Clipping Operations. *IEEE Trans. On Visualization and Computer Graphics*, 19(1), 16-29.
174. J. Pan, L. Zhang, and D. Manocha (2012). Collision-free and Smooth Trajectory Computation in Cluttered Environments. *International Journal on Robotics Research*, 31(10), 1155-1175.
175. C. Wang and D. Manocha (2012). GPU-based Offset Surface Computation using Point Samples. *Computer Aided Design* (Proc. of Solid and Physical Modeling), 45(2), 321-330.
176. M. Tang, D. Manocha, M. Otaduy and R. Tong (2012). Continuous Penalty Forces *ACM Trans. on Graphics* (Proc. of ACM SIGGRAPH), 31(4), 9 pages.
177. M. Tang, J. Zhao, R. Tong, and D. Manocha (2012). GPU Accelerated Convex Hull Computation. *Computer & Graphics* (Proc. of Shape Modeling International), 36(5), 498-506.
178. D. Manocha (2012). Building robust dynamical simulation systems: technical perspective. *Communications of ACM*, 101.
179. M. Taylor, A. Chandak, Q. Mo, C. Lauterbach, C. Schissler, and D. Manocha (2012). Guided Multiview Ray Tracing for Fast Auralization. *IEEE Trans. On Visualization and Computer Graphics*, 14 pages.
180. S. J. Guy, S. Curtis, M. C. Lin and D. Manocha (2012). Least-effort trajectories lead to emergent crowd behaviors, *Physics Review E*, 85(1), 7 pages.
181. Y. Zheng, M. C. Lin and D. Manocha (2012). On Computing Reliable Optimal Grasping Forces. *IEEE Transactions on Robotics and Automation*, 28(3), 619-633.
182. L. Antani, A. Chandak, L. Savioja and D. Manocha (2012). Interactive Sound Propagation using Compact Acoustic Transfer Operators. *ACM Trans on Graphics*, (ACM SIGGRAPH), 12 pages.

183. J. Pan and D. Manocha (2012). GPU-based Parallel Collision Detection for Fast Motion Planning. *International Journal of Robotics Research*, 31(2), 187-220.
184. M. Tang, D. Manocha, S. Yoon, P. Du, J. Heo and R. Tong (2011). VolCCD: Fast Continuous Collision Culling between Deforming Volume Meshes. *ACM Trans on Graphics*, (ACM SIGGRAPH), 30(5).
185. L. Antani, A. Chandak, M. Taylor and D. Manocha (2011). Efficient Finite-Edge Diffraction using Conservative From-Region Visibility. *Applied Acoustics*, 16 pages.
186. J. Snape, J. van den Berg, S. J. Guy and D. Manocha (2011). The Hybrid Reciprocal Velocity Obstacle. *IEEE Trans. On Robotics and Automation*, 27(4), 696-706.
187. A. Chandak, L. Antani, M. Taylor and D. Manocha (2011). Fast and Accurate Geometric Sound Propagation using Visibility Computations. *Journal of Building Acoustics*, 18(1), 123-144.
188. Y. Zheng, M. C. Lin and D. Manocha (2011). Efficient Computation for Fixture Layout. *Computer-Aided Design*, 43, 1307-1318.
189. L. Antani, A. Chandak, M. Taylor and D. Manocha (2011). Direct-to-Indirect Acoustic Radiance Transfer. *IEEE Transactions on Visualization and Computer Graphics*, 11 pages.
190. R. Mehra, N. Raghuvanshi, L. Savioja, M. Lin, and D. Manocha (2011). An Efficient GPU-based Time Domain Solver for the Acoustic Wave Equation. *Applied Acoustics*, 13 pages.
191. PA Bernstein, Wecker D, Krishnamurthy A, Manocha D, Gardner J, Kolker N, Reschke C, Stombaugh J, Vagata P, Stewart E, Welch D, Kolker E. (2011). Technology and data-intensive science in the beginning of the 21st century. *OMICS A Journal of Integrative Biology*, 15(4):203-7.
192. P. Merrell and D. Manocha (2011). Model Synthesis: A General Procedural Modeling Algorithm. *IEEE Trans. On Visualization and Computer Graphics*, 17(6), 715-728.
193. S. Patil, J. van der Berg, S. Curtis, M. C. Lin and D. Manocha (2011). Directing Crowd Simulations using Navigation Fields. *IEEE Transactions on Visualization and Computer Graphics*, vol. 16, 12 pages (**IEEE TVCG SpotLight Paper for February 2011**).
194. P. Merrell and D. Manocha (2010). Example-based Curve Synthesis. *Computer & Graphics*, Special issue on Procedural Modeling, vol. 34, 12 pages.
195. M. Lin and D. Manocha (2010). Virtual Cityscapes: recent advances in crowd modeling and traffic simulation. *Frontiers of Computer Science in China*, 12 pages.
196. C. Lauterbach, Q. Mo and D. Manocha (2010). gProximity: Hierarchical GPU-based operations for collision and distance queries. *Computer Graphics Forum (Proc. Of Eurographics)*.
197. M. Taylor, A. Chandak, L. Antani and D. Manocha (2010). Interactive Geometric Sound Propagation and Rendering. *Intel Visual Computing*, 16 pages.

198. X. Sun, Q. Hou, K. Zhou, Lauterbach, C. and D. Manocha (2010). Memory-scalable GPU spatial hierarchy construction. *IEEE Trans. On Visualization and Computer Graphics*, vol. 16, 11 pages, (**IEEE TVCG SpotLight Paper for April 2011**).
199. W. Moss, H. Yeh, J. Hong, M. Lin and D. Manocha (2010). Sounding Liquids: Automatic Sound Synthesis from Fluid Simulation. *ACM Trans. On Graphics*, vol. 29, 12 pages.
200. J. Pan, L. Zhang, M. Lin and D. Manocha (2010). A Hybrid Approach for Simulating Human Motion in Constrained Environment. *Visual Computer (Proc. Of CASA)*, vol. 26.
201. M. Tang, D. Manocha and R. Tong (2010). MCCD: Multi-core Collision Detection between Deformable Models using Front-Based Decomposition. *Graphical Models*, 72(2), 7-23.
202. H. Suzuki, B. Levy, D. Manocha, H. Qin (2010). Preface to a Special Issues. *Computer-Aided Design*, 42(2), 77.
203. J. Sewall, J. van den Berg, M. Lin and D. Manocha. (2010). Virtualized Traffic: Reconstructing Traffic Flows from Discrete Spatio-Temporal. *IEEE Trans. On Visualization & Computer Graphics*, (Special issue on IEEE VR 2009), 183-190.
204. B. Lévy, D. Manocha, H. Qin and H. Suzuki, (2009). Preface to a Special Issue. *Computer Aided Geometric Design*, 26(6), 615-616.
205. P. W. Segars, D. S. Lalush, E. C. Frey, D. Manocha, M. A. Kin and B.M.W Tsui (2009). Improved Dynamic Cardiac Phantom Based on 4D NURBS and Tagged MRI. *IEEE Trans. On Nuclear Science*, 56(5), 2728-2738.
206. C. Lauterbach, M. Garland, S. Sengupta, D. Luebke, and D. Manocha (2009). Fast BVH Construction on GPUs. *Computer Graphics Forum (Proc. Of Eurographics)*, 375-384.
207. A. Chandak, L. Antani, M. Taylor and D. Manocha (2009). FastV: From-point Visibility Culling on Complex Models. *Computer Graphics Forum (Proc. Of Eurographics Workshop on Rendering)*, 1237-1246.
208. B. Lloyd, N. Govindaraju, C. Quammen, S. Molnar, and D. Manocha (2008). Logarithmic Perspective Shadow Maps. *ACM Trans. on Graphics*, 27(4), article no. 106, 32 pages.
209. S. Hu, B. Lévy, D. Manocha (2008). Solid and Physical Modeling. *Computer Aided Geometric Design*, 25(7), 435.
210. P. Merrell and D. Manocha (2008). Continuous Model Synthesis. *ACM Trans. On Graphics*, Proc. Of ACM SIGGRAPH Asia Conference, 27(5), article no. 158, 1-7.
211. A. Chandak, C. Lauterbach, Z. Ren, M. Taylor and D. Manocha, (2008). Interactive Sound Propagation in Complex Environments using AD-FRUSTA. *IEEE Trans. on Visualization and Computer Graphics*, 27(3), 1707-1722 (Proc. Of IEEE Visualization 2008).
212. M. Tang, S. Curtis, S. Yoon and D. Manocha (2008). ICCD: Interactive continuous collision detection between deformable models using connectivity-based culling. *IEEE Trans. on Visualization and Computer Graphics*, 15(4), 544-557. selected papers from ACM Symposium on Solid and Physical Modeling.

213. W. Moss, M. C. Lin and D. Manocha (2008). Constraint-based motion synthesis for deformable models. *Computer Animation and Virtual Worlds*, 19(3-4), 421-431.
214. C. Lauterbach, S. Yoon, M. Tang and D. Manocha (2008). ReduceM: Interactive and Memory Efficient Ray Tracing of Large Models. *Computer Graphics Forum (Proc. Of Eurographics Symposium on Rendering)*, 27(3), 1313-1321.
215. R. Gayle, A. Sud, E. Andersen, S. Guy, M. Lin, and D. Manocha, (2008). Interactive Navigation of Heterogeneous Agents using Adaptive Roadmaps. *IEEE Trans. on Visualization and Computer Graphics*, 15(1), 34-48. Special issue on ACM VRST 2007.
216. M. Tang, S. Yoon, and D. Manocha (2008). Adjacency Based Culling for Continuous Collision Detection. *The Visual Computer*, 24(7), 545-553.
217. A. Sud, E. Andersen, S. Curtis, M. Lin and D. Manocha (2008). Real-time planning for Virtual Agents in Dynamic Environments using multi-agent navigation graphs. *IEEE Trans. on Visualization and Computer Graphics*, 14(3), 526-538. Special issue on IEEE VR 2007.
218. L. Zhang, Y. Kim and D. Manocha (2007). Efficient distance computation in Configuration Space. *Computer-Aided Geometric Design*, 2008, 25(7), 489-502. Special Issue on Selected Papers from ACM Solid and Physical Modeling Conference.
219. D. Kasik, D. Manocha and P. Slusallek (2007). Real-Time Interaction with Complex Models. *IEEE Computer Graphics and Applications*, 9, 17-20.
220. N. Raghuvanshi, C. Lauterbach, A. Chandak, D. Manocha and M. C. Lin (2007). Real-time sound synthesis and propagation for games. *Communications of ACM*, Special issue on Games, 50(7), 66-73.
221. N. Govindaraju and D. Manocha (2007). Cache-Efficient Numerical Algorithms using Graphics Hardware. *Parallel Computing*, 33(10-11), 663-684. Special issue on *Computing with Accelerators*.
222. Wu-chun Feng, Dinesh Manocha (2007). High-performance computing using accelerators. *Parallel Computing*, 33(10-11), 645-647.
223. L. Zhang, Y. Kim and D. Manocha (2007). Efficient cell labeling and path non-existence using C-obstacle query. *International Journal of Robotics Research*, 27, 1246-1257.
224. C. Lauterbach, A. Chandak and D. Manocha. (2007). Frustum tracing for interactive sound rendering in complex dynamic scenes. *IEEE Trans. On Visualization and Computer Graphics*, (Proc. Of IEEE Visualization Conference), 26, 1672-1679.
225. L. Zhang, Y. Kim, G. Varadhan and D. Manocha (2007). Generalized penetration depth computation. *Computer-Aided Design*, 39, 26 pages, Special issue on ACM SPM'06.
226. A. Sud, L. Zhang and D. Manocha (2007). Homotopy preserving approximate Voronoi Diagram of 3D Polyhedron. *Computer Graphics Forum*, special issue on *Digital Geometry Processing*, 27, 16 pages.

227. Y. Kim, S. Redon, M. Lin and D. Manocha (2007). Interactive continuous collision detection using swept volume for avatars. *Presence*, 16(2), 206-223.
228. G. Varadhan and D. Manocha (2007). Star-shaped Roadmaps – A deterministic sampling approach for complete motion planning. *International Journal of Robotics Research*, 26(12).
229. N. Govindaraju, I. Kabul, M. Lin, and D. Manocha, (2007). Fast continuous collision detection among deformable models using graphics processors. *Computers & Graphics*, 31(1), 5-14.
230. N. Govindaraju, M. C. Lin and D. Manocha. (2006). Fast and reliable collision culling using graphics hardware. , *IEEE Transactions on Visualization and Computer Graphics*, 12(2), 143-154.
231. A. Sud, N. Govindaraju, R. Gayle, I. Kabul and D. Manocha, (2006, July). Fast proximity computation among deformable models using discrete voronoi diagrams. In *ACM Transactions on Graphics (TOG)* (Vol. 25, No. 3, pp. 1144-1153). ACM.
232. S. Yoon, C. Lauterbach and D. Manocha, (2006). R-LODs: fast LOD-based ray tracing of massive models. *The Visual Computer*, 22(9-11), 772-784.
233. S. Yoon and D. Manocha, (2006, September). Cache-Efficient Layouts of Bounding Volume Hierarchies. In *Computer Graphics Forum* (Vol. 25, No. 3, pp. 507-516). Blackwell Publishing, Inc.
234. A. Sud, M. Foskey and D. Manocha (2007). Homotopy-preserving medial axis simplification. *International Journal of Computational Geometry & Applications*, 17(05), 423-451. Special issue on papers from ACM Solid and Physical Modeling.
235. I. Emiris, E. Fritzilas and D. Manocha, (2006). Algebraic algorithms for structure determination in biological chemistry. *International journal of quantum chemistry*, 106(1), 190-210.
236. S. Yoon, P. Lindstrom, V. Pascucci and D. Manocha (2005, July). Cache-oblivious mesh layouts. In *ACM Transactions on Graphics (TOG)* (Vol. 24, No. 3, pp. 886-893). ACM.
237. N. Govindaraju, D. Knott, N. Jain, I. Kabul, R. Tamstorf, R. Gayle, M. Lin and D. Manocha (2005). Interactive collision detection between deformable models using chromatic decomposition. In *ACM Transactions on Graphics (TOG)* (Vol. 24, No. 3, pp. 991-999). ACM.
238. D. Manocha. (2005). General-purpose computations using graphics processors. *IEEE Computer*, 38(8), 85-88.
239. M. Verdesca, J. Munro, M. Hoffman, M. Bauer, and D. Manocha, (2006). Using graphics processor units to accelerate onesaf: A case study in technology transition. *The Journal of Defense Modeling and Simulation: Applications, Methodology, Technology*, 3(3), 177-187.
240. D. Manocha. (2005) General-Purpose Computations Using Graphics Processors. *IEEE Computer*, 38(8), 85-88.
241. N. Govindaraju, M. C. Lin and D. Manocha (2005), Efficient collision culling among deformable objects using graphics processors. *Presence*, 19(2), 62-76. Special issue on papers from IEEE VR.

242. N. Jain, I. Kabul, N. Govindaraju, M. Lin and D. Manocha (2005). Multi-resolution collision handling among cloth-like Objects. *Computer Animation and Virtual Worlds*. Special issue on papers from *CASA 2005*, 16(3-4), 141-151.
243. S. Yoon, B. Salomon, R. Gayle and D. Manocha. (2005). Quick-VDR: interactive view-dependent rendering of massive models, *IEEE Trans. On Visualization and Computer Graphics*, 2004. Special issue of papers from IEEE Visualization'04, 11(4), 369-382,
244. G. Varadhan and D. Manocha. (2006). Accurate Minkowski sum approximation of polyhedral models. *Graphical Models*, 68(4), 343-355. Special issue of papers from Pacific Graphics'04.
245. N. Govindaraju, M. Lin and D. Manocha. Fast and reliable collision culling using GPUs. *IEEE Trans. On Visualization and Computer Graphics*, 11, 2-9, 2005. Special issue on papers from VRST'04.
246. S. Redon, Y. Kim, M. C. Lin and D. Manocha. Fast continuous collision detection for articulated models. *Computer-Aided Design*, 37, 14 pages, 2005. Special issue on papers from ACM Solid Modeling'04.
247. G. Varadhan, S. Krishnan, TVN Sriram and D. Manocha. A simple algorithm for complete motion planning of translating polyhedral robots. *International Journal of Robotics Research*, vol. 24(11), 1049-1070, 2005. Special issue of papers from WAFR'04.
248. A. Sud, M. Otaduy and D. Manocha. (2004). DiFi: Fast 3D distance field computation using graphics hardware. *Computer Graphics Forum (Proc. of Eurographics)*, 23(3), 557-566.
249. Y. Kim, M. Lin and D. Manocha (2004). Fast penetration depth computation between convex polytopes. *IEEE Transactions on Visualization and Computer Graphics*, 10, 152-163.
250. M. Foskey, M. Lin and D. Manocha (2004). Efficient computation of a simplified medial axis. Special issue of *ASME Journal of Computing and Information Science in Engineering*, 4, 12 pages.
251. Y. Kim, G. Varadhan and M. Lin and D. Manocha (2004). Fast swept volume approximation of complex polyhedral models. Special issue of *Computer-Aided Design*, 36(11), 1013-1027.
252. T. Culver, J. Keyser and D. Manocha (2004). Accurate computation of medial axis of a polyhedron. *Computer Aided Geometric Design*, 21, 65-98.
253. T. Culver, J. Keyser, S. Krishnan and D. Manocha (2003). A hybrid approach for determinant signs of moderate-sized matrices. *International Journal of Computational Geometry and Applications*, 13, 399-417.
254. A. Wilson and D. Manocha (2003). Simplifying complex environments using incremental textured depth meshes. *ACM Trans. On Computer Graphics (Proc. Of ACM SIGGRAPH)*, 9, 678-688.
255. N. Govindaraju, B. Llyod, S. Yoon, A. Sud and D. Manocha (2003). Interactive shadow generation in complex environments. *ACM Trans. On Computer Graphics (Proc. Of ACM SIGGRAPH)*, 22(3), 501-510.
256. J. Keyser, T. Culver, M. Foskey, S. Krishnan, and D. Manocha, (2003). ESOLID- A system for exact boundary evaluation. *Computer-Aided Design, Special issue on ACM Solid Modeling 2003*, 36(2), 175-193.

257. Y. Kim, K. Hoff, M. Lin and D. Manocha (2003). Closest point query among the union of convex polytopes using rasterization hardware. *Journal of Graphics Tools, Special issue on Graphics Hardware*, 7(4), 43-52.
258. J. Cohen, D. Manocha, and M. Olano (February 2003). Successive mappings: An approach to polygonal mesh simplification with guaranteed error bounds. *International Journal of Computational Geometry & Applications*, vol. 13(1), 61-94.
259. Y. Kim, M. Otaduy, M. Lin and D. Manocha (2003). Six-Degree-of-Freedom haptic display using incremental and localized computations. *Presence*, 12(3), 277-295.
260. P. Agarwal, L. Guibas, H. Edelsbrunner, J. Erickson, M. Isard, S. Har-Peled, J. Hershberger, C. Jensen, L. Kavraki, M. Lin, D. Manocha, D. Metaxas, B. Mirtich and D. Mount (2002). Algorithmic issues in modeling motion. *ACM Computing Surveys*, 24(4), 550-572.
261. S. Krishnan, D. Manocha, M. Gopi, T. Culver and J. Keyser (2001). "BOOLE: A boundary evaluation system for boolean combinations of sculptured solids." *International Journal on Computational Geometry and Applications*, 11(1), 105-144.
262. B. Baxter, V. Scheib, M. Lin and D. Manocha (2001). DAB: Interactive haptic painting with 3D virtual brushes. *Proc. of ACM SIGGRAPH*, 20(4), 461-468.
263. W. Segars, B. Tsui, D. Lalush, E. Frey, M. King, and D. Manocha (2001). Development and application of the new dynamic NURBS-based Cardiac-Torso (NCAT) Phantom. *Journal of Nuclear Medicine*, vol. 2, number 5.
264. J. Keyser, T. Culver, D. Manocha and S. Krishnan (2000). Efficient and exact manipulation of algebraic points and curves. *Computer-Aided Design*, 32(11), 649-662. Special issue on Robustness.
265. S. Krishnan and D. Manocha (2000). Hidden surface removal algorithms for sculptured models. *Graphical Models and Image Processing*, 62(4), 283-307.
266. S. Krishnan, and D. Manocha (2000). Partitioning Trimmed Spline Surfaces into Non Self-Occluding Regions for Visibility Computation. *Graphical Models*, 62(4), 283-307, 2000.
267. A. Gregory, A. State, M. C. Lin, D. Manocha and M. Livingston (1999). Interactive surface decomposition for polyhedral morphing. *Visual Computer*, 15, 453-470.
268. M. Gopi and D. Manocha (1999). Simplifying spline models. *Computational Geometry: Theory and Applications*, 14, 67-90.
269. K. Hoff, T. Culver, J. Keyser, M. Lin and D. Manocha (1999). Fast computation of generalized Voronoi diagrams using graphics hardware, *Proceedings of ACM SIGGRAPH*, 18, 277-286.
270. J. Keyser, S. Krishnan and D. Manocha (1999). Efficient and accurate B-rep generation of low degree sculptured solids using exact arithmetic: I – representations. *Computer-Aided Geometric Design*, 16(9), 841-859.

271. J. Keyser, S. Krishnan and D. Manocha (1999). Efficient and accurate B-rep generation of low degree sculptured solids using exact arithmetic: II – computation. *Computer-Aided Geometric Design*, 16(9), 861-882.
272. A. Wilson, E. Larsen, D. Manocha and M. Lin (1999). Partitioning and handling massive models for interactive collision detection. *Computer Graphics Forum*, 18(3), 319-329. **Received Best Paper Award at Eurographics 1999.**
273. S. Kumar, D. Manocha, W. Garrett and M. Lin (1999). Hierarchical backface computation. *Computer and Graphics*, 9(5), 681-692. Special Issue on Visibility, 1999.
274. M. C. Lin, Dinesh Manocha: Guest Editors' Foreword. *Int. J. Comput. Geometry Appl.*, 8(4), 385, 1998.
275. A. Wallack and D. Manocha (1998). Robust Algorithms for Object Localization. *International Journal on Computer Vision*, 27(3), 243-262.
276. S. Krishnan, M. Gopi, M. Lin, D. Manocha and A. Pattekar (1998). Rapid and accurate contact determination between spline models using ShellTrees. *Computer Graphics Forum*, 17(3), 315-326.
277. J. Cohen, M. Olano and D. Manocha (1998). Appearance preserving simplification. *Proceedings of ACM SIGGRAPH*, 17, pp. 115-122.
278. H. Zhang, D. Manocha, T. Hudson and K. Hoff (1997). Visibility culling using hierarchical occlusion maps. *Proceedings of ACM SIGGRAPH*, 16, 77-88.
279. S. Krishnan and D. Manocha (1997). An efficient surface intersection algorithm based on the lower dimensional formulation. *ACM Trans. on Graphics*, 16(1), 74-106.
280. S. Krishnan, M. Gopi, D. Manocha and M. Mine (1997). Interactive boundary computation on boolean combinations of sculptured solids. *Computer Graphics Forum*, 16(3), c67-c78.
281. M. Ponamgi, D. Manocha and M. Lin (1997). Incremental algorithms for collision detection between polygonal models. *IEEE Trans. on Visualization and Computer Graphics*, 3(1), 51-67.
282. M. C. Lin and D. Manocha (1997). Efficient contact determination in dynamics environments. *International Journal on Computational Geometry and Applications*, 7(1-2), 123-151. Special issue: Selected papers from MSI workshop on computational geometry.
283. D. Manocha and S. Krishnan (1997). Algebraic pruning: A fast technique for curve and surface intersection. *Computer Aided Geometric Design*, 20, 1-23.
284. S. Kumar, D. Manocha and A. Lastra (1996). Interactive display of large-scaled NURBS models. *IEEE Trans. On Visualization and Computer Graphics*, 2(4), 323-336.
285. S. Gottschalk, M. Lin and D. Manocha (1996). OBB-Tree: A hierarchical structure for rapid interference detection. *Proceedings of ACM SIGGRAPH*, 15, 171-180.

286. J. Cohen, A. Varshney, D. Manocha, G. Turk et al. (1996). Simplification envelopes. In Proceedings of the 23rd annual conference on Computer graphics and interactive techniques (pp. 119-128). ACM SIGGRAPH.
287. S. Kumar, S. Krishnan and D. Manocha (March 1996). Interactive display of large solid models for walkthroughs. *Computer Graphics and Applications*, IEEE, 16(2), 9-11, (invited submission).
288. D. Manocha and S. Krishnan (1996). Solving zero and one dimensional algebraic systems using matrix computations, *ACM SIGSAM Bulletin*, 30(4), 4-21.
289. S. Kumar and D. Manocha (1995). Efficient rendering of trimmed NURBS surfaces. *Computer-Aided Design*, 27(7), 509-521. Special issue: Visualization of surfaces.
290. D. Manocha, Y. Zhu and W. Wright (1995). Conformational analysis of molecular chains using nano-kinematics. *Computer applications in the biosciences: CABIOS*, 11(1), 71-86. Special issue: Selected papers from 1st IEEE workshop on shape and pattern matching in computational biology.
291. D. Manocha and James Demmel (1995). Algorithms for intersecting parametric and algebraic curves II: multiple intersections. *Graphical Models and Image Processing*, 57(2), 81-100.
292. M. Lin and D. Manocha (1995). Fast interference detection between geometric models. *The Visual Computer*, 11(10), 542-561.
293. D. Manocha and J. F. Canny (1994). Efficient inverse kinematics for general 6R manipulators. *Robotics and Automation*, IEEE Transactions on, 10(5), 648-657.
294. D. Manocha (1994). Solving nonlinear polynomial equations. *IEEE Computer Graphics and Applications*, 14, 46-55. Special issue: Selected papers from second IEEE/ACM conference on solid modeling and applications.
295. D. Manocha and J. Demmel (1994). Algorithms for intersecting parametric and algebraic curves I: simple intersections. *ACM Transactions on Graphics (TOG)*, 13(1), 73-100.
296. D. Manocha (1993). Efficient algorithms for multipolynomial resultant. *The Computer Journal*, 36(5), 485-496. Special issue on Quantifier Elimination. (invited submission).
297. D. Manocha and J. F. Canny (1993). Multipolynomial resultant algorithms. *Journal of Symbolic Computation*, 15(2), 99-122.
298. D. Manocha and J. F. Canny (1992). Implicit representation of rational parametric surfaces. *Journal of Symbolic Computation*, 13(5), 485-510.
299. D. Manocha and J. F. Canny (1992). Algorithm for implicitizing rational parametric surfaces. *Computer Aided Geometric Design*, 9(1), 25-50.
300. D. Manocha and J. F. Canny (1992). Detecting cusps and inflection points in curves. *Computer Aided Geometric Design*, 9(1), 1-24.

301. D. Manocha and J. F. Canny (1991). A new approach for surface intersection. *International Journal of Computational Geometry & Applications*, 1(04), 491-516. Special issue: Selected papers from first ACM conf. on solid modeling and CAD/CAM applications.

302. D. Manocha and J. F. Canny (1991). Rational curves with polynomial parameterization. *Computer-Aided Design*, 23(9), 645-652.

Refereed Book Chapters

303. R. Chandra and D. Manocha, "Perception for Behavior Modeling and Classification in ADAS", *Encyclopedia of GIS*, 2025.

304. A. Bera and D. Manocha, "Realtime Pedestrian Tracking and Prediction in Dense Crowds", in *Group and Crowd Behavior for Computer Vision*, 2016.

305. Y. Kim, M. Lin, and D. Manocha, "Collision Detection", in *Humanoid Robotics*, 2017.

306. I. Karamouzas, S. J. Guy, M. Lin, and D. Manocha, "Anticipatory Local Navigation", *Crowd Simulation*, 28 pages, 2016.

307. M. C. Lin, D. Manocha, and Y. Kim, "Collision and Proximity Queries", *Handbook of Discrete and Computational Geometry*, 29 pages, 2017.

308. S. Curtis, Guy, S. J., Zafar, B., & Manocha, D. (2013). Virtual Tawaf: A Velocity-Space-Based Solution for Simulating Heterogeneous Behavior in Dense Crowds. In *Modeling, Simulation and Visual Analysis of Crowds* (pp. 181-209). Springer New York.

309. Manocha, D., & Lin, M. C. (2012). Interactive Large-Scale Crowd Simulation. In *Digital Urban Modeling and Simulation* (pp. 221-235). Springer Berlin Heidelberg.

310. Lin, M. C., Sud, A., Van den Berg, J., Gayle, R., Curtis, S., Yeh, H., Guy, S., Anderson E., Patil, S., Sewall, J., and Manocha, D. (2008). Real-time path planning and navigation for multi-agent and crowd simulations. In *Motion in Games* (pp. 23-32). Springer Berlin Heidelberg.

311. M. Lin and D. Manocha. (2008) Collision Detection, in *Haptic Rendering: Foundations, Algorithms, and Applications*, editors M. C. Lin and M. Otaduy. (pp. 205-218).

312. Lin, M., and Manocha, D. (2008). Cutting-edge computing: Using new commodity architectures. *Proceedings of the IEEE*. (Vol. 96, pp. 758-760).

313. M. Lin and D. Manocha (2004). "Collision Detection." *Handbook of Data Structures*, eds. D. Mehta and S. Sahni, Chapter 56. CRC Press. 20 pages.

314. J. Cohen and D. Manocha (2004). Model simplification. *Handbook of Visualization*, eds. C. Hansen and C. Johnson, Academic Press (pp. 393-412).

315. M. Lin and D. Manocha (2004). "Collision and proximity queries." *Handbook of Discrete and Computational Geometry*, eds. Joe O'Rourke and T N T Goodman, CRC Press, (pp.787-808).

316. M. Foskey, Manocha, D., Culver, T., Keyser, J., & Krishnan, S. (2002). Reliable geometric computations with algebraic primitives and predicates. In *Uncertainty in Geometric Computations*, Springer US. (pp. 91-106).
317. A. Mascarenhas, S. Ehmann, A. Gregory, M. C. Lin and D. Manocha (2002). Six Degrees-of-Freedom haptic visualization. *Touch in Virtual Environments: Haptics and the Design of Interactive Systems*, Prentice-Hall. (pp. 95-118).
318. M. C. Lin and D. Manocha (1998). Applied computational geometry. *Encyclopedia of Computer Science and Technology* (invited contribution), eds. A. Kent and J. G. Williams, Marcel Dekker, Inc. (pp. 17-28).
319. J. Keyser, S. Krishnan, D. Manocha and T. Culver (1998). Fast and accurate boundary evaluation of sculptured solids. *IMA Conference on Mathematics of Surfaces*. (Vol. 8, pp. 139-160).
320. M. Lin, D. Manocha, J. Cohen and S. Gottschalk (1996). Collision detection: Algorithms and applications. *Algorithmic Foundations of Robotics*, (invited submission) eds. J. Laumond and M. Overmars, (pp. 129-142).
321. A. Narkhede and D. Manocha (1995). Fast polygon triangulation based on Seidel's algorithm. *Graphics Gems V*, ed. A. Paeth, Academic Press. (pp. 394-397).
322. D. Manocha (1994). Solving polynomial systems using matrix computations. *Advances in Computational Mathematics*, eds. H.P. Dikshit and C.A. Micchelli, World Scientific. (pp. 99-130).
323. D. Manocha, A. Varshney and H. Weber (1994). Evaluating surface intersections in lower dimension. *Curves and Surfaces*, eds. Laurent et al., A K Peters, Wellesley, MA. (pp. 327-334).
324. M. C. Lin and D. Manocha (1993). Interference detection between curved objects for computer animation. *Models and Techniques for Computer Animation*, eds. N.M. Thalmann and D. Thalmann, Springer-Verlag. (pp. 43-57).
325. D. Manocha and B. A. Barsky (1991). Varying the shape parameters of rational continuity. *Curves and Surfaces*, eds. P. Laurent, A. Le Mehaute and L. Schumaker, Academic Press, Boston, (pp. 307-314).
326. D. Manocha and J. F. Canny (1991). Detecting cusps and inflection points in curves. *Curves and Surfaces*, eds. P. Laurent, A. Le Mehaute and L. Schumaker, Academic Press, Boston, (pp. 315-319).
327. D. Manocha and J. F. Canny (1990). Algorithms for implicitizing parametric surfaces. *The Mathematics of Surfaces*, ed. A. Bowyer, Oxford University Press. (Vol. 4, pp. 97-131).

Refereed Conference Publications (including ACM SIGMOD, ACM SIGGRAPH, Vision, NLP, ML & Robotics Conferences)

328. X. Wang, R. Abdalla, J. Huang, . Zhang, R. Xian, and D. Manocha, "Bi-VLM: Binary Post-Training Quantization for Vision-Language Models," *Proc. Of AAAI*, 2026, 11 pages.

329. J. Choi, D. Jung, Y. Lee, S. Eum, D. Manocha, and H. Kwon, "UAVTwin: Neural Digital Twins for UAVs using Gaussian Splatting", *Proc. Of AAAI*, 2026, 11 pages.
330. S. Kumar et al., "MMAU-Pro: A Challenging and Comprehensive Benchmark for Holistic Evaluation of Audio General Intelligence", *Proc. Of AAAI*, 2026, 11 pages.
331. A. Dogra, S. Ghosal, A. Deshpande, A. Kalyan, and D. Manocha, "Engagement Undermines Safety: How Stereotypes and Toxicity Shape Humor in Language Models", *Proc. of EACL*, 2026, 11 pages.
332. D. Jung, J. Choi, Y. Lee, S. Eum, H. Kwon, and D. Manocha, "MoRe: Monocular Geometry Refinement via Graph Optimization for Cross-View Consistency", *Proc. Of WACV*, 2026, 11 pages.
333. S. Audia, M. Zwicker, and D. Manocha, "Neural Electrostatic: A 3D Physics-Informed Poisson Equation Solver for Exterior Fields", *Proc. of EuCap 2026*, 8 pages.
334. G. Seneviratne, K. Mudiyanse, M. Elnoor, V. Rajagopal, H. Varatharajan, M. Jaffar, J. Pusey, D. Manocha, "CROSS-GAiT: Cross-Attention-Based Multimodal Representation Fusion for Parametric Gait Adaptation in Complex Terrains", *Proc. Of IROS*, 2025, 8 pages.
335. K. Goswami, P. Mathur, R. A. Rossi, F. Dernoncourt, V. Gupta, D. Manocha, "ChartEval: LLM-Driven Chart Generation Evaluation Using Scene Graph Parsing", *Proc. Of IJCNLP-AACL 2025*
336. N. Suriyarachchi, A. Anantula, J. Baras, D. Manocha, and R. Chandra, "Efficient Realtime Traffic Routing for Heterogeneous Agents in Unregulated Intersections", *IEEE International Symposium on Multi-Robot & Multi-Agent Systems (MRS)*, 2025, 8 pages, **(oral presentation)**.
337. A. Seth, D. Manocha, and C. Agarwal, "HALLUCINOGEN: Benchmarking Hallucination in Implicit Reasoning within Large Vision Language Models", *Proc. Of Workshop on Uncertainty-Aware NLP*, 2025, 9 pages.
338. Z. Li, X. Wu, G. Shi, Y. Qin, H. Du, T. Zhou, D. Manocha, and J. Lee Boyd-Graber, "VideoHallu: Evaluating and Mitigating Multi-modal Hallucinations on Synthetic Video Understanding", *Proc. Of NeuRIPS*, 2025, 12 pages.
339. S. Ghosh, A. Goel, J. Kim, S. Kumar, Z. Kong, S. Lee, C. Yang, R. Duraiswami, D. Manocha, R. Valle, B. Catanzaro, "Audio Flamingo 3: Advancing Audio Intelligence with Fully Open Large Audio Language Models", *Proc. Of NeuRIPS*, 2025, 13 pages.
340. D. Jung, J. Choi, Y. Lee, and D. Manocha, "RPG360: Robust 360 Depth Estimation with Perspective Foundation Models and Graph Optimization". *Proc. Of NeuRIPS*, 2025, 12 pages.
341. S. Ghosal, S. Chakraborty, A. Reddy, Y. Lu, M. Wang, D. Manocha, F. Huang, M. Ghavamzadeh, . Bedi, "Does Thinking More Always Help? Understanding Test-Time Scaling in Reasoning Models", *Proc. Of NeuRIPS*, 2025, 12 pages.
342. S. Chowdhury, M. Elmoghany, Y. Abeysinghe, J. Fei, S. Nag, S. Khan, M. Elhoseiny, D. Manocha, "MAGNET: A Multi-agent Framework for Finding Audio-Visual Needles by Reasoning over Multi-Video Haystacks", *Proc. Of NeuRIPS*, 2025, 12 pages.

343. B. Patel, K. Mudiyansele, W. Suttle, A. Koppel, B. Sadler, T. Zhou, A. Bedi, D. Manocha, “Confidence-Controlled Exploration: Efficient Sparse-Reward Policy Learning for Robotic Navigation”, *Proc. Of IROS*, 2025, 8 pages.
344. J. Mullen and D. Manocha, “LBAP: Improved Uncertainty Alignment of LLM Planners using Bayesian Inference”, *Proc. Of IROS*, 2025, 8 pages.
345. J. Liang, H. Yin, X. Qi, J. Park, M. Sun, R. Madhivanan, D. Manocha, “ET-Former: Efficient Triplane Deformable Attention for 3D Semantic Scene Completion From Monocular Camera”, *Proc. Of IROS*, 2025, 8 pages.
346. A. Payandeh, D. Song, M. Nazeri, J. Liang, P. Mukherjee, A. Raj, Y. Kong, D. Manocha, and X. Xiao, “Social-LLaVA: Enhancing Social Robot Navigation through Human-Language Reasoning”, *Proc. Of IROS*, 2025, 8 pages.
347. Y. Kong, D. Song, J. Liang, D. Manocha, Z. Yao, and X. Xiao, “AutoSpatial: Visual-Language Reasoning for Social Robot Navigation through Efficient Spatial Reasoning Learning”, *Proc. Of IROS*, 2025, 8 pages.
348. C. Maxey, J. Choi, Y. Lee, H. Kwon, H. Lee, and D. Manocha, “TK-Planes: Tiered K-Planes with High Dimensional Feature Vectors”, *Proc. Of IROS*, 2025, 8 pages.
349. V. Dorbala, P. Goyal, R. Piramuthu, M. Johnston, R. Ghanadan, and D. Manocha, “Is the House Ready For Sleep? Generating and Evaluating Situational Queries for Embodied Question Answering”, *Proc. Of IROS*, 2025, 8 pages.
350. X. Wu, S. Chakraborty, R. Xian, J. Liang, T. Guan, F. Liu, B. Sadler, D. Manocha, and A. Bedi, “On the Vulnerability of LLM/VLM-Controlled Robotics”, *Proc. Of IROS*, 2025, 8 pages.
351. S. Ghosal, V. Singh, A. Ghosh, S. Pal, S. Baidya, S. Saha, and D. Manocha, “RELIC: Enhancing Reward Model Generalization for Low-Resource Indic Languages with Few-Shot Examples”, *Proc. of EMNLP*, 2025. 9 pages.
352. M. Suri, P. Mathur, N. Lipka, F. Deroncourt, R. Rossi, V. Gupta, and D. Manocha, “Follow the Flow: Fine-grained Flowchart Attribution with NeuroSymbolic Agents”, *Proc. of EMNLP*, 2025. 10 pages.
353. R. Selvakumar, A. Seth, N. Anand, U. Tyagi, S. Kumar, S. Ghosh and D. Manocha, “RELIC: Enhancing Reward Model Generalization for Low-Resource Indic Languages with Few-Shot Examples”, *Proc. of EMNLP*, 2025. 9 pages.
354. A. Seth, U. Tyagi, R. Selvakumar, N. Anand, S. Kumar, S. Ghosh, R. Duraiswami, C. Agarwal, and D. Manocha, “MULTIVOX: A Benchmark for Evaluating Voice Assistants for Multimodal Interactions”, *Proc. of EMNLP*, 2025. 9 pages.
355. D. Kothandaraman, M. Lin, and D. Manocha, “Financial Models in Generative Art: Black-Scholes-Inspired Concept Blending in Text-to-Image Diffusion”, *Proc. of ACM Multimedia*, 2025, 10 pages (**oral presentation**).

356. G. Seneviratne, J. An, S. Ellahy, K. Weerakon, M. Elnoor, J. Kannan, A. Sunil, and D. Manocha, "HALO: Human Preference Aligned Offline Reward Learning for Robot Navigation", *Proc. of CoRL*, 2025, 16 pages.
357. M. Chehade, S. Ghosal, S. Chakraborty, A. Reddy, D. Manocha, H. Zhu, A. Bedi, "Inference-Time Alignment of LLMs via User-Specified Multi-Criteria Transfer Decoding", *Proc. Of Asilomar*, 2025, 8 pages.
358. S. Kumar, P. Seetharaman, J. Salomon, D. Manocha, O. Nieto, "SILA: Signal-to-Language Augmentation for Enhanced Control in Text-to-Audio Generation", *Proc. of IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA)*, 8 pages, 2025.
359. G. Lee, M. Xia, N. Numan, X. Qian, D. Li, Y. Chen, A. Kulshrestha, I. Chatterjee, Y. Zhang, D. Manocha, D. Kim, R. Du, "Sensible Agent: A Framework for Unobtrusive Interaction with Proactive AR Agent", *Proc. of UIST*, 2025, 10 pages.
360. D. Jung, J. Choi, Y. Lee, D. Manocha, "IM360: Large-scale Indoor Mapping with 360 Cameras", *Proc. of ICCV*, 12 pages, 2025.
361. S. Chowdhury, S. Nag, S. Dasgupta, Y. Wang, M. Elhoseiny, R. Gao, D. Manocha, "AVTrustBench: Assessing and Enhancing Reliability and Robustness in Audio-Visual LLMs", *Proc. of ICCV*, 12 pages, 2025.
362. S. Chowdhury, S. Biswas, S. Nag, T. Nagarajan, C. Murdock, I. Ananthabhotla, Y. Qian, V. Ithapu, D. Manocha, R. Gao, "EgoAdapt: Adaptive Multisensory Distillation and Policy Learning for Efficient Egocentric Perception", *Proc. of ICCV*, 12 pages, 2025.
363. S. Chowdhury, H. Gani, N. Anand, S. Nag, R. Gao, M. Elhoseiny, S. Khan, and D. Manocha, "AURELIA: Test-time Reasoning Distillation in Audio-Visual LLMs", *Proc. of ICCV*, 12 pages, 2025.
364. T. Guan, Y. Yang, H. Cheng, M. Lin, R. Kim, R. Madhivanan, A. Sen, and D. Manocha, "ZSORN: Language-Driven Object-Centric Zero-Shot Object Retrieval and Navigation", *Proc. Of ICRA*, 2025, 8 pages.
365. J. Liang, D. Das, D. Song, M. Shuvo, M. Durrani, K. Taranath, I. Penskiy, D. Manocha, and X. Xiao, "GND: Global Navigation Dataset with Multi-Modal Perception and Multi-Category Traversability in Outdoor Campus Environments", *Proc. of ICRA*, 8 pages, 2025.
366. K. Mudiyansele, M. Elnoor, G. Seneviratne, V. Rajagopal, S. Arul, J. Liang, M. Jaffar, and D. Manocha, "BehAV: Behavioral Rule Guided Autonomy Using VLMs for Robot Navigation in Outdoor Scenes", *Proc. of ICRA*, 8 pages, 2025.
367. M. Elnoor, K. Mudiyansele, G. Seneviratne, R. Xian, T. Guan, M. Jaffar, V. Rajagopal and D. Manocha, "VLM-GroNav: Robot Navigation Using Physically Grounded Vision-Language Models in Outdoor Environments", *Proc. of ICRA*, 8 pages, 2025.
368. V. Dorbala, V. Sharma, P. Tokekar and D. Manocha, "Improving Zero-Shot ObjectNav with Generative Communication", *Proc. of ICRA*, 8 pages, 2025.
369. S. Ghosal, R. Hebbalaguppe, and D. Manocha, "Better Features, Better Calibration: A Simple Fix for Overconfident Networks", *Proc. Of European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (EMCL PKDD)*, 2025

370. D. Kothandaraman, T. Zhou, M. Lin, and D. Manocha, “To 3D or Not to 3D? Examining 3D Data Efficiency in Novel View Synthesis”, *Proc. Of IEEE International Conference on Multimedia Information Processing and Retrieval (MIPR)*, 2025
371. J. Liang, K. Weerakoon, D. Song, and D. Manocha, “MOSU: Autonomous Long-Range Robot Navigation with Multi-modal Perception and On-road Scene Understanding”, *Proc. Of ISER*, 10 pages, 2025.
372. M. Chehade, S. Ghosal, S. Chakraborty, A. Reddy, D. Manocha, A. Bedi, and H. Zhu, “Inference-Time Alignment of LLMs via User-Specified Multi-Criteria Transfer Decoding”, *Proc. of ICML*, 2025, 10 pages.
373. S. Ghosh, Z Kong, S. Kumar, S. Sakshi, J. Kim, W. Ping, R. Valle, D. Manocha, and B. Catanzao,, “Audio Flamingo 2: An Audio Language Model with Long-Audio Understanding and Expert Reasoning Abilities”, *Proc. of ICML*, 2025, 10 pages
374. S. Ghosh, M. Rasooli, M. Levit, P. Wang, J. Xue, D. Manocha, and J. Li, “Failing Forward: Improving Generative Error Correction for ASR with Synthetic Data and Retrieval Augmentation”, *Proc. Of ACL*, 2025, 10 pages.
375. M. Suri, P. Mathur, N. Lipka, F. Deroncourt, R Rossi, and D. Manocha, “ChartLens: Fine-grained Visual Attribution in Charts”, *Proc. Of ACL*, 2025, 11 pages.
376. S. Ghosal, S. Chakraborty, V. Singh, T. Guan, M. Wang, T. Guan, M. Wang, A. Beirami, F. Huang, A. Velasquez, D. Manocha, and A. Bedi, “Immune: Improving Safety Against Jailbreaks in Multimodal LLM via Inference-Time Alignment”, *Proc. of CVPR*, 10 pages, 2025.
377. D. Jung, J. Choi, Y. Lee, S. Jeong, T. Lee, D. Manocha, S. Yeon, “EDM: Equirectangular Projection-Oriented Dense Kernelized Feature Matching”, *Proc. of CVPR*, 10 pages, 2025.
378. S. Ghosh, S. Kumar, Z. Kong, R. Valle, B. Catanzaro, and D. Manocha, “Synthio: Augmenting Small-Scale Audio Classification Datasets with Synthetic Data”, *Proc. of ICLR*, 14 pages, 2025.
379. S. Sakshi, U. Tyagi, S. Kumar, A. Seth, R. Selvakumar, O. Nieto, R. Duraiswami, S. Ghosh, and D. Manocha, “MMAU: A Massive Multi-Task Audio Understanding and Reasoning Benchmark”, *Proc. of ICLR*, 14 pages, 2025.
380. S. Ghosh, C. Evuru, S. Kumar, U. Tyagi, O. Nieto, Z. Jin, and D. Manocha, “Visual Description Grounding Reduces Hallucination and Boosts Reasoning in LVLMs”, *Proc. of ICLR*, 14 pages, 2025.
381. S. Audia, S. Feizi, M. Zwicker, and D. Manocha, “How Learnable Grids Recover Fine Detail in Low Dimensions: A Neural Tangent Kernel Analysis of Multigrid Parameteric Encodings”, *Proc. of ICLR*, 14 pages, 2025.
382. S. Chakraborty, S. Bhatt, U. Sehwal, S. Ghosal, J. Qiu, M. Wang, D. Manocha, F. Huang, A. Koppel, and S. Ganesh, “Collab: Controlled Decoding using Mixture of Agents for LLM Alignment”, *Proc. of ICLR*, 14 pages, 2025.
383. Z. Hu, T. Zheng, V. Viswanathan, Z. Chen, R. Rossi, Y. Wu, D. Manocha, and H. Huang, “Towards Optimal Multi-Draft Speculative Decoding”, *Proc. of ICLR*, 14 pages, 2025.

384. S. Ghosal, S. Pal, K. Mukherjee, and D. Manocha, “PromptRefine: Enhancing Few-Shot Performance on Low-Resource Indic Languages with Example Selection from related Example Banks”, *Proc. of NAACL (Main Conference)*, 13 pages, 2025.
385. M. Suri, P. Mathur, F. Dernoncourt, K. Goswami, R. Rossi, and D. Manocha, “VisDom: Multi-Document QA with Visually Rich Elements using Multimodal Retrieval-Augmented Generation”, *Proc. of NAACL (Main Conference)*, 12 pages, 2025, **(oral presentation)**.
386. A. Seth, R. Selvakumar, S. Kumar, S. Ghosh, and D. Manocha, “PAT: Parameter-Free Audio-Text Aligner to Boost Zero-Shot Audio Classification”, *Proc. of NAACL (Main Conference)*, 12 pages, 2025, **(oral presentation)**.
387. R. Selvakumar, S. Kumar, H. Giri, N. Anand, A. Seth, S. Ghosh, and D. Manocha, “Do Audio-Language Models Understand Language Variations?”, *Proc. of NAACL (Main Conference)*, 6 pages, 2025.
388. S. Kumar, S. Ghosh, U. Tyagi, A. Ratnarajah, C. Evuru, R. Duraiswami and D. Manocha, “ProSE: Diffusion Priors for Speech Enhancement”, *Proc. of NAACL (Main Conference)*, 11 pages, 2025, **(oral presentation)**.
389. D. Kothanrdaman, K. Kulkarni, S. Shekhar, B. Srinivasan, and D. Manocha, “Imposter: Text and Frequency Guidance for Subject Driven Action Personalization using Diffusion Models”, *Proc. of COLING*, 2025, 10 pages.
390. G. Lee, Y. Yang, J. Healey, and D. Manocha, “Since U Been Gone: Augmenting Context-Aware Transcriptions for Re-Engaging in Immersive VR Meetings”, *Proc. of CHI*, 2025, 10 pages.
391. S. Ghosh, S. Kumar, C. Evuru, O. Nieto, R. Duraiswami, and D. Manocha, “ReCLAP: Improving Zero Shot Audio Classification by Describing Sounds”, *Proc. of ICASSP*, 2025, 6 pages. **Oral Presentation.**
392. J. Lin, G. Götz, H. Sampedro Llopis, H. Hafsteinsson, S. Guðjónsson, D. Gert Nielsen, F. Pind, P. Smaragdis, D. Manocha, J. Hershey, T. Kristjansson and M. Kim, “Generative Data Augmentation Challenge: Synthesis of Room Acoustics for Speaker Distance Estimation”, *Proc. of ICASSP Workshops (ICASSPW)*, 2025, 6 pages.
393. N. Anand, A. Seth, R. Duraiswami, and D. Manocha, “TSPE: Task-Specific Prompt Ensemble for Improved Zero-Shot Audio Classification”, *Proc. of ICASSP Workshops (ICASSPW)*, 2025, 5 pages.
394. S. Chowdhury, S. Nag, S. Dasgupta, J. Chen, M. Elhoseiny, R. Gao and D. Manocha, “Meerkat: Audio-Visual Large Language Model for Grounding in Space and Time”, *Proc. of ECCV*, 14 pages, 2024.
395. P. Guhan, T. Huang, G. Su, S. Gopalakrishnan and D. Manocha, “V-Trans4Style: Visual Transition Recommendation for Video Production Style Adaptation”, *Proc. of ECCV*, 14 pages, 2024.
396. S. Ghosal, S. Basu, S. Feizi, and D. Manocha, “IntCoOp: Interpretability-Aware Vision-Language Prompt Tuning”, *Proc. Of EMNLP*, 11 pages, 2024.
397. M. Suri, P. Mathur, F. Dernoncourt, R. Jain, V. Morariu, R. Sawhney, P. Nakov, and D. Manocha, “DocEditAgent: Document Structure Editing Via Multimodal LLM-Grounding”, *Proc. Of EMNLP*, 12 pages, 2024.

398. K. Mudiyansele, A. Sathyamoorthy, M. Elnoor, A. Zore, and D. Manocha, "TOPGN: Real-Time Transparent Obstacle Detection using Lidar Point Cloud Density for Autonomous Robot Navigation", *Proc. Of International Symposium on Robotics Research*, 2024, 16 pages.
399. A. Seth, S. Ramaneswaran, S. Sakshi, S. Kumar, S. Ghosh, and D. Manocha, "EH-MAM: Easy-to-Hard Masked Acoustic Modeling for Self-Supervised Speech Representation Learning", *Proc. Of EMNLP*, 11 pages, 2024 (**oral presentation**)..
400. S. Ghosh, S. Kumar, A. Seth, C. Evuru, U. Tyagi, S. Sakshi, O. Nieto, R Duraiswami, and D. Manocha, "GAMA: A Large Audio-Language Model with Advanced Audio Understanding and Complex Reasoning Abilities", *Proc. Of EMNLP*, 12 pages, 2024 (**oral presentation**).
401. S. Chakraborty, S. Ghosal, M. Yin, D. Manocha, M. Wang, A. Bedi, F. Huang, "Tansfer Q-Star: Principled Decoding for LLM Alignment", *Proc. Of NeuRIPS*, 16 pages, 2024.
402. J. Choi, Y. Lee, H. Lee, H. Kwon, and D. Manocha, "MeshGS: Adaptive Mesh-Aligned Gaussian Splatting for High-Quality Rendering", *Proc. Of ACCV*, 10 pages, 2024,
403. S. Chowdhury, S. Nag, K. Joseph, B. Srinivasan, and D. Manocha, "MelFusion: Synthesizing Music from Image and Language Cues using Diffusion Models", *Proc. of CVPR*, **highlight poster**, 11 pages, 2024.
404. J. Choi, R. Shah, Q. Li, Y. Wang, A. Saraf, C. Kim, J. Huang, D. Manocha, S. Alsisian and J. Kopf, "LTM: Lightweight Textured Mesh Reconstruction of Unbounded Scenes using Neural Fields", *Proc. of CVPR*, 11 pages, 2024.
405. A. Ratnarajah, S. Ghosh, S. Kumar, P. Chiniya, and D. Manocha, "AV-RIR: Audio-Visual Room Impulse Response Estimation", *Proc. of CVPR*, 11 pages, 2024.
406. T. Guan, F. Liu, X. Wu, R. Xian, Z. Li, X. Liu, X. Wang, L. Chen, F. Huang, Y. Yacoob, D. Manocha, and T. Zhou, "HallusionBench: An Advanced Diagnostic Suite for Entangled Language Hallucination & Visual Illusion in Large Vision-Language Models", *Proc. of CVPR*, 11 pages, 2024.
407. J. Liang, Z. Deng, Z. Zhou, O. Ghasemalizadeh, D. Manocha, M. Sun, C. Kuo, A. Sen, "PoCo: Point Context Cluster for RGBD Indoor Place Recognition", *Proc. Of IROS*, 2024, 8 pages.
408. X. Wang, R. Xian, T. Guan, F. Liu, D. Manocha, "SCP: Soft Conditional Prompt Learning for Aerial Video Action Recognition ", *Proc. Of IROS*, 2024, 8 pages.
409. J. Liang, A. Payandeh, D. Song, X. Xiao, D. Manocha, "DTG : Diffusion-based Trajectory Generation for Mapless Global Navigation", *Proc. Of IROS*, 2024, 8 pages.
410. S. Arul, D. Kumar, V. Sugirtharaj, R. Kim, X. Qi, R. Madhivanan, A. Sen, D. Manocha, "VLPG-Nav: Object Navigation Using Visual Language Pose Graph and Object Localization Probability Maps ", *Proc. Of IROS*, 2024, 8 pages.
411. A. Sathyamoorthy, K. Mudiyansele, M. Elnoor, A. Zore, B. Ichter, F. Xia, J. Tan, W. Yu, D. Manocha, "CoNVOI: Context-aware Navigation using Vision Language Models in Outdoor and Indoor Environments", *Proc. Of IROS*, 2024, 8 pages.

412. M. Elnoor, K. Mudiyansele, A. Sathyamoorthy, T. Guan, V. Rajagopal, D. Manocha, “AMCO: Adaptive Multimodal Coupling of Vision and Proprioception for Quadruped Robot Navigation in Outdoor Environments”, *Proc. Of IROS*, 2024, 8 pages.
413. S. Arul, A. Bedi, D. Manocha, “When, What, and with Whom to Communicate: Enhancing RL-based Multi-Robot Navigation through Selective Communication”, *Proc. Of IROS*, 2024, 8 pages.
414. T. Guan, R. Xian, X. Wang, X. Wu, M. Elnoor, D. Song, D. Manocha, “AGL-NET: Aerial-Ground Cross-Modal Global Localization with Varying Scales”, *Proc. Of IROS*, 2024, 8 pages.
415. C. Shek, X. Wu, W. Suttle, C. Busart, E. Zaroukian, D. Manocha, P. Tokekar, A. Bedi, “LANCAR: Leveraging Language for Context-Aware Robot Locomotion in Unstructured Environments”, *Proc. Of IROS*, 2024, 8 pages.
416. S. Ghosh, S. Kumar, A. Seth, P. Chiniya, U. Tyagi, R. Duraiswami, and D. Manocha, “Visually-Conditioned Generative Error Correction for Robust Automatic Speech Recognition”, *Proc. Of InterSpeech (oral presentation)*, 5 pages, 2024.
417. P. Guha, U. Bhattacharya, S. Sarkhel, V. Zizi, X. Chen, S. Mitra, A. Bera, and D. Manocha, “TAME-RD: Text Assisted Replication of Image Multi-Adjustments for Reverse Designing”, *Proc. Of ACL*, 10 pages, 2024.
418. S. Ghosh, C. Evuru, S. Kumar, U. Tyagi, S. Sakshi, S. Chowdhury, and D. Manocha, “ASPIRE: Language-Guided Data Augmentation for Improving Robustness Against Spurious Correlations”, *Proc. Of ACL*, 11 pages, 2024
419. S. Ghosh, U. Tyagi, S. Kumar, C. Evuru, S. Ramaneswaran, S. Sakshi and D. Manocha, “ABEX: Data Augmentation for Low-Resource NLU via Expanding Abstract Description”, *Proc. Of ACL*, 12 pages, 2024 420.
421. D. Kothandaraman, K. Sohn, R. Villegas, P. Voigtlaender, D. Manocha, and M. Babaeizadeh, “Text Promoting for Multi Concept Video Customization by Auto Regressive Generation”, *Proc. of CVPR Workshop on AI for Content Creation*, 10 pages, 2024.
422. S. Ghosh, C. Evuru, S. Kumar, S. Ramaneswaran, D. Aneja, Z. Jin, R. Duraiswami and D. Manocha, “A Closer Look at the Limitations of Instruction Tuning”, *Proc. Of ICML*, 11 pages, 2024.
423. S. Chakraborty, A. Bedi, S. Zhu, B. An, D. Manocha, and F. Huang, “On the Possibilities of AI Text Detection”, *Proc. Of ICML*, 12 pages, 2024.
424. B. Patel, W. Suttle, A. Koppel, V. Aggarwal, B. Sadler, A. Bedi, and D. Manocha, “Global Optimality without Mixing Time Oracles in Average-reward RL Multi-level Actor-Critic”, *Proc. Of ICML*, 11 pages, 2024.
425. S. Chakraborty, J. Qiu, H. Yuan, A. Koppel, F. Huang, D. Manocha, A. Bedi, and M. Wang, “MaxMin-RLHF: Alignment with Diverse Human Preferences”, *Proc. Of ICML*, 12 pages, 2024.

426. U. Bhattacharya, A. Bera, and D. Manocha, “Speech2UnifiedExpressions: Synchronous Synthesis of Co-Speech Affective Face and Body Expressions from Affordable Inputs”, *Proc. of CVPR Workshop on Human Motion Generation (HuMoGen)*, 11 pages, 2024.
427. Puneet Mathur, Zhe Liu, Ke Li, Yingyi Ma, Gil Karen, Zeeshan Ahmed, Dinesh Manocha and Xuedong Zhang, “DOC-RAG: ASR Language Model Personalization with Domain-Distributed Co-occurrence Retrieval Augmentation”, *Proc. Of The 2024 Joint International Conference on Computational Linguistics, Language Resources and Evaluation (LREC-COLING)*, 9 pages, 2024.
428. Puneet Mathur, Rajiv Jain, Vlad Morariu, Aparna Garimella, Franck Deroncourt, Jiuxiang Gu, Ramit Sawhney, Preslav Nakov, and Dinesh Manocha, “DocScript: Document-level Script Event Prediction”, *Proc. Of The 2024 Joint International Conference on Computational Linguistics, Language Resources and Evaluation (LREC-COLING)*, 9 pages, 2024.
429. Samyak Jain, Parth Chhabra, Atula Neerkaje, Puneet Mathur, Ramit Sawhney, Shivam Agarwal, Preslav Nakov, Sudheer Chava and Dinesh Manocha, “Saliency-Aware Interpolative Augmentation for Multimodal Financial Prediction”, *Proc. Of The 2024 Joint International Conference on Computational Linguistics, Language Resources and Evaluation (LREC-COLING)*, 9 pages, 2024.
430. V. Dorbala, S. Chowdhury, and D. Manocha, “Can LLMs Generate Human-Like Wayfinding Instructions? Towards Platform-Agnostic Embodied Instruction Synthesis”, *Proc. Of NAACL*, 14 pages, 2024.
431. S. Kumar, S. Ghosh, S. Sakshi, U. Tyagi, and D. Manocha, “Do Vision-Language Models Understand Compound Nouns?”, *Proc. Of NAACL*, 14 pages, 2024.
432. C. Evuru, S. Ghosh, S. Kumar, S. Ramaneswaran, U. Tyagi, and D. Manocha, “CoDa: Constrained Generation based Data Augmentation for Low-Resource NLP”, *Proc. Of NAACL*, 14 pages, 2024.
433. S. Chakraborty, A. Bedi, A. Koppel, H. Wang, D. Manocha, M. Wang, and F. Huang, “PARL: A Unified Framework for Policy Alignment in Reinforcement Learning”, *Proc. Of ICLR*, 10 pages, 2024.
434. R. Xian, B. Vogel, C. De Melo, A. Harrison, and D. Manocha, “Real-time human action recognition from aerial videos using autozoom and synthetic data”, *Proc. of SPIE Conference on Synthetic Data for Artificial Intelligence and Machine Learning*, 6 pages, 2024.
435. Jing Liang, Peng Gao, Xuesu Xiao, Adarsh Jagan Sathyamoorthy, Mohamed Elnoor, Ming C. Lin, Dinesh Manocha, “MTG: Mapless Trajectory Generator with Traversability Coverage for Outdoor Navigation”, *Proc. of IEEE ICRA*, 2024, 8 pages.
436. Biao Jia and Dinesh Manocha, “Sim-to-Real Robotic Sketching using Behavior Cloning and Reinforcement Learning”, *Proc. of IEEE ICRA*, 2024, 8 pages.
437. Tianrui Guan, Yurou Yang, Harry Cheng, Muyuan Lin, Richard Kim, Rajasimman Madhivanan, Arnab Sen, Dinesh Manocha, “LOC-ZSON: Language-driven Object-Centric Zero-Shot Object Retrieval and Navigation”, *Proc. of IEEE ICRA*, 2024, 8 pages.
438. Nare Karapetyan, Ahmad Bilal Asghar, Amisha Bhaskar, Guangyao Shi, Dinesh Manocha, Pratap Tokekar, “AG-CVG: Coverage Planning with a Mobile Recharging UGV and an Energy-Constrained UAV”, *Proc. of IEEE ICRA*, 2024, 8 pages.

439. Senthil Hariharan Arul, Jong Jin Park, Vishnu Prem, Yang Zhang, Dinesh Manocha, “Unconstrained Model Predictive Control for Robot Navigation under Uncertainty”, *Proc. of IEEE ICRA*, 2024, 8 pages.
440. Adarsh Jagan Sathyamoorthy, Kasun Weerakoon Kulathun Mudiyansele, Mohamed Elnoor, Mason Russell, Jason Pusey, Dinesh Manocha, “MIM: Indoor and Outdoor Navigation in Complex Environments Using Multi-Layer Intensity Maps”, *Proc. of IEEE ICRA*, 2024, 8 pages.
441. Christopher Maxey, jaehoon Choi, Hyungtae Lee, Dinesh Manocha, Heesung Kwon, “UAV-Sim: NeRF-based Synthetic Data Generation for UAV-based Perception”, *Proc. of IEEE ICRA*, 2024, 8 pages.
442. Kasun Weerakoon Kulathun Mudiyansele, Adarsh Jagan Sathyamoorthy, Mohamed Elnoor, Dinesh Manocha, “VAPOR: Legged Robot Navigation in Unstructured Outdoor Environments using Offline Reinforcement Learning”, *Proc. of IEEE ICRA*, 2024, 8 pages.
443. A. Ratnarajah and Dinesh Manocha, “Listen2Scene: Interactive Material-Aware Binural Sound Propagation for Reconstructed 3D Scenes”, *Proc. of IEEE VR*, 2024, 10 pages.
444. G. Lee, J. Healey, and Dinesh Manocha, “DocuBits: VR Document Decomposition for Procedural Task Completion”, *Proc. of IEEE VR*, 2024, 10 pages.
445. S. Ghosh, A. Seth, S. Kumar, U. Tyagi, C. Evuru, S. Ramaneswaran, S. Sakshi, O. Nieto, R. Duraiswami and D. Manocha, “CompA: Addressing the Gap in Compositional Reasoning in Audio-Language Models”, *Proc. Of ICLR*, 10 pages, 2024.
446. M. Suri, P. Mathur, R. Sawhney, P. Nakov, and D. Manocha, “Doc2Command: Furthering Language Guided Document Editing”, *Proc. Of ICLR (Tiny Paper)*, 4 pages, 2024
447. A. Seth, S. Ghosh, S. Umesh and D. Manocha, “FUSDOM: Combining In-Domain and Out-of-Domain Knowledge for Continuous Self-Supervised Learning”, *Proc. Of ICASSP*, 7 pages, 2024.
448. S. Ghosh, S. Kumar, C. Evuru, R. Duraiswami, and D. Manocha, “RECAP: Retrieval-Augmented Audio Captioning”, *Proc. Of ICASSP*, 7 pages, 2024 (**oral presentation**).
449. A. Seth, S. Ghosh, S. Umesh, and D. Manocha, “Stable Distillation: Regularizing Continued Pre-Training for Low-Resource Automatic Speech Recognition”, *Proc. Of ICASSP*, 7 pages, 2024
450. R. Wang, S. Audia, and D. Manocha, “Indoor Wireless Signal Modeling with Smooth Surface Diffraction Effect”, *Proc. Of EuCAP*, 6 pages, 2024.
451. A Satyamoorthy, K. Mudiyaesale, J. Liang, T. Guan, J. Pusey, M. Russell, D. Canover and D. Manocha, “VERN: Vegetation-aware Robot Navigation in Dense Unstructured Outdoor Environments”, *Proc. of IROS 2023*, 8 pages.
452. R. Xian, X. Wang, D. Kothandaraman, and D. Manocha. “PMI Sampler: Patch Similarity Guided Frame Selection for Aerial Action Recognition”, *Proc. Of WACV*, 2023, 10 pages.
453. R. Xian, X. Wang,, and D. Manocha. “MITFAS: Mutual Information based Temporal Feature Alignment and Sampling for Aerial Video Recognition”, *Proc. Of WACV*, 2023, 10 pages.

454. S. Ghosh, C. Evuru, S. Kumar, S. Ramameswaran, S. Sakshi, U. Tyagi, and D. Manocha, “DALE: Generative Data Augmentation for Low-Resource Legal NLP”, *Proc. Of EMNLP*, 2023, 13 pages.
455. S. Ghosh, M. Suri, P. Chiniya, U. Tyagi, S. Kumar and D. Manocha, “CoSyn: Detecting Implicit Hate Speech in Online Conversations using a Context Synergized Hyperbolic Network”, *Proc. Of EMNLP*, 2023, 14 pages.
456. S. Chakraborty, A. Bedi, A. Koppel, D. Manocha, F. Huang and M. Wang, “Principal Driven Reward Design and Agent Policy Alignment via BiLevel RL”, *Proc. of Interactive Learning with Implicit Human Feedback Workshop (ICML)*, 6 pages, 2023.
457. S. Chowdhury, S. Nag, and D. Manocha, “APoLLO: Unified Adapter and Prompt Learning for Vision Language Models”, *Proc. Of EMNLP*, 2023, 9 pages.
458. P. Mathur, Z. Liu, K. Li, Y. Ma, G. Keren, Z. Ahmed, D. Manocha and X. Zhang, “DANK-LM: Language Model Personalization via Domain-Distributed Span Aggregated K-Nearest N-gram Retrieval Augmentation”, *Proc. Of EMNLP*, 2023, 15 pages.
459. D.Kotharaman, T. Zhou, M. Lin, and D. Manocha, “Aerial Diffusion: Text Guided Ground-to-Aerial View Synthesis from a Single Image using Diffusion Models”, *Proc of ACM SIGGRAPH Asia*, 2023.
460. K. Mudiyansele, A. Sathiamoorthy, M. Elnoor, and D. Manocha, “AdVENTR: Autonomous Robot Navigation in Complex Outdoor Environments”, *Proc. of International Symposium on Experimental Robotics (ISER)*, 2023, 8 pages.
461. X. Wu, R. Chandra, T. Guan, A. Bedi, and D. Manocha, “Intent-Aware Planning in Heterogeneous Traffic via Distributed Multi-Agent Reinforcement Learning”, *Proc. of Conference on Robot Learning (CoRL)*, 2023, 10 pages, **oral presentation**.
462. C.Wang, Y. Wang and D.Manocha, “LoLep: Single-View View Synthesis with Locally-Learned Planes and Self-Attention Occlusion Inference”, *Proc. of ICCV*, 2023, 10 pages.
463. T. Guan, A. Muthuselvam, M. Hoover, X. Wang, J. Liang, A. Sathiamoorthy, D. Canover, and D.Manocha, “CrossLoc3D: Aerial-Ground Cross-Source 3D Place Recognition”, *Proc. of ICCV*, 2023, 10 pages.
464. S. Choudhury, S. Ghost, S. Dasgupte, A. Ratnarajah, U. Tyagi and D.Manocha, “AdVerb: Visually Guided Audio Dereverberation”, *Proc. of ICCV*, 2023, 10 pages.
465. S. Arul, J. Park and D. Manocha, “DS-MPEPC: Safe and Deadlock-Avoiding Robot Navigation in Cluttered Dynamic Scenes”, *Proc. of IROS 2023*, 8 pages.
466. S. Chakraborty, A. Bedi, K. Mudiyansele, P. Poddar, A. Koppel, P. Tokekar, and D. Manocha, “Dealing with Sparse Rewards in Continuous Control Robotics via Heavy-Tailed Policy Optimization”, *Proc. of ICRA 2023*, 8 pages.
467. S. Ghosh U. Tyagi, S. Rameswaran, H. Srivastava and D. Manocha, “MMER: Multimodal Multi-Task Learning for Speech Emotion Recognition”, *Proc. Of InterSpeech*, 2023 (**oral presentation**), 6 pages.

468. S. Ghosh, U. Tyagi, M. Suri, S. Kumar, S. Ramaneswaran, and D. Manocha, “ACLM: Selective-Denoising based Data Augmentation for Low-Resource Complex NER”, *Proc. of ACL* 2023, 10 pages.
469. S. Chakraborty, A. Bedi, A. Koppel, M. Wang, F. Huang and D. Manocha, “STEERING: Stein Information Directed Exploration for Model-Based Reinforcement Learning”, *Proc. of ICML*, 2023, 10 pages.
470. W. Suttle, A. Bedi, B. Patel, B. Sadler, A. Koppel, and D. Manocha, “Beyond Exponentially Fast Mixing in Average-Reward Reinforcement Learning via Multi-Level Monte Carlo Actor-Critic”, *Proc. of ICML*, 2023, 10 pages.
471. A. Seth, S. Ghosh, S. Umesh, and D. Manocha, “UNFUSED: Unsupervised Finetuning using Self Supervised Distillation”, *Proc. Of SASB: Self-Supervision in Audio, Speech and Beyond*, 2023, 5 pages.
472. S. Ghosh, U. Tyagi, S. Kumar and D. Manocha, “BioAug: Conditional Generation based Data Augmentation”, *Proc. of SIGIR*, 6 pages, 2023.
473. R. Wang and D. Manocha, “Dynamic EM Ray Tracing for Large Urban Scenes and Multiple Receivers”, *Proc. of International Wireless Communications & Mobile Computing Conference (IWCMC)*, 6 pages, 2023.
474. J. Choi, D. Jung, T. Lee, S. Kim, Y. Jung, D. Manocha, and D. Lee, “TMO: Textured Mesh Acquisition of Objects with a Mobile Device by using Differentiable Rendering”, *Proc. of CVPR*, 10 pages, 2023.
475. A. Ratnarajah, I. Ananthabhotia, V. Ithapu, P Hoffman, D. Manocha, and P. Calamia, “Towards Improved Room Impulse Response Estimation for Speech Estimation”, *Proc. of ICASSP*, 2023, 6 pages.
476. S. Ghosh, A. Seth, S. Umesh, and D. Manocha, “MAST: Multiscale Audio Spectrogram Transformers”, *Proc. of ICASSP*, 2023, 6 pages.
477. A. Seth, S. Ghosh, S. Umesh, and D. Manocha, “SLICER: Learning Universal Audio Representations using Low-Resource Self-Supervised Pre-training”, *Proc. of ICASSP*, 2023, 6 pages.
478. A. Reddy, K. Shah, W. Paul, R. Mocharla, J. Hoffman, K. Katyal, D. Manocha, C. de Melo, R. Chellappa , “Synthetic-to-Real Domain Adaptation for Action Recognition: A Dataset and Baseline Performances”, *Proc. of ICRA* 2023, 8 pages.
479. A. Agrawal, A. Bedi and D. Manocha, “RTAW: An Attention Inspired Reinforcement Learning Method for Multi-Robot Task Allocation in Warehouse Environments”, *Proc. of ICRA* 2023, 8 pages.
480. R. Chandra, X. Wang, M. Mahajan, R. Kala, R. Palugulla, C. Naidu, A. Jain and D. Manocha, “METEOR: A Dense, Heterogeneous, and Unstructured Traffic Dataset with Rare Behaviors”, *Proc. of ICRA* 2023, 8 pages.
481. X. Wang, R. Qian, T. Guan, C. de Melso, S. Nogar, A. Bera, and D. Manocha, “AZTR: Aerial Video Action Recognition with Auto Zoom and Temporal Reasoning”, *Proc. of ICRA* 2023, 8 pages.
482. D. Kothandaraman, M. Lin, and D. Manocha, “Differentiable Frequency-based Disentanglement for Aerial Video Action Recognition”, *Proc. of ICRA* 2023, 8 pages.

483. H. Le, Z. Pan and D. Manocha, “Real-time Decentralized Navigation of Nonholonomic Agents using Shifted Yielding Areas”, *Proc. of ICRA 2023*, 8 pages.
484. S. Chakraborty, A. Bedi, P. Tokekar, A. Koppel, B. Sadler, F. Huang, and D. Manocha, “Posterior Coreset Construction with Kernelized Stein Discrepancy for Model-Based Reinforcement Learning”, *Proc. Of AAAI*, 9 pages, 2023.
485. P. Mathur, R. Jain, J. Gu, F. Deroncourt, D. Manocha, V. Morariu, “DocEdit: Language-Guided Editing”, *Proc. Of AAAI*, 9 pages, 2023 **(oral presentation)**.
486. Geonsun Lee, J. Healey, and D. Manocha, “VRDoc: Gaze-based Interactions for VR Reading Experience”, *Proc. Of ISMAR*, 9 pages, 2022.
487. L. Zhang, X. Song, L. Wang, L. Qian, T. guan, Z. He, Z. Ye, R. Song, H. Ding, and D. Manocha, “Autonomous Excavator System with Real-World Deployment”, *Proceedings of IEEE ICRA Construction Workshop*, 2022.
488. P. Mathur, G. Kunapali, R. Bhat, M. Shrivastava, M. Singh, and D. Manocha, “DocInfer: Document-level Natural Language Inference using Optimal Evidence Selection”, *Proc. of EMNLP*, 2022, 9 pages **(oral presentation)**.
489. P. Mathur, M. Goyal, R. Sawhney, R. Mathur, J. Leidner, F. Deroncourt, and D. Manocha, “DocFiNet: Augmenting Text and Speech Transformers with Semi-structured Document Representations for Financial Task”, *Proc. of EMNLP*, 2022, 5 pages.
490. T. Mittal, R. Sinha, V. Swaminathan, J. Collomosse, and D. Manocha, “Video Manipulations Beyond Faces: A Dataset with Human-Machine Analysis”, *Proc. Of Winter Conference on Applications of Computer Vision (WACV)*, 9 pages, 2022. 10 pages.
491. Pooja Guhan, Saayan Mitra, Somdeb Sarkhel, Stefano Petrangeli, Ritwik Sinha, Viswanathan Swaminathan, Aniket Bera and Dinesh Manocha, “Contextualized Styling of Images for Web Interfaces using Reinforcement Learning”, *Proc. Of ISM (International Symposium on Multimedia)*, 2023, 5 pages.
492. K. Weerakoon, S. Chakraborty, N. Karapetyan, A. Satyamoorthy, A. Bedi, and D. Manocha, “HTRON: Efficient Outdoor Navigation with Sparse Rewards via Heavy Tailed Adaptive Reinforce Algorithm”, *Proc. Of CORL*, 10 pages, 2022.
493. J. Mullen, D. Kotharaman, A. Bera, and D. Manocha, “Placing Human Animations into 3D Scenes by Learning Interaction and Geometry-Driven Keyframes”, *Proc. Of Winter Conference on Applications of Computer Vision (WACV)*, 9 pages, 2022.
494. D. Kotharaman, S. Shekhar, A. Sancheti, M. Arivazhagan, T. Shukla, and D. Manocha, “SALAD: Source-free Active Label-Agnostic Domain Adaptation for Classification, Segmentation and Detection”, *Proc. Of Winter Conference on Applications of Computer Vision (WACV)*, 9 pages, 2022.
495. P. Mathur, R. Jain, A. Mehra, J. Gu, F. Deroncourt, N. Anandhavelu, Q. Tian, V. Kaynig-Fittkau, A. Nenkova, D. Manocha and V. Moraju, “LayerDoc: Layer-wise Extraction of Spatial Hierarchies Structure in

Visually Rich Documents”, *Proc. Of Winter Conference on Applications of Computer Vision (WACV)*, 9 pages, 2022.

496. J. Yue, D. Manocha, and H. Wang, “Human Trajectory Prediction via Neural Social Physics”, *Proc. of ECCV*, 19 pages, 2022.

497. T. Randhavane, U. Bharracharya, P. Kabra, K. Kapsaskis, K. Gray, D. Manocha, and A. Bera, “Learning Gait Emotions using Affective and Deep Features”, *Proc. of Motion in Games (MIG)*, 2022, 8 pages.

498. D. Kothandaraman, T Guan X. Wang, S. Hu, M. Lin and D. Manocha, “FAR: Fourier Aerial Video Recognition”, *Proc. of ECCV*, 20 pages, 2022.

499. Q. Tan, Y. Zhou, T. Wang, D. Ceylan, X. Sun and D. Manocha, “A Repulsive Force Unite for Garment Collision Handling in Neural Networks”, *Proc. of ECCV*, 21 pages, 2022.

500. Y. Zhang, W. Wang, W. Guo, P. Lv, M. Xu, W. Chen and D. Manocha, “D2-TPred: Discontinuous Dependency for Trajectory Prediction under Traffic Lights”, *Proc. of ECCV*, 18 pages, 2022.

501. A. Satyamoorthy, K. Weerakoon, T. Guan, J. Liang, and D. Manocha, “TerraPN: Unstructured Terrain Navigation using Online Self-Supervised Learning”, *Proc. Of IEEE IROS*, 2022, 8 pages.

502. A. Agrawal, S. Hariharan, A. Bedi and D. Manocha, “DC-MRTA: Decentralized Multi-Robot Task Allocation and Navigation in Complex Environments”, *Proc. Of IEEE IROS*, 2022, 8 pages.

503. L. He, Z. Pan, K. Solovey, B. Jia, and D. Manocha, “Multi-Agent Path Planning Using Medial-Axis Based Pebble-Graph Embedding”, *Proc. Of IEEE IROS*, 2022, 8 pages.

504. S. Hariharan and D. Manocha, “CGLR: Dense Multi-Agent Navigation using Voronoi Cells and Congestion Metric-Based Replanning”, *Proc. Of IEEE IROS*, 2022, 8 pages.

505. Y. Wang, H. Wang, Z. Zou, and D. Manocha, “AFR: An Efficient Buffering Algorithm for Cloud Robotic Systems”, *Proc. Of IEEE IROS*, 2022, 8 pages.

506. N. Suriyarachchi, R. Chandra, J. Baras, and D. Mamocha, “GAMEOPT: Optimal Real-Time Multi-Agent Planning and Control for Dynamic Intersections”, *IEEE 25th International Conference on Intelligent Transportation Systems (ITSC)*, 9 pages, 2022

507. U. Bhattacharya, G. Wu, S. Petrangeli, V. Swaminathan, and D. Manocha, “Show Me What I Like: Detecting User-Specific Video Highlights Using Content-Based Multi-Head Attention”, *Proc. of ACM Multimedia*, 10 pages, 2022.

508. A. Ratnarajah, Z. Tang, R. Aralikatti, and D. Manocha, “MESH2IR: Neural Acoustic Impulse Response Generator for Complex 3D Scenes”, *Proc. of ACM Multimedia*, 10 pages, 2022 (**oral presentation**).

509. P. Mathur, A. Nerrakaje, M. Chibber, R. Sawhney, F. Guo, F. Dernoncourt, S. Dutta and D. Manocha, “MONOPOLY: Financial Prediction from MONetary Policy Conference Videos Using Multimedia Cues”, *Proc. of ACM Multimedia*, 10 pages, 2022.

510. P. Mathur, V. Morariu, V. Kaynig-Fittkau, J. Gu, F. Deroncourt, Q. Tran, A. Nenkova, D. Manocha, R. Jain, “DocTime: A Document-Level Temporal Dependency Graph Parser”, *Proc. of NAACL (Oral Presentation)*, 2022, 11 pages.
511. P. Mathur, F. Deroncourt, Q. H. Tran, J. Gu, A. Nenkova, V. Morariu, R. Jain, and D. Manocha, “DocLayoutTTS: Dataset and Baselines for Layout-Informed Document-Level Neural Speech Synthesis”, *Proc. of Interspeech*, 2022, 6 pages.
512. R. Sawhney, M. Thakkar V. Shah, P. Mathur, V. Sharma, and D. Manocha, “PISA: Polcare Saliency-Aware Interpolative Augmentation”, *Proc. of Interspeech*, 2022, 6 pages.
513. Q. Tan, Z. Pan, B. Smith, T. Shiratori, and D. Manocha, “N-Penetrator: Active Learning of Neural Collision Handler for Complex 3D Mesh Deformations”, *Proc. of ICML*, 2022, 9 pages (**spotlight presentation**).
514. Z. Tang, R. Aralikatti, A. Ratnarajah, and D. Manocha, “GWA: A Large High-Quality Acoustic Dataset for Audio Processing”, *Proc. of ACM SIGGRAPH*, 2022, 9 pages.
515. X. Pan, J. Mai, X. Jiang, D. Tang, J. Ki, T. Shao, K. Zhou, X. Jin and D. Manocha, “Predicting Loose-Fitting Garment Deformations using Bone-Driven Motion Networks”, *Proc. of ACM SIGGRAPH*, 2022, 10 pages.
516. S. Padi, S. Sadjadi, D. Manocha, and R. Sriram, “Multimodal Emotion Recognition using Transfer Learning from Speaker Recognition and BERT-based Models”, *Proc. of Odyssey*, 2022, 8 pages.
517. T. Guan, Z. He, D. Manocha, and L. Zhang, “TTNS: Terrain Traversability Mapping and Navigation System for Autonomous Excavators”, *Proc. of Robotics: Science and Systems (RSS)*, 2022, 10 pages
518. R. Wang and D. Manocha, “Dynamic Coherence-Based EM Ray Tracing Simulations in Vehicular Environments”, *Proc. of IEEE Vehicular Technology Conference*, 7 pages, 2022.
519. N. Williams, A. Bera, and D. Manocha, “ENI: Quantifying Environment Compatibility for Natural Walking in Virtual Reality”, *Proc. of IEEE VR*, 10 pages, 2022.
520. P. Cong, X. Zhu, F. Qiao, Y. Ren, X. Peng, Y. Hou, L. Xu, R. Yang, D. Manocha, Y. Ma, “STCrowd: A Multimodal Dataset for Pedestrian Perception in Crowded Scenes”, *Proc. of CVPR*, 2022, 10 pages.
521. V. Gupta, T. Mittal, P. Mathur, V. Mishra, M. Maheshwari, A. Bera, D. Mukherjee, D. Manocha, “3MASSIVE: Multilingual, Multimodal, and Multi-Aspect Dataset of Social Media Short Videos”, *Proc. of CVPR*, 2022, 10 pages.
522. R. Chandra, M. Wang, M. Schwager, D. Manocha, “Game-Theoretic Planning for Autonomous Driving among Risk-Aware Human Drivers”, *Proc. of IEEE ICRA*, 8 pages, 2022
523. K. Mudiyansele, A. Sathiyamoorthy, U. Patel, D. Manocha, “TERP: Reliable Planning in Uneven Outdoor Environments using Deep Reinforcement Learning”, *Proc. of IEEE ICRA*, 8 pages, 2022
524. J. Choi, D. Jung, Y. Lee, D. Kim, D. Manocha, D. Lee, “SelfTune: Metrically Scaled Monocular Depth Estimation through Self-Supervised Learning”, *Proc. of IEEE ICRA*, 8 pages, 2022

525. J. Cong Wang, Y. Wang, D. Manocha, D. Lee, “MotionHint: Self-Supervised Monocular Visual Odometry with Motion Constraints”, *Proc. Of IEEE ICRA*, 8 pages, 2022
526. A. Ratnarajah S. Zhang, M. Yu, Z. Tang, D. Manocha, D. Yu, “Fast-RIR: Fast Neural Diffuse Room Impulse Response Generator”, *Proc. of ICASSP*, 6 pages, 2022 (**oral presentation**).
527. A. Ratnarajah, Z. Tang, and D. Manocha, “Realistic Room Impulse Response Synthesis for Robust Automatic Speech Recognition”, *Proc. of SPIE Defense and Commercial Sensing*, 4 pages, 2022.
528. S. Arul and D. Manocha, “Decentralized Multi-agent Planning for Maneuvering in Complex Scenarios”, 4 pages, *Proc. of SPIE Defense and Commercial Sensing*, 4 pages, 2022
529. Q. Tan, Z. Pan, and D. Manocha, “LCollision: Fast Generation of Collision-Free Human Poses using Learned Non-Penetration Constraints”, *Proc. of AAAI*, 2021, 9 pages.
530. T. Mittal, V. Swaminathan, S. Sarkhel, R. Sinha, D. Arbour, S. Mitra, and D. Manocha, “BOhance: Bayesian Optimization for Content Enhancement”, *IEEE International Symposium on Multimedia*, 2021, 8 pages.
531. S. Padi, O. Sadjadi, R. Sriram, and D. Manocha, “Improved Speech Emotion Recognition using Transfer Learning and Spectrogram Augmentation”, *Proc. of ACM International Conference on Multimodal Interaction (ICMI)*, 2021, 8 pages.
532. A. Ratnarajah, Z. Tang, and D. Manocha, “TS-RIR: Translated Synthetic Room Impulse Responses for Speech Augmentation”, *Proceedings of IEEE Automatic Speech Recognition and Understanding Workshop, ASRU*, 2021, 6 pages.
533. R. Aralikatti A. Ratnarajah, Z. Tang, and D. Manocha, “Improving Reverberant Speech Separation with Synthetic Room Impulse Responses”, *Proceedings of IEEE Automatic Speech Recognition and Understanding Workshop, ASRU*, 2021, 6 pages.
534. D. Kothandaraman, R. Chandra, and D. Manocha, “SS-SFDA: Self-Supervised Source-Free Domain Adaptation for Road Segmentation in Hazardous Environments”, *Proc. Of ICCV AIVision Workshop*, 2021, 10 pages.
535. D. Kothandaraman, R. Chandra, and D. Manocha, “BoMuDaNet: Unsupervised Adaptation for Visual Scores Understanding in Unstructured Driving Environments”, *Proc. of ICCV Workshop on Multi-Agent Interaction and Relational Reasoning (ICCV MAIR2)*, 12 pages, 2021.
536. T. Guan, J. Wang, S. Lan, R. Chandra, Z. Wu, L. Davis, and D. Manocha, “M3DeTR: Multi-representation, Multi-scale, Mutual-Relation 3D Object Detection with Transformer”, *Proc. of WACV*, 2021, 10 pages.
537. H. Miao, F. Lu, Z. Liu, L. Zhang, D. Manocha, and B. Zhou, “Robust 2D/3D Vehicle Parsing in Arbitrary Camera Views for CVIS”, *Proc. Of ICCV*, 2021, 10 pages.
538. D. Jung, J. Choi, Y. Lee, D. Kim, Z. Kim, D. Manocha, and D. Lee, “DnD: Dense Depth Estimation in Crowded Indoor Dynamic Scenes”, *Proc. Of ICCV*, 2021, 10 pages.

539. U. Bhattacharya, G. Wu, S. Petrangeli, V. Swaminathan, and D. Manocha, "HighlightMe: Detecting Highlights from Human-Centric Videos", *Proc. Of ICCV*, 2021, 10 pages
540. U. Bhattacharya, E. Childs, N. Rewkowski, and D. Manocha, "Speech2AffectiveGestures: Synthesizing Co-Speech Gestures with Generative Adversarial Affective Expression Learning", *Proceedings of ACM Multimedia*, 10 pages, 2021 **(oral presentation)**.
541. S. Arul and D. Manocha, "V-RVO: Decentralized Multi-Agent Collision Avoidance using Voronoi Diagrams and Reciprocal Velocity Obstacles", *Proc. Of IROS*, 2021, 8 pages.
542. A. Roth, J. Liang, and D. Manocha, "XAI-N: Sensor-based Robot Navigation using Expert Policies and Decision Trees", *Proc. Of IROS*, 2021, 8 pages.
543. Yu-Ping Wang, Zi-Xin Zou, Cong Wang, Yue-Jiang Dong, Lei Qiao, and D. Manocha, "ORBBuf: A Robust Buffering Method for Remote Visual SLAM", *Proc. Of IROS*, 2021, 8 pages.
544. A. Ratnarajah, Z. Tang, and D. Manocha, "IR-GAN: Room Impulse Response Generator for Far-Field Speech Recognition", *Proc. Of Interspeech*, 2021, 5 pages.
545. P. Mathur, R. Jain, F. Demoncourt, V. Moraju, Q. Tran, and D. Manocha, "TIMERS: Document-level Temporal Relationship Extraction", *Proc. Of ACL-IJCNLP*, 9 pages, 2021 **(oral presentation)**.
546. Hsien-Yu Meng, Z. Tang, and D. Manocha, "Point-based Acoustic Scattering for Interactive Sound Propagation via Surface Encoding", *Proc. of IJCAI*, 2021, 8 pages.
547. T. Mittal, P. Mathur, A. Bera, and D. Manocha, "Affect2MM: Affective Analysis of Multimedia Content using Emotion Causality", *Proceedings of IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2021, 11 pages.
548. U. Patel, N. Kumar, A. Jagan, and D. Manocha, "DWA-RL: Dynamically Feasible Deep Reinforcement Learning Policy for Robot Navigation among Mobile Obstacles", *Proceedings of IEEE Conference on Robotics and Automation (ICRA)*, 2021, 7 pages.
549. J. Choi, D. Jung, Y. Lee, D. Kim, D. Manocha, and D. Lee, "SelfDeco: Self-Supervised Monocular Depth Completion in Challenging Indoor Environments", *Proceedings of IEEE Conference on Robotics and Automation (ICRA)*, 2021, 7 pages.
550. S. Patel, S. Arul, P. Dhulipala, M. Lin, D. Manocha, H. Xu, and M. Otte, "Multi-Agent Ergodic Coverage in Urban Environments", *Proceedings of IEEE Conference on Robotics and Automation (ICRA)*, 2021, 7 pages.
551. P. Mathur, T. Mittal, and D. Manocha, "Dynamic Graph Modeling of Simultaneous EEG and Eye-Tracking Data for Reading Task Identification", *Proceedings of ICASSP*, 2021, 5 pages.
552. U. Bhattacharya, N. Rewkowski, A. Banerjee, P. Guhan, A. Bera, and D. Manocha, "Text2Gestures: A Transformer Network for Generating Emotive Body Gestures for Virtual Agents", *Proc. Of IEEE VR*, 2021, 9 pages.

553. Z. Tang, H. Meng, and D. Manocha, "Learning Acoustic Scattering Fields for Dynamic Interactive Sound Propagation", *Proc. Of IEEE VR*, 2021, 9 pages.
554. J. Park and D. Manocha, "HMPO: Human Motion Prediction in Occluded Environments for Safe Motion Planning", *Robotics: Science and System*, 11 pages, 2020.
555. T. Mittal, U. Bhattacharya, R. Chandra, A. Bera, and D. Manocha, "Emotions Don't Lie: An Audio-Visual Deepfake Detection Method using Affective Cues", *Proceedings of ACM Multimedia*, 10 pages, 2020.
556. X. Jin, S. Li, T. Qu, D. Manocha, and G. Wang, "Deep-Modal: Real-Time Impact Sound Synthesis for Arbitrary Shape", *Proceedings of ACM Multimedia*, 9 pages, 2020.
557. U. Bhattacharya, N. Williams, T. Mittal, P. Guhan, N. Rewkowski, A. Bera, and D. Manocha, "Generating Emotive Gaits for Virtual Agents using Affect-Based Autoregression", *Proceedings of ISMAR*, 2020, 12 pages.
558. Q. Tan, T. Fan, J. Pan, and D. Manocha, "DeepMNavigate: Deep Reinforced Multi-Robot Navigation Unifying Local and Global Collision Avoidance", *Proc. of IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 8 pages, 2020.
559. Y. Ma, X. Zhu, X. Cheng, R. Yang, J. Liu, and D. Manocha, "AutoTrajectory: Label-Free Trajectory Extraction and Prediction from Videos using Dynamic Points", *European Conference on Computer Vision (ECCV)*, 2020, 10 pages.
560. B. Sudhakar, V. Narayanan, V. Dorbala, D. Manocha, and A. Bera, "ProxEemo: Gait-Based Learning and Multi-View Proxemic Fusion for Socially-Aware Navigation", *Proc. Of IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 8 pages, 2020.
561. U. Bhattacharya, C. Roncal, T. Mittal, R. Chandra, A. Bera, K. Kapsaskis, K. Gray, and D. Manocha, "Take an Emotion Walk: Perceiving Emotions from Gaits Using Hierarchical Attention Pooling and Attention Mapping", *European Conference on Computer Vision (ECCV)*, 2020, 10 pages.
562. R. Chandra, U. Bhattacharya, T. Mittal, A. Bera, and D. Manocha, "CMetric: A Driving Behavior Measure using Centrality Functions", *Proc. of IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 8 pages, 2020.
563. M. Liu, Z. Pan, K. Xu, K. Ganguly, and D. Manocha, "Deep Differentiable Grasp Planner for High-DOF Grippers", *Robotics: Science and System*, 12 pages, 2020.
564. A. Best, S. Narain, and D. Manocha, "Verbal Interactions between Agents and Avatars in Shared Virtual Environments using Proposition Planning", *Proceedings of IEEE VR*, 2020, 10 pages.
565. J. Liang, U. Patel, A. Satyamoorthy, and D. Manocha, "Crowd-Steer: Realtime Smooth and Collision-Free Robot Navigation in Dense Crowd Scenarios Trained using High-Fidelity Simulation", *Proceedings of IJCAI-PRICAI*, 8 pages, 2020.
566. A. Bera, T. Randhavane, R. Prinja, K. Kapsaskis, A. Wang, K. Gray, and D. Manocha, "How are you feeling? Multimodal emotion learning for socially-assistive robot navigation", *Proceedings of IEEE International Conference on Automatic Face and Gesture Recognition (FG 2020)*, 8 pages, 2020.

567. T. Mittal, P. Guhan, U. Bhattacharya, R. Chandra, A. Bera, and D. Manocha, "EmotiCon: Context-Aware Multimodal Emotion Recognition using Frege's Principle", *Proceeding of IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2020, 10 pages.
568. S. Pratapa and D. Manocha, "RANDM: Random Access Depth Map Compression using Range-Partitioning and Global Dictionary", *ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games*, 2020, 8 pages.
569. T. Fan, P. Long, W. Liu, J. Pan, R. Yang and D. Manocha, "Learning Resilient Behaviors for Navigation under Uncertainty Environments", *Proceedings of IEEE Conference on Robotics and Automation (ICRA)*, 2020, 7 pages.
570. A. Sathyamoorthy, J. Liang, U. Patel, T. Guan, R. Chandra and D. Manocha, "DenseCAvoid: Real-time Navigation in Dense Crowds using Anticipatory Behaviors", *Proceedings of IEEE Conference on Robotics and Automation (ICRA)*, 2020, 7 pages.
571. R. Chandra, U. Bhattacharya, T. Mittal, X. Li, A. Bera and D. Manocha, "GraphRQI: Classifying Driver Behaviors using Graph Spectrum", *Proceedings of IEEE Conference on Robotics and Automation (ICRA)*, 2020, 7 pages.
572. Z. Pan, X. Gao and D. Manocha, "Grasping Fragile Objects Using a Stress-Minimizing Metric", *Proceedings of IEEE Conference on Robotics and Automation (ICRA)*, 2020, 7 pages.
573. R. Chandra, U. Bhattacharya, T. Randhavane, A. Bera and D. Manocha, "RoadTrack: Realtime Tracking of Road Agents in Dense and Heterogeneous Environments", *Proceedings of IEEE Conference on Robotics and Automation (ICRA)*, 2020, 7 pages.
574. Z. Tang, L. Chen, B. Wu, D. Yu, and D. Manocha, "Improving Reverberant Speech Training using Diffuse Acoustic Simulation", *Proceedings of ICASSP*, 2020, 5 pages.
575. Z. Tang, H. Meng, and D. Manocha, "Low-Frequency Compensated Synthetic Impulse Responses for Improved Far-Field Speech Recognition", *Proceedings of ICASSP*, 2020, 5 pages.
576. U. Bhattacharya, T. Mittal, R. Chandra, T. Randhavane, A. Bera, and D. Manocha, "STEP: Spatial Temporal Graph Convolutional Networks for Emotion Perception from Gaits", *Proceedings of AAAI*, 2020, 9 pages.
577. T. Mittal, U. Bhattacharya, R. Chandra, A. Bera, and D. Manocha, "M3ER: Multiplicative Multimodal Emotion Recognition using Facial, Textual and Speech Cues", *Proceedings of AAAI*, 2020, 9 pages.
578. Q. Wu, D. Manocha, J. Wang, and K. Xu, "NeoNav: Improving the Generalization of Visual Navigation via Generating Next Expected Observations", *Proceedings of AAAI*, 2020, 9 pages.
579. Hsien-Yu Meng, Y. Lal, L. Gao and D. Manocha, "VV-Net: Voxel VAE Net with Group Convolution", *Proceedings of International Conference on Computer Vision (ICCV)*, 2019, 9 pages.

580. J. Abinahed, A. Al-Ansari, A. Palliyali, A. Alfayad, G. Younes, Z. Pan, G. Turkiyyah, G. Ohannessian, D. Manocha, N. Navkar, S. Balakrishnan and S. Itani, "Dynamic Textures for Topologically-Changing Volumes", *Proc. Of SOFA Symposium*, 2019.
581. H. Sampathkumar, S. Arul, A. Satyamoorthy, A. Rajaram, and D. Manocha, "D-ORCA: A Distributed Aerial Swarm Collision Avoidance", *Proc. Of ROSCON*, 2019.
582. Z. Pan, M. Liu, X.Gao, and D. Manocha, "Globally Optimal Joint Search of Topology and Trajectory for Planar Linkages", *Proceedings of International Symposium on Robotics Ressearch (ISRR)*, 2019, 16 pages.
583. B. Jia, J. Brandt, R. Mech, B. Kim, and D. Manocha, "LPaintB: Learning to Paint from Self-Supervision", *Proceedings of Pacific Graphics*, 2019, 7 pages.
584. Z. Tang, J. Kanu, K. Hogan, and D. Manocha, "Regression and Classification for Direction-of-Arrival Estimation with Convolutional Recurrent Neural Networks", *Proceedings of Interspeech 2019*, 6 pages.
585. R. Chandra, U. Bhattacharya, C.Roncal, A. Bera, and D. Manocha, "RobustTP: End-to-End Trajectory Prediction for Heterogeneous Road-Agents in Dense Traffic with Noisy Sensor Inputs", *ACM Computer Science in Cars Symposium*, 9 pages, 2019.
586. M. Liu, Z. Pan, K. Xu, K. Ganguly, and D. Manocha, "Generating Grasp Poses for a High-DOF Gripper using Neural Networks", *Proceeding of IEEE/RSJ International Conference on Intelligent Robots (IROS)*, 8 pages, 2019.
587. R. Chandra, U. Bhattacharya, A. Bera, and D. Manocha, "DensePeds: Pedestrian Tracking in Dense Crowds using FRVO and Sparse Features", *Proceeding of IEEE/RSJ International Conference on Intelligent Robots (IROS)*, 8 pages, 2019.
588. Y. P. Wang, W. Tan, X. Hu, D. Manocha, and S. Hu, "TZC: Efficient Inter-Process Communication for Robotics Middleware", *Proceeding of IEEE/RSJ International Conference on Intelligent Robots (IROS)*, 8 pages, 2019.
589. T. Randhavane, A. Bera, K. Kapsaskis, R. Sheth, K. Gray, and D. Manocha, "EVA: Modeling Perceived Emotions of Virtual Agents using Expressive Features of Gait and Gaze", *Proceedings of ACM Symposium on Applied Perception (SAP)*, 2019, 9 pages.
590. M. Gupta, M Lin, D. Manocha, H. Xu, and M. Otte, "Monitoring Access to User Defined Areas with Swarms of UAVs in Urban Environments", *International Symposium on Multi-Robot and Multi-Agent Systems (MRS)*, 2019, 8 pages **(Nominated for Best Paper Award)**.
591. Z. Pan, B. Ren, and D. Manocha, "GPU-Based Contact-Aware Trajectory Optimization Using a Smooth Force Model", *ACM/Eurographics Symposium on Computer Animation*, 10 pages, 2019.
592. S. Pratapa and D. Manocha, "HMLFC: Hierarchical Motion-Compensated Light Field Compression for Interactive Rendering", *High Performance Graphics*, 11 pages, 2019.
593. Y. Ma, X. Zhu, S. Zhang, R. Yang, W. Wang, and D. Manocha, "TrafficPredict: Trajectory Prediction for Heterogeneous Traffic-Agents", *Proc. of AAAI*, 2019, 8 pages.

594. S. Pratapa and D. Manocha, "RLFC: Random Access Light Field Compression using Key Views and Bounded Sequence Integer Encoding", *Proc. Of ACM Symposium on Interactive 3D Graphics*, 2019, 10 pages.
595. R. Chandra, U. Bhattacharya, A. Bera, and D. Manocha, "TraPHic: Trajectory Prediction in Dense and Heterogeneous Traffic using Weighted Interactions", *Proc. Of IEEE CVPR*, 8 pages, 2019.
596. A. Rungta, N. Rewkowski, R. Klatzky, and D. Manocha, "P-Reverb: Perceptual Characterization of Early and Late Reflections for Auditory Displays", *Proc. Of IEEE VR*, 8 pages, 2019.
597. B. Jia, Z. Pan, and D. Manocha, "Fast Motion Planning for High-DOF Robot Systems using Hierarchical System Identification", *Proc. Of ICRA*, 2019, 8 pages.
598. T. Randhavane, A. Bera, E. Kubin, A. Wang, K. Gray, and D. Manocha, "Pedestrian Dominance Modeling for Socially-Aware Robot Navigation", *Proc. Of ICRA*, 2019, 8 pages.
599. I. An, D. Lee, J. Choi, D. Manocha, and S. Yoon, "Diffraction-Aware Sound Localization for Non-Line-of-Sight Source", *Proc. Of ICRA*, 2019, 7 pages.
600. H. Tian, C. Wang, D. Manocha, X. Zhang, "Transferring Grasp Configuration using Active Learning and Local Replanning", *Proc. Of ICRA*, 2019, 7 pages.
601. J. Park, B. Jia, M. Bansal, D. Manocha, "Efficient Generation of Motion Plans from Attribute-Based Natural Language Instructions using Dynamic Constraint Mapping", *Proc. Of ICRA*, 2019, 7 pages.
602. E. Cheung, T Kwong Wong, A. Bera and D. Manocha, "MixedPeds: Pedestrian Detection in Unannotated Video using Synthetically Generated Human-Agents for Training", *Proceedings of AAAI*, 2018, 9 pages.
603. A. Bera, T. Randhavane, A. Wang, E. Kubin, K. Gray, and D. Manocha, "Data-Driven Modeling of Group Entitativity in Virtual Environments", *Proc. Of ACM VRST*, 2018, 10 pages.
604. Z. Pan and D. Manocha, "Time Integrating Articulated Body Dynamics Using Position-Based Collocation Methods", *Proceedings of WAFR* 2018, 16 pages.
605. Y. Ma, D. Manocha, W. Wang, "AutoRVO: Local Navigation with Dynamic Constraints in Dense Heterogeneous Traffic", *Proc. of ACM Computer Science in Cars Symposium*, 9 pages, 2018.
606. L. Zhao, J. Zhao, H. Liu and D. Manocha, "Efficient Inverse Kinematics for Redundant Manipulators with Collision Avoidance in Dynamic Scenes", *Proc. Of IEEE Robio*, 6 pages, 2018.
607. Z. Tang, N. Morales, and D. Manocha, "Dynamic Sound Field Synthesis for Sound and Music Optimization", *Proc. of ACM Multimedia*, 2018, 10 pages.
608. Z. Pan and D. Manocha, "Position-Based Optimizable Time-Integrator for Frictional Articulated Body Dynamics", *Proc. of IROS*, 2018, 8 pages.
609. A. Bera, T. Randhavane, A. Wang, E. Kubin, K. Gray, and D. Manocha, "The Socially Invisible Robot: Navigation in the Social World using Robot Entitativity", *Proc. of IROS*, 2018, 8 pages.

610. E. Cheung, A. Bera, E. Kubin, K. Gray, and D. Manocha, "Identifying Driver Behavior using Trajectory Features for Vehicle Navigation", *Proc. of IROS*, 2018, 8 pages.
611. Z. Tang and D. Manocha, "Noise Field Control using Active Sound Propagation and Optimization", *Proc of IWAENC*, 6 pages.
612. A. Rungta, N Rewkowski, C. Schissler, P. Robinson, R. Mehra, and D. Manocha, "Effects of Virtual Acoustics on Target-Word Identification Performance in Multi-Talker Environments", *Proc. of ACM Symposium on Applied Perception*, 9 pages, 2018.
613. E. Cheung, A. Bera, and D. Manocha, "Efficient and Safe Vehicle Navigation Based on Driver Behavior Classification", *Proc. of IEEE Conference on Computer Vision and Pattern Recognition (CVPR) Workshops*, 2018.
614. A. Bera, T. Randhavane, A. Wang, D. Manocha, E. Kubin, and K. Gray, "Classifying Group Emotions for Socially-Aware Autonomous Vehicle Navigation", *Proc. of IEEE Conference on Computer Vision and Pattern Recognition (CVPR) Workshops*, 2018.
615. A. Best, S. Narang, L. Pasqualin, D. Barber, and D. Manocha, "AutonoVi-Sim: Autonomous Vehicle Simulation Platform with Weather, Sensing, and Traffic Control", *Proc. of IEEE Conference on Computer Vision and Pattern Recognition (CVPR) Workshops*, 2018.
616. Y. Ma, D. Manocha, and W. Wang, "Efficient Reciprocal Collision Avoidance between Heterogeneous Agents using CTMAT", *Proceedings of AAMAS*, 8 pages, 2018.
617. Z. Pan and D. Manocha, "Realtime Planning for High-DOF Deformable Bodies using Two-Stage Learning", *Proceedings of IEEE Conference on Robotics and Automation (ICRA)*, 8 pages, 2018.
618. B. Jia, Z. Hu, J. Pan and D. Manocha, "Manipulating Highly Deformable Materials using a Visual Feedback Dictionary", *Proceedings of IEEE Conference on Robotics and Automation (ICRA)*, 8 pages, 2018.
619. I. An, M. Son, D. Manocha, and S. Yoon "Reflection-Aware Sound Source Localization", *Proceedings of IEEE Conference on Robotics and Automation (ICRA)*, 8 pages, 2018.
620. S. Narang, A. Best and D. Manocha, "Simulating Agent and Avatar Interactions in Virtual Worlds with Full-Body Constraints", *Proc. of IEEE VR*, 8 pages, 2018.
621. L. Sheng, T. Zhang, G. Wang, H. Sun, and D. Manocha, "Multi-Contact Frictional Rigid Dynamics using Impulse Decomposition", *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2017, 8 pages.
622. S. Narang, A. Best, A. Shapiro, and D. Manocha, "Generating Virtual Avatars with Personalized Walking Gaits using Commodity Hardware", *Proc. Of ACM Multimedia*, 2017, 8 pages.
623. A. Best, S. Narang, D. Barber, and D. Manocha, "AutonoVi: Autonomous Vehicle Planning with Dynamic Maneuvers and Traffic Constraints", *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2017, 8 pages.

624. A. Bera, T. Randhavane, R. Prinja, and D. Manocha, "SocioSense: Robot Navigation Amongst Pedestrians with Social and Psychological Constraints", *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2017, 8 pages.
625. Z. Pan and D. Manocha, "Feedback Motion Planning for Liquid Pouring", *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2017, 8 pages.
626. B. Gopalakrishnan, A. Singh, M. Kaushik, M. Krishnan, and D. Manocha, "PRVO: Probabilistic Reciprocal Velocity Obstacles for Multi-Robot Navigation under Uncertainty", *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2017, 8 pages.
627. L. He, J. Pan, D. Manocha, "Efficient Multi-Agent Global Navigation using Interpolation Bridges", *Proc. of International Conference on Robotics and Automation (ICRA)*, 8 pages, 2017.
628. J. Park, C. Park, D. Manocha, "Intention Aware Motion Planning using Learning Based Human Motion Prediction", *Proc. of Robotics: Science and Systems (RSS)*, 10 pages, 2017.
629. A. Bera, T. Randhavane and D. Manocha, "Aggressive, Tense or Shy? Identifying Personality Traits from Crowd Videos", *Proc. of International Joint Conference on Artificial Intelligence (IJCAI)*, 7 pages, 2017.
630. J. Park, C. Park, D. Manocha, "Efficient Probabilistic Collision Detection for Non-Convex Shapes", *Proc. of International Conference on Robotics and Automation (ICRA)*, 8 pages, 2017.
631. B. Gopalakrishnan, A. Kumar, K. Madhava, and D. Manocha, "Chance constraints based multi-agent navigation under uncertainty", *Proc of Advances in Robotics*, 7 pages, 2017, to appear.
632. S. Pratapa, P. Krajcevski, and D. Manocha, "MPTC: Video Rendering for Virtual Screens using Compressed Textures", *ACM Symposium on Interactive 3D Graphics and Games*, 9 pages, 2017.
633. A. Best, S. Narain, and D. Manocha, "Reciprocal Realtime Collision Avoidance with Elliptical Agents", *Proc. of International Conference on Robotics and Automation (ICRA)*, 8 pages, 2016.
634. C. Park, J. Park, and D. Manocha, "Fast and Bounded Probabilistic Collision Detection for High-DOF Robots in Dynamic Environments", *Proc. Of Workshop on Algorithmic Foundations of Robotics (WAFR)*, 16 pages, 2016.
635. S. Narang, A. Best, T. Randhavane, A. Shapiro, and D. Manocha, "PedVR: Simulating Natural Interactions between a Real User and Virtual Crowds", *Proc. of ACM Virtual Reality Software and Technology*, 10 pages, 2016.
636. E. Cheung, T. K. Wong, A. Bera, X. Wang, and D. Manocha, "LCrowdV: Generating Labeled Videos for Simulation-Based Crowd Learning", *Proc. of International Workshop on Crowd Understanding (ECCV)*, 14 pages, 2016.
637. Z. Pan and D. Manocha, "Motion Planning for Fluid Manipulation using Simplified Dynamics", *Proc. of IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 7 pages, 2016.

638. J. Park, C. Park, D. Manocha, "Human Motion Prediction from Noisy Point Cloud Data for Human-Robot Interaction", Proc. of *Workshop on Communicating Intentions in Human-Robot Interaction*, 6 pages, 2016.
639. A. Bera, S. Kim, and D. Manocha, "Trajectory-level Crowd Behavior Learning for Realtime Anomaly Detection", Proc. of *IEEE International Workshop on Performance Evaluation of Tracking and Surveillance PETS*, 2016, 7 pages.
640. H. Zhang, Pinxin Long, Dandan Zhou, Zhongfeng Qian, Zheng Wang, Weiwei Wan, Dinesh Manocha, Chonhyon Park, Tommy Hu, Chao Cao, Yibo Chen, Chun Kit Chow, Jia Pan, "DoraPicker: An Autonomous Picking System for General Objects", Proc. of *12th Conference on Automated Science and Engineering*, 2016, 8 pages.
641. L. He, J. Pan, S. Narang, and D. Manocha, "Dynamic Group Behaviors for Interactive Crowd Simulation", Proc. of *ACM SIGGRAPH Symposium on Computer Animation (SCA)*, 10 pages, 2016.
642. C. Park, J. S. Park, S. Tonneau, N. Mansard, F. Multon, J. Pettre, and D. Manocha, "Dynamically Balanced and Plausible Trajectory Planning for Human-like Characters", *Proc. of ACM Symposium on Interactive 3D Graphics and Games*. 8 pages, 2016.
643. L. He, J. Pan, and D. Manocha, "Reciprocal multi-agent navigation with dynamic group behaviors", Proc. of *Autonomous Robots and Multirobot Systems (ARMS)*, 16 pages, 2016.
644. C. Schissler and D. Manocha, "Adaptive Impulse Response Modeling for Interactive Sound Propagation", *Proc. of ACM Symposium on Interactive 3D Graphics and Games*. 8 pages, 2016.
645. L. He, J. Pan, W. Wang, and D. Manocha, "Proxemic Group Behaviors using Reciprocal Multi-Agent Navigation", Proc. of *International Conference on Robotics and Automation (ICRA)*, 8 pages, 2016.
646. A. Bera, S. Kim, T. Randhavane, S. Pratapa, and D. Manocha, "GLMP-Realtime Path Prediction using Global and Local Movement Patterns", Proc. of *International Conference on Robotics and Automation (ICRA)*, 8 pages, 2016.
647. Z. Pan, C. Park, and D. Manocha, "Robot Motion Planning for Pouring Liquids", Proc. of *International Conference on Automated Planning and Scheduling (ICAPS)*, 8 pages, 2016.
648. S. Kim, A. Bera, A. Best, R. Chabra and D. Manocha, "Adaptive Data-Driven Crowd Simulation for Interactive Virtual Environments", *Proc. of IEEE VR*, 10 pages, 2016.
649. C. Park, F. Rabe, S. Sharma, C. Scheurer, U. Zimmermann, and D. Manocha, "Parallel Cartesian Planning in Dynamic Environments using Constrained Trajectory Planning", *Proc. of IEEE Conference on Humanoid Robots*, 8 pages, 2015.
650. S. Kim, A. Bera, and D. Manocha, "Interactive Crowd Content Generation and Analysis using Trajectory-Level Behavior Learning", *Proc. of International Symposium on Multimedia*, 6 pages, 2015.
651. C. Park, A. Best, S. Narang, and D. Manocha, "Simulating High-DOF Pedestrians using Multi-level Feedback Planner", *Proc. of ACM Virtual Reality and Software Technology (VRST)*, 9 pages, 2015.

652. J. Ren, X. Wang, X. Jin, and D. Manocha, "Data-driven noise model for simulating swarms of flying insects", *SWARM 2015: The First International Symposium on Swarm Behavior and Bio-Inspired Robots*, 8 pages, 2015.
653. Y. Kim, D. Manocha, and Y. Kim "Hybrid Penetration Depth Computation using Local Projection and Machine Learning", *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 8 pages, 2015.
654. S. Tonneau, N. Mansard, C. Park, D. Manocha, F. Multon, and J. Pettre, "A Reachability-based planner for sequences of acyclic contacts in cluttered environments", *Proc. of International Symposium on Robotics Research (ISRR)*, 16 pages, 2015.
655. X. Wang, J. Ren, X. Jin, and D. Manocha, "BSwarm: Biologically-Plausible Dynamics Model of Insect Swarms", *Proc. of ACM SIGGRAPH Symposium of Computer Animation*, 8 pages, 2015.
656. M. Ye, Y Zhang, R. Yang, and D. Manocha, "3D Reconstruction in the Presence of Glasses/Mirrors by Acoustic and Stereo Fusion", *Proc. of IEEE CVPR (Computer Vision and Pattern Recognition)*, 9 pages, 2015.
657. Q. Mo, H. Yeh, M. Lin, and D. Manocha, "Analytic Ray Tracing for Outdoor Sound Propagation", *Proc. of InterNoise*, 5 pages, 2015.
658. P. Krajcevski and D. Manocha, "Compressed Coverage Masks for Path Rendering on Mobile GPUs", *Proc. of ACM Symposium on Interactive 3D Graphics and Games*. 8 pages, 2015.
659. A. Bera, S. Kim, and D. Manocha, "Efficient Trajectory Extraction and Parameter Learning for Data-Driven Crowd Simulation", *Proc. of Graphics Interface*, 8 pages, 2015.
660. L. He, R. Ortiz, A. Enquobahrie, and D. Manocha, "Interactive Continuous Collision Detection for Topology Changing Models using Dynamic Clustering", *Proc. of ACM Symposium on Interactive 3D Graphics and Games*. 8 pages, 2015.
661. C. Park and D. Manocha, "Fast and Dynamically Stable Optimization-Based Planning for High-DOF Human-Like Robots", *IEEE-RAS International Conference on Humanoid Robots*, 8 pages, 2014.
662. P. Krajcevski and D. Manocha, "SegTC: Fast Texture Compression using Image Segmentation". *Proc. of High Performance Graphics*. 7 pages, 2014.
663. W Liu, Z. Huang, R. Lau, and D. Manocha, "Data-driven Sequential Goal Selection Model for Multi-agent Simulation", *Proc. of ACM VRST*, 10 pages, 2014.
664. C. Park and D. Manocha, "Smooth and Dynamically Stable Navigation of Multiple Human-Like Robots", *Proc. of Workshop on Algorithmic Foundations of Robotics*. 16 pages, 2014.
665. A. Best, S. Curtis, D. Kasik, C. Senesac, T. Sikora and D. Manocha, "Ped-Air: A Simulator for Loading, Unloading, and Evacuating Aircraft", *Proc. of Pedestrian and Evacuation Dynamics*, 9 pages, 2014.
666. D. Wolinski, A. Olivier, M. Lin, D. Manocha, and J. Pettre, "Optimization-based Parameter Estimation for Crowd Simulation", *Proc. of Pedestrian and Evacuation Dynamics*, 9 pages, 2014.

667. A. Meshram, R. Mehra, H. Yang, E. Dunn, J. Frahm, and D. Manocha. (2014). P-HRTF: Efficient Personalized HRTF Computation for High-Fidelity Spatial Sound. *Proc. of IEEE ISMAR*, 8 pages.
668. A. Best, S. Narang, S. Curtis, and D. Manocha. (2014). DenseSense: Interactive Crowd Simulation using Density-Dependent Filters. *Proc. of ACM SIGGRAPH/Eurographics Symposium on Computer Animation*, 6 pages.
669. A. Meshram, R. Mehra and D. Manocha. (2014). Efficient HRTF Computation using Adaptive Rectangular Decomposition. *AES Conference on Spatial Audio*. 8 pages.
670. A. Bera and D. Manocha. (2014). Realtime Multilevel Crowd Tracking using Reciprocal Velocity Obstacles. *Proc. of International Conference on Pattern Recognition*. 7 pages.
671. R. Mehra, L. Antani, and D. Manocha. (2014). Source Directivity and Spatial Audio for Interactive Wave-Based Sound Propagation. *20th International Conference on Auditor Display (ICAD)*.
672. P. Krajcevski, and D. Manocha. (2014, March). Real-time low-frequency signal modulated texture compression using intensity dilation. *In Proceedings of the 18th meeting of the ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games* (pp. 127-134). ACM.
673. R. Mehra and D. Manocha. (2014). Wave-Based Sound Propagation for VR Applications. *Workshop on Sonic Interactions in Virtual Environments*. 6 pages.
674. C. Park, J. Pan, and D. Manocha. (2014). Poisson-RRT. *Proc. of IEEE Conference on Robotics and Automation*, Hong Kong, 7 pages.
675. A. Bera, N. Galoppo, D. Sharlet, A. Lake, and D. Manocha. (2014). Adapt: real-time adaptive pedestrian tracking for crowded scenes. *In Proceedings of Conference on Robotics and Automation*, Hong Kong, 8 pages.
676. P. Krajcevski, A. Lake and D. Manocha. (2013, March). FasTC: accelerated fixed-rate texture encoding. *In Proceedings of the ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games* (pp. 137-144). ACM.
677. S. Kim, S. J. Guy and D. Manocha. (2013). Velocity-Based Modeling of Physical Interactions in Virtual Environments. *Proc. of ACM Symposium Computer Animation* (pp. 125-134). ACM.
678. L. Antani, A. Lake, and D. Manocha. (2013). Real-time Reflections and Reverberation for Next-generation Interactive Sound Rendering with Acoustic Effects. *Intel Software Visual Adrenaline*, 9 pages.
679. J. Snape, and D. Manocha. (2013). Goal Velocity Obstacles for Spatial Navigation of Multiple Autonomous Robots or Virtual Agents. *Proc. of AAMAS Workshop on Autonomous Robots and Multirobot Systems* (pp. 1191-1192).
680. J. Pan, I. Sucan, S. Chitta, and D. Manocha. (2013, May). Real-time collision detection and distance computation on point cloud sensor data. *In Robotics and Automation (ICRA)*, 2013 IEEE International Conference (pp. 3593-3599). IEEE.

681. C. Park, J. Pan, and D. Manocha. (2013, May). Real-time optimization-based planning in dynamic environments using GPUs. *In Robotics and Automation (ICRA)*, 2013 IEEE International Conference (pp. 4090-4097). IEEE.
682. S. Kim, S. J. Guy, W. Liu, R. Lau, M. Lin and D. Manocha. (2013). Predicting pedestrian trajectories using velocity-space reasoning. *In Algorithmic Foundations of Robotics X* (pp. 609-623). Springer Berlin Heidelberg.
683. J. Pan, S. Chitta, and D. Manocha. (2013). Faster sample-based motion planning using instance-based learning. *In Algorithmic Foundations of Robotics X* (pp. 381-396). Springer Berlin Heidelberg.
684. S. Kim, S. J. Guy, D. Manocha, and M. C. Lin. (2012, March). Interactive simulation of dynamic crowd behaviors using general adaptation syndrome theory. *In Proceedings of the ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games* (pp. 55-62). ACM.
685. R. Mehra, N. Raghuvanshi, L. Antani and D. Manocha. (2012, August). A real-time sound propagation system for noise prediction in outdoor spaces. *In INTER-NOISE and NOISE-CON Congress and Conference Proceedings* (Vol. 2012, No. 4, pp. 7026-7035). Institute of Noise Control Engineering.
686. S. Curtis and D. Manocha. (2012). Pedestrian simulation using geometric reasoning in velocity space. *In Pedestrian and Evacuation Dynamics 2012* (pp. 875-890). Springer International Publishing.
687. C. Park, J. Pan, and D. Manocha. (2012). ITOMP: Incremental Trajectory Optimization for Real-Time Replanning in Dynamic Environments. *Proc. of International Conference on Automated Planning and Scheduling (ICAPS)*. (pp. 207-215).
688. J. Snape, S. J. Guy, D. Vembar, A. Lake, M. C. Lin, and D. Manocha. (2012, March). Reciprocal collision avoidance and navigation for video games, *Intel Software Network*. 14 pages.
689. S. Curtis, J. Snape and D. Manocha. (2012, March). Way portals: efficient multi-agent navigation with line-segment goals. *In Proceedings of the ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games* (pp. 15-22). ACM.
690. W. Liu, R. Lau and D. Manocha. (2012, March). Crowd simulation using Discrete Choice Model. *Proceedings of IEEE VR* (pp. 3-6).
691. N. Perris, O. Strasse, F. Lamiriaux, Y. Kim and D. Manocha. (2012, May). Real-time footstep planning for humanoid robots among 3D obstacles using a hybrid bounding box. *In Robotics and Automation (ICRA)*, 2012 IEEE International Conference (pp. 977-982). IEEE.
692. J. van den Berg, D. Wilkie, S. J. Guy, M. Niethammner and D. Manocha. (2012, May). LQG-obstacles: Feedback control with collision avoidance for mobile robots with motion and sensing uncertainty. *In Robotics and Automation (ICRA)*, 2012 IEEE International Conference (pp. 346-353). IEEE.
693. J. Pan, S. Chitta and D. Manocha. (2012, May). FCL: A general purpose library for collision and proximity queries. *In Robotics and Automation (ICRA)*, 2012 IEEE International Conference (pp. 3859-3866). IEEE.

694. S. Guy, S. Kim, M. Lin and D. Manocha. (2011, August). Simulating heterogeneous crowd behaviors using personality trait theory. *In Proceedings of the 2011 ACM SIGGRAPH/Eurographics Symposium on Computer Animation* (pp. 43-52). ACM.
695. J. Pan and D. Manocha. (2012, April). Bi-level locality sensitive hashing for k-nearest neighbor computation. *In Data Engineering (ICDE), 2012 IEEE 28th International Conference* (pp. 378-389). IEEE.
696. J. Pan and D. Manocha. (2011, November). Fast GPU-based locality sensitive hashing for k-nearest neighbor computation. *In Proceedings of the 19th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems* (pp. 211-220). ACM.
697. S. Curtis, S. J. Guy, B. Zafar and D. Manocha. (2011, November). Virtual tawaf: A case study in simulating the behavior of dense, heterogeneous crowds. *Proc. of IEEE Workshop on Modeling, Simulation and Visual Analysis of Large Crowds* (pp. 128-135). IEEE.
698. S. Curtis, M. Lin and D. Manocha. (2011). Walk this way: a lightweight, data-driven walking synthesis algorithm. *Proc. of 4th International Conference on Motion in Games*, (pp. 400-411). Springer Berlin Heidelberg.
699. J. Pan, S. Chitta and D. Manocha. (2011). Probabilistic collision detection between noisy point clouds using robust classification. *International Symposium on Robotics Research*, 16 pages.
700. M. Tang, D. Manocha, J. Lin and R. Tong. (2011, February). Collision-streams: fast GPU-based collision detection for deformable models. *Proc. Of ACM Symposium on Interactive 3D Graphics and Games* (pp. 63-70). ACM.
701. D. Wilkie, J. van den Berg, M. C. Lin, and D. Manocha. (2011). PGAI: Self-Aware Traffic Route Planning. *Proc. Of AAAI*. 7 pages.
702. J. van den Berg, S. Guy, J. Snape, and D. Manocha. (2011, May). Reciprocal collision avoidance with acceleration-velocity obstacles. *In Robotics and Automation (ICRA), 2011 IEEE International Conference* (pp. 3475-3482). IEEE.
703. M. Lin, D. Manocha, L. Eifert and A. Rodriguez. (2011). Interactive Behavior Modeling for Large-Scale Crowd Simulations. *Proc. of 20th Annual Conference on Behavior Representation in Modeling and Simulation*. 8 pages.
704. J. Schneider, D. Garatly, M. Srinivasan, S. Guy, S. Curtis, S. Cutchin, D. Manocha, M. Lin and A. Rockwood. (2011). Towards a Digital Makkah—Using Immersive 3D Environments to Train and Prepare Pilgrims. *In International Conference on Digital Media and its Applications in Cultural Heritage (DMACH)*.
705. C. Schissler and D. Manocha. (2011, February). GSound: Interactive sound propagation for games. In Audio Engineering Society Conference: 41st International Conference: Audio for Games. Audio Engineering Society.
706. J. Pan and D. Manocha. (2011). GPU-based parallel collision detection for real-time motion planning. *Workshop on Algorithmic Foundations on Robotics* (pp. 211-228). Springer Berlin Heidelberg.

707. J. Snape, S.J. Guy, J. van den Berg and D. Manocha. (2014, January). Smooth coordination and navigation for multiple differential drive robots. *International Symposium on Experimental Robotics (ISER)* (pp. 601-613). Springer Berlin Heidelberg.
708. M. Tang, Y. Kim and D. Manocha. (2011). CCQ: Efficient local planning using connection collision query. *Workshop on Algorithmic Foundations of Robotics IX* (pp. 229-247). Springer Berlin Heidelberg.
709. Y. Zheng, M. Lin and D. Manocha. (2011). Efficient simplex computation for fixture layout design. *Computer Aided Design*, 43(10), 1307-1318.
710. L. Savioja, D. Manocha and M. Lin. (2010, August). Use of GPUs in room acoustic modeling and auralization. In *Proc. Int. Symposium on Room Acoustics*. 7 pages.
711. G S. Guy, J. Chuggani, S. Curtis, P. Dubey, M. Lin and D. Manocha. (2010, July). PLEdestrans: a least-effort approach to crowd simulation. In *Proceedings of the 2010 ACM SIGGRAPH/Eurographics Symposium on Computer Animation* (pp. 119-128). Eurographics Association.
712. Y. Zheng, M. C. Lin, D. Manocha, A. Adiwahono and C. Chew. (2010, October). A walking pattern generator for biped robots on uneven terrains. In *Intelligent Robots and Systems (IROS), 2010 IEEE/RSJ International Conference* (pp. 4483-4488). IEEE.
713. S. J. Guy, M. Lin, and D. Manocha. (2010). Reciprocal Collision Avoidance for Virtual Agents. *Proc. Of AAMAS* (International Conference on Autonomous Agents and Multi-agent Systems). 8 pages.
714. J. Snape, J. van den Berg, S. J. Guy and D. Manocha. (2010, October). Smooth and collision-free navigation for multiple robots under differential-drive constraints. In *Proc. of IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)* (pp. 4584-4589).
715. J. Pan, C. Lauterbach and D. Manocha. (2010, October). Efficient nearest-neighbor computation for GPU-based motion planning. In *Proc. of Intelligent Robots and Systems (IROS), 2010 IEEE/RSJ International Conference* (pp. 2243-2248). IEEE.
716. J. Pan, C. Lauterbach and D. Manocha. (2010, June). G-Planner: Real-Time Motion Planning and Global Navigation using GPUs. In *Proc. of AAAI*, pp. 1245-1251, 2010
717. Y. Zheng, M. C. Lin and D. Manocha. (2010, May). A fast n-dimensional ray-shooting algorithm for grasping force optimization. In *Proc of International Conference on Robotics and Automation (ICRA), 2010 IEEE International Conference* (pp. 1300-1305).
718. M. Tang, Y. Kim and D. Manocha. (2010, May). Continuous collision detection for non-rigid contact computations using local advancement. In *Proc. Of IEEE International Conference on Robotics and Automation (ICRA), 2010 IEEE International Conference* (pp. 4016-4021). IEEE.
719. J. Snape and D. Manocha. (2010, May). Navigating multiple simple-airplanes in 3d workspace. *Proc. Of IEEE International Conference on Robotics and Automation (ICRA), 2010 IEEE International Conference* (pp. 3974-3980). IEEE.

720. J. Pan, L. Zhang and D. Manocha. (2010, May). Retraction-based RRT planner for articulated models. *In Robotics and Automation (ICRA)*, 2010 IEEE International Conference on Robotics and Automation (pp. 2529-2536). IEEE.
721. M. Tang, D. Manocha and R. Tong. (2010, February). Fast continuous collision detection using deforming non-penetration filters. *In Proceedings of the 2010 ACM SIGGRAPH symposium on Interactive 3D Graphics and Games* (pp. 7-13). ACM.
722. A. Chandak, L. Antani, M. Taylor and D. Manocha. (2009, June). FastV: From-point Visibility Culling on Complex Models. *In Eurographics Workshop on Rendering, Computer Graphics Forum* (Vol. 28, No. 4, pp. 1237-1246). Blackwell Publishing Ltd.
723. L. Zhang, J. Pan and D. Manocha. (2009, December). Motion planning of human-like robots using constrained coordination. *In IEEE-RAS International Conference on Humanoid Robots* (pp. 188-195). IEEE.
724. M. C. Lin, S. J. Guy, R. Narain, J. Sewall, S. Patil, J. Chhugani, A. Golas, J. van den Berg, S. Curtis, D. PGAI, P. Merrell, C. Kim, N. Satish, P. Dubey, and D. Manocha. (2009). Interactive modeling, simulation and control of large-scale crowds and traffic. *In Motion in Games* (pp. 94-103). Springer Berlin Heidelberg.
725. S. J. Guy, J. Chhugani, C. Kim, N. Satish, M. Lin, D. Manocha, and P. Dubey. (2009, August). Clearpath: highly parallel collision avoidance for multi-agent simulation. *In Proceedings of the 2009 ACM SIGGRAPH/Eurographics Symposium on Computer Animation* (pp. 177-187). ACM.
726. D. Manocha and M. Lin. (2009, August). Interactive sound rendering. *In Computer-Aided Design and Computer Graphics, 2009. CAD/Graphics' 09. 11th IEEE International Conference on Graphics* (pp. 19-26). IEEE.
727. J. van der Berg, S. J. Guy, M. C. Lin and D. Manocha. (2009). Reciprocal n-body collision avoidance. *In International Symposium on Robotics Research* (pp. 3-19). Springer Berlin Heidelberg.
728. X. Zhang, Y. J. Kim and D. Manocha. (2009, October). Reliable Sweeps. *In 2009 SIAM/ACM Joint Conference on Geometric and Physical Modeling* (pp. 373-378). ACM.
729. P. Merrell and D. Manocha. (2009). Constrained-Based Model Synthesis. *SIAM/ACM Joint Conference on Geometric and Solid Modeling*. (pp. 101-111). ACM.
730. M. Tang, D. Manocha and R. Tong. (2009, October). Multi-core collision detection between deformable models. *In 2009 SIAM/ACM Joint Conference on Geometric and Physical Modeling* (pp. 355-360). ACM.
731. J. Snape, J. van der Berg, S. J. Guy, and D. Manocha. (2009, October). Independent navigation of multiple mobile robots with hybrid reciprocal velocity obstacles. *In Intelligent Robots and Systems, 2009. IROS 2009. IEEE/RSJ International Conference* (pp. 5917-5922). IEEE.
732. D. Wilkie, J. van der Berg, and D. Manocha. (2009, October). Generalized velocity obstacles. *In Intelligent Robots and Systems, 2009. IROS 2009. IEEE/RSJ International Conference* (pp. 5573-5578). IEEE.

733. M. Taylor, A. Chandak, L. Antani, and D. Manocha. (2009). RESound: interactive sound rendering for dynamic virtual environments. In *Proceedings of the 17th ACM International Conference on Multimedia* (pp. 271-280). ACM.
734. J. van der Berg, J. Snoeyink, M. C. Lin and D. Manocha. (2009). Centralized path planning for multiple robots: Optimal decoupling into sequential plans. In *Robotics: Science and Systems* (Vol. 2, No. 2.5, pp. 2-3).
735. M. Taylor, A. Chandak and D. Manocha. (2009, June). Fast edge-diffraction for sound propagation in complex virtual environments. In *EAA Auralization Symposium* (pp. 15-17).
736. J. van der Berg, J. Sewall, M. Lin and D. Manocha. (2009, March). Virtualized traffic: Reconstructing traffic flows from discrete spatio-temporal data. In *IEEE Virtual Reality Conference, 2009. VR 2009.* (pp. 183-190). IEEE.
737. Y. Kim, M. Tang and D. Manocha. (2009, May). C²A: Controlled Conservative Advancement for Interactive Continuous Collision Detection. *Proc. Of IEEE Conf. on Robotics and Automation, ICRA'09.* IEEE International Conference (pp. 849-854). IEEE.
738. L. Zhang, S. LaValle and D. Manocha. (2009, May). Global vector field computation for feedback motion planning. In *Robotics and Automation, 2009. ICRA'09.* IEEE International Conference on Robotics and Automation (pp. 477-482). IEEE.
739. R. Gayle, W. Moss, M. Lin and D. Manocha. (2009, May). Multi-robot coordination using generalized social potential fields. In *Robotics and Automation, 2009. ICRA'09.* IEEE International Conference on Robotics and Automation (pp. 106-113). IEEE.
740. J. van der Berg, M. Stillman, J. Kuffner, M. Lin and D. Manocha. (2008). Path Planning among Movable Obstacles: a Probabilistically Complete Approach. In *Proc. Of Workshop on Algorithmic Foundations of Robotics.* (pp. 599-614).
741. L. Zhang and D. Manocha. (2009). Constrained motion interpolation with distance constraints. In *Proc. Of Workshop on Algorithmic Foundations of Robotics* (pp. 367-384). Springer Berlin Heidelberg.
742. L. Zhang and D. Manocha. (2008, May). An efficient retraction-based RRT planner. In *Robotics and Automation, 2008. ICRA 2008.* IEEE International Conference on Robotics and Automation (pp. 3743-3750). IEEE.
743. C. Lauterbach, M. C. Lin, D. Manocha, S. Borkman, E. LaFave, G. Peele and M. Bauer. (2008). Accelerating Line-of-Sight Computations in Dynamic Terrains and OneSAF. *Proc. Of IITSEC*, 8 pages.
744. H. Yeh, S. Curtis, S. Patil, J. van den Berg, D. Manocha, and M. Lin. (2008, July). Composite agents. In *Proceedings of the 2008 ACM SIGGRAPH/Eurographics Symposium on Computer Animation* (pp. 39-47). Eurographics Association.
745. R. Gayle and D. Manocha. (2008, August). Navigating virtual agents in online virtual worlds. In *Proceedings of the 13th International Symposium on 3D Web Technology* (pp. 53-56). ACM.

746. L. Zhang, X. Huang, Y. Kim and D. Manocha. (2008). D-plan: Efficient collision-free path computation for part removal and disassembly. *Proc. Of Computer-Aided Design and Applications* (Vol.5, No.6, pp. 774-786). **Received Best Paper Award.**
747. M. Tang, S. Curtis, S. Yoon and D. Manocha. (2008). Interactive continuous collision detection between deformable models using connectivity-based culling. *Proc. of ACM Symposium on Solid and Physical Modeling*. (pp. 25-36).
748. J. van der Berg, M. C. Lin and D. Manocha. (2008). Reciprocal Velocity Obstacles for Real-Time Collision Avoidance. *Proc. Of IEEE Conference on Robotics and Automation*. (pp. 1928-1935).
749. D. Manocha. (2008, January). Digital geometry processing with topological guarantees. In *Discrete Geometry for Computer Imagery* (pp. 1-3). Springer Berlin Heidelberg.
750. S. Curtis, R. Tamstorf and D. Manocha. (2008, February). Fast collision detection for deformable models using representative-triangles. In *Proceedings of the 2008 symposium on Interactive 3D graphics and games* (pp. 61-69). ACM.
751. J. Van der Berg, S. Patil, J. Sewall, D. Manocha and M. Lin. (2008, February). Interactive navigation of multiple agents in crowded environments. In *Proceedings of the 2008 ACM Symposium on Interactive 3D Graphics and Games* (pp. 139-147). ACM.
752. S. Yoon, S. Curtis and D. Manocha. (2007, June). Ray tracing dynamic scenes using selective restructuring. In *Proceedings of the 18th Eurographics conference on Rendering Techniques* (pp. 73-84). Eurographics Association.
753. A. Sud, N. K. Govindaraju, R. Gayle, E. Andersen, and D. Manocha. (2007, May). Surface Distance Maps. In *Proceedings of Graphics Interface 2007* (pp. 35-42). ACM.
754. A. Sud, R. Gayle, E. Andersen, S. Guy, M. Lin and D. Manocha. (2007, November). Real-time navigation of independent agents using adaptive roadmaps. In *Proceedings of the 2007 ACM symposium on Virtual Reality Software and Technology* (pp. 99-106). ACM. **Received best paper award.**
755. C. Lauterbach, S. Yoon and D. Manocha. (2007, September). Ray-strips: A compact mesh representation for interactive ray tracing. In *Interactive Ray Tracing, 2007. RT'07. IEEE Symposium on Interactive Ray Tracing* (pp. 19-26). IEEE.
756. B. Lloyd, N. Govindaraju, C. Quammen, S. Molnar and D. Manocha. (2007, August). Practical logarithmic rasterization for low-error shadow maps. In *ACM/SIGGRAPH Workshop Graphics Hardware* (pp. 17-24). ACM.
757. L. Zhang, Y. Kim and D. Manocha. (2007, October). A hybrid approach for complete motion planning. In *Intelligent Robots and Systems, 2007. In Proc. Of IROS 2007. IEEE/RSJ International Conference on* (pp. 7-14). IEEE.
758. R. Gayle, A. Sud, M. Lin and D. Manocha. (2007, October). Reactive deformation roadmaps: Motion planning of multiple robots in dynamic environments. In *Proc of Intelligent Robots and Systems, 2007. IROS 2007. IEEE/RSJ International Conference on* (pp. 3777-3783). IEEE.

759. C. Lauterbach, A. Chandak and D. Manocha. (2007). Adaptive sampling for frustum-based sound propagation in complex and dynamic environments. *Proc. Of 19th International Congress on Acoustics*.
760. L. Zhang, Y. Kim and D. Manocha. (2007, June). A Fast and Practical Algorithm for Generalized Penetration Depth Computation. In *Proc. Robotics: Science and Systems*.
761. L. Zhang, Y. Kim and D. Manocha. (2007, June). C-DIST: Efficient distance computation for rigid and articulated models in configuration space. In *Proceedings of the 2007 ACM symposium on Solid and Physical Modeling* (pp. 159-169). ACM.
762. A. Sud, E. Andersen, S. Curtis, M. Lin and D. Manocha. (2007). Real-time path planning for virtual agents in dynamic environments. *Proc. of IEEE VR*. (pp. 91-98). IEEE.
763. R. Gayle, S. Redon, A. Sud, M. Lin and D. Manocha. (2007). "Efficient Motion Planning of Highly Articulated Chains using Physics-based Sampling", In *Proc. of IEEE Conference on Robotics and Automatics*. (pp. 3319-3326). IEEE.
764. N. Govindaraju, J. Gray, R. Kumar and D. Manocha. (2006, June). GPUteraSort: high performance graphics co-processor sorting for large database management. In *Proceedings of the 2006 ACM SIGMOD International Conference on Management of Data* (pp. 325-336). ACM.
765. C. Lauterbach, S. Yoon, D. Tuft and D. Manocha. (2006, September). RT-DEFORM: Interactive ray tracing of dynamic scenes using BVHs. In *Interactive Ray Tracing 2006*, IEEE Symposium (pp. 39-46). IEEE.
Received Time of Test Award.
766. G. Varadhan, S. Krishnan, L. Zhang and D. Manocha. (2006, June). Reliable implicit surface polygonization using visibility mapping. In *Proceedings of the fourth Eurographics symposium on Geometry Processing* (pp. 211-221). Eurographics Association.
767. D. Tuft, R. Gayle, B. Salomon, N. Govindaraju, M. Lin, D. Manocha, M. Bauer, A. Rodriguez and M. Macedonia. (2006). Accelerating route planning and collision detection for computer generated forces using GPUS. *Proc. Of Army Science Conference*.
768. D. Kasik, D. Manocha, A. Stephens, B. Bruderlin, P. Slusallek, E. Gobbetti, W. Correa, and I. Quilez. (2006). Real Time Interactive Massive Model Visualization. *Eurographics 2006: Tutorials*.
769. L. Zhang, Y. Kim, and D. Manocha. (2008). A simple path non-existence algorithm using c-obstacle query. In *Proc. of Workshop on Algorithmic Foundations of Robotics* (pp. 269-284). Springer Berlin Heidelberg.
770. B. Lloyd, D. Tuft. S. Yoon and D. Manocha. (2006, June). Warping and partitioning for low error shadow maps. In *Proceedings of the 17th Eurographics Conference on Rendering Techniques* (pp. 215-226). Eurographics Association.
771. R. Gayle, M. Lin and D. Manocha. (2006, August). Adaptive Dynamics with Efficient Contact Handling for Articulated Robots. In *Robotics: Science and Systems* (pp. 231-238).
772. N. Govindaraju, S. Larsen, J. Gray, and D. Manocha. (2006, November). A memory model for scientific algorithms on graphics processors. In *SuperComputing 2006 Conference, Proceedings of the ACM/IEEE* (pp. 6-16). IEEE.

773. L. Zhang, Y. Kim, G. Varadhan and D. Manocha. (2006, May). Fast c-obstacle query computation for motion planning. In *Proc. Of IEEE Conference on Robotics and Automation, 2006. ICRA 2006. Proceedings 2006 IEEE International Conference* (pp. 3035-3040). IEEE.
774. L. Zhang, Y. Kim, G. Varadhan and D. Manocha. (2006). Generalized penetration depth computation. *Proc. of ACM Solid and Physical Modeling* (pp 173-184). ACM.
775. G. Varadhan, Y. Kim, S. Krishnan and D. Manocha. (2006). Topology preserving approximation of free configuration space. In *Proc. of IEEE Conf. on Robotics and Automation* (pp. 3041-3048). IEEE
776. A. Sud, N. Govindaraju, R. Gayle and D. Manocha. (2006, March). Interactive 3D distance field computation using linear factorization. In *Proc. of ACM Symposium on Interactive 3D Graphics* (pp. 117-124). ACM.
777. N. Govindaraju, I. Kabul, M. Lin and D. Manocha. (2006). Fast continuous collision detection among deformable models using graphics processors. *Proc. of Eurographics Symposium on Virtual Environments*.
778. Y. Kim, L. Zhang, M. Lin and D. Manocha. (2006). Fast penetration computation and its applications. *Proc. of Nicographics*.
779. N. Govindaraju, M. C. Lin and D. Manocha. (2005, March). Quick-cullide: Fast inter-and intra-object collision culling using graphics hardware. In *IEEE Virtual Reality, 2005. Proceedings. VR 2005*. IEEE (pp. 59-66). **Received best paper award.**
780. N. Galoppo, N. Govindaraju, M. Henson and D. Manocha. (2005, November). LU-GPU: Efficient algorithms for solving dense linear systems on graphics hardware. In *Proceedings of the 2005 ACM/IEEE conference on Supercomputing* (p. 3). IEEE Computer Society.
781. G. Varadhan and D. Manocha. (2005, June). Star-shaped Roadmaps-A Deterministic Sampling Approach for Complete Motion Planning. In *Proc. Of Robotics: Science and Systems* (Vol. 173, pp. 25-32).
782. A. Sud, N. Govindaraju and D. Manocha. (2005, October). Interactive computation of discrete generalized voronoi diagrams using range culling. In *Proc. International Symposium on Voronoi Diagrams in Science and Engineering*.
783. N. Govindaraju and D. Manocha. (2005, June). Efficient relational database management using graphics processors. In *Proceedings of the 1st International Workshop on Data Management on New Hardware*. ACM.
784. R. Gayle, P. Segars, M. Lin and D. Manocha. (2005, June). Path Planning for Deformable Robots in Complex Environments. In *Proc of Robotics: Science and Systems* (Vol. 2005, pp. 225-232).
785. S. Yoon, P. Lindstrom, V. Pascucci and D. Manocha. (2005). Cache-Oblivious layouts of Polygonal Meshes. *Workshop on Massive Geometric Data Sets*. 6 pages.
786. A. Sud, M. Foskey and D. Manocha. (2005). Homotopy-preserving medial axis simplification. In *Proc. of ACM Symposium on Solid and Physical Modeling*, (pp. 39-50). ACM.

787. N. Govindaraju, N. Raghuvanshi and D. Manocha. (2005, June). Fast and approximate stream mining of quantiles and frequencies using graphics processors. In *Proceedings of the 2005 ACM SIGMOD International Conference on Management of Data* (pp. 611-622). ACM.
788. M. Verdesca, J. Munro, M. Hoffman, M. Bauer and D. Manocha. (2006). Using graphics processor units to accelerate OneSAF: A case study in technology transition. *The Journal of Defense Modeling and Simulation: Applications, Methodology, Technology*, 3(3), 177-187.
789. R. Gayle, M. C. Lin and D. Manocha. (2005, April). Constraint-based motion planning of deformable robots. In *Robotics and Automation, 2005. ICRA 2005. Proceedings of the 2005 IEEE International Conference on* (pp. 1046-1053). IEEE.
790. N. Govindaraju, M. Henson, M. C. Lin and D. Manocha. (2005, April). Interactive visibility ordering and transparency computations among geometric primitives in complex environments. In *Proceedings of the 2005 symposium on Interactive 3D graphics and games* (pp. 49-56). ACM.
791. S. Redon, Y. Kim, M. C. Lin and D. Manocha. (2004). Fast continuous collision detection for articulated models. In *Proc. of ACM Solid Modeling*. (pp. 145-156). ACM.
792. Lloyd, J. Wendt, N. Govindaraju and D. Manocha. (2004). CC shadow volumes. In *Proc. of Eurographics Symposium on Rendering*. (pp. 197-205). ACM.
793. N. Govindaraju, B. Lloyd, W. Wang, M. Lin and D. Manocha (2004). Fast database computations using graphics hardware. *Proc. of ACM SIGMOD*. (pp. 215-226). ACM.
794. G. Varadhan, S. Krishnan, T.V.N Sriram and D. Manocha. (2004, July). Topology preserving surface extraction using adaptive subdivision. In *Proceedings of the 2004 Eurographics/ACM SIGGRAPH symposium on Geometry Processing* (pp. 235-244). ACM.
795. S.Yoon, B. Salomon, M. C. Lin, and D. Manocha. (2004, July). Fast collision detection between massive models using dynamic simplification. In *Proceedings of the 2004 Eurographics/ACM SIGGRAPH symposium on Geometry Processing* (pp. 136-146). ACM.
796. B. Salomon, N. Govindaraju, A. Sud, R. Gayle, M. Lin, D. Manocha, B. Butler, M. Bauer, A. Rodriguez, L. Eifert, A. Rubel and M. Macedonia. (2004). Accelerating Line-of-Sight Computation using Graphics Processing Unit. *Proc. Of Army Science Conference*, 5 pages.
797. G. Varadhan, S. Krishnan, T.V.N Sriram and D. Manocha. (2004). A simple algorithm for complete motion planning of translating polyhedral robots. In *Proc. of Sixth International Workshop on the Algorithmic Foundations of Robotics*. (Vol. 16, pp. 473-496).
798. S. Yoon, B. Salomon, R. Gayle and D. Manocha. (2004, October). Quick-VDR: Interactive view-dependent rendering of massive models. In *Visualization, 2004. IEEE* (pp. 131-138).
799. G. Varadhan and D. Manocha. (2004). Accurate minkowski sum approximation of polyhedral models. In *Proc. of Pacific Graphics*. (pp. 392-401). **Received Best Paper Award.**
800. N. Govindaraju, M. C. Lin and D. Manocha. (2004). Fast and reliable collision culling using graphics hardware. *ACM VRST*, 8 pages.

801. S. Redon, Y. Kim, M. C. Lin and D. Manocha, J. Templeman. (2004, March). Interactive and continuous collision detection for avatars in virtual environments. In *Virtual Reality, 2004. Proceedings. IEEE* (pp. 117-283). IEEE.
802. N. K. Govindaraju, A. Sud, S. Yoon and D. Manocha. (2003, April). Interactive visibility culling in complex environments using occlusion-switches. In *Proceedings of the 2003 ACM/SIGGRAPH Symposium on Interactive 3D Graphics* (pp. 103-112). ACM.
803. M. Foskey, M. Lin and D. Manocha. (2003). Efficient computation of a simplified medial axis. *Proc. of ACM SIGGRAPH Symposium on Solid Modeling* (pp. 96-107). ACM.
804. Y. Kim, G. Varadhan, M. Lin and D. Manocha. (2003). Fast approximation of swept volumes of complex polyhedral models. *Proc. of ACM SIGGRAPH Symposium on Solid Modeling*. (pp. 11-22). **Received best conference paper award.**
805. B. Salomon, M. Garber, M. Lin and D. Manocha. (2003, April). Interactive navigation in complex environments using path planning. In *Proceedings of the 2003 ACM SIGGRAPH Symposium on Interactive 3D Graphics* (pp. 41-50). ACM.
806. S. Yoon, B. Salomon and D. Manocha. (2003, October). Interactive view-dependent rendering with conservative occlusion culling in complex environments. In *Proceedings of the 14th IEEE Visualization 2003 (VIS'03)* (p. 163-170). IEEE Computer Society.
807. G. Varadhan, S. Krishnan, Y. J Kim and D. Manocha. (2003, October). Feature-sensitive subdivision and isosurface reconstruction. In *IEEE Visualization, 2003. VIS 2003.* (pp. 99-106). IEEE.
808. D. Manocha. Interactive Display of Complex Environments. In *Proc. Of The Interservice/Industry Training, Simulation & Education Conference (I/ITSEC)* (Vol. 2003, No. 1, pp. 1833-1842). National Training Systems Association, 2003.
809. G. Varadhan, S. Krishnan, Y. J Kim and D. Manocha. (2003, June). Efficient max-norm distance computation and reliable voxelization. In *Proc. of ACM/Eurographics Symposium on Geometry Processing* (Vol. 43, pp. 116-126).
810. N. Govindaraju, S. Redon, M. Lin and D. Manocha. (2003, July). CULLIDE: Interactive collision detection between complex models in large environments using graphics hardware. In *Proc. of ACM/Eurographics Workshop on Graphics Hardware* (pp. 25-32). Eurographics Association.
811. Y. Kim, M. Lin and D. Manocha. (2002). Deep: Dual-space expansion for estimating penetration depth between convex polytopes. In *Proceedings of Robotics and Automation, 2002. ICRA'02. IEEE International Conference on* (Vol. 1, pp. 921-926). IEEE.
812. Y. J. Kim, M. C. Lin and D. Manocha. (2003, June). Fast penetration depth estimation using rasterization hardware and hierarchical refinement. *Proc. of Workshop on Algorithmic Foundation on Robotics* (pp. 386-387). ACM.
813. J. Keyser, T. Culver, M. Foskey, S. Krishnan, and D. Manocha. (2002). ESOLID—a system for exact boundary evaluation. *Computer-Aided Design*, 36(2), 175-193.

814. Y. J. Kim, M. A. Otaduy, M. C. Lin and D. Manocha. (2002, July). Fast penetration depth computation for physically-based animation. In *Proceedings of the 2002 ACM SIGGRAPH/Eurographics symposium on Computer Animation* (pp. 23-31). ACM.
815. N. Govindaraju, A. Sud, S. Yoon and D. Manocha. (2002). Parallel occlusion culling for interactive walkthroughs using multiple gpus. In *Proc. Of Workshop on Commodity-Based Visualization Clusters*. Citeseer.
816. D. Gotz, K. Mayer-Patel and D. Manocha. (2002, December). Irw: An incremental representation for image-based walkthroughs. In *Proceedings of the tenth ACM international conference on Multimedia* (pp. 67-76). ACM.
817. B. Baxter, A. Sud, N. Govindaraju and D. Manocha. (2002, June). GigaWalk: Interactive Walkthrough of Complex Environments. In *Proc. of Eurographics Workshop on Rendering* (pp. 203-214).
818. G. Varadhan and D. Manocha. (2002, November). Out-of-core rendering of massive geometric environments. In *IEEE Visualization, 2002. VIS 2002.* (pp. 69-76). IEEE.
819. Y. Kim, M. Otaduy, M. Lin and D. Manocha. (2002). Six-degree-of-freedom haptic display using localized contact computations. In *Proc. of Tenth Symposium on Haptic Interfaces For Virtual Environment and Teleoperator Systems*. HAPTICS 2002. Proceedings. 10th Symposium on (pp. 209-216). IEEE.
820. M. Foskey, M. Garber, M. Lin and D. Manocha. (2000). A Voronoi-Based Hybrid Motion Planner for Rigid Bodies. *Proc. of International Conference on Intelligent Robots and Systems*, (pp.273-278).
821. A. Wilson, K. Mayer-Patel and D. Manocha. (2001, October). Spatially-encoded far-field representations for interactive walkthroughs. In *Proceedings of the ninth ACM international conference on Multimedia* (pp. 348-357). ACM. **Received Best Paper Award.**
822. C. Erikson, D. Manocha and B. Baxter. (2001, March). HLODs for faster display of large static and dynamic environments. In *Proceedings of the 2001 symposium on Interactive 3D graphics* (pp. 111-120). ACM.
823. K. Hoff, A. Zaferakis, M. Lin and D. Manocha. (2001, March). Fast and simple 2D geometric proximity queries using graphics hardware. In *Proceedings of the 2001 symposium on Interactive 3D graphics* (pp. 145-148). ACM.
824. S. Krishnan, M. Foskey, T. Culver, J. Keyser and D. Manocha. (2001, June). PRECISE: Efficient multiprecision evaluation of algebraic roots and predicates for reliable geometric computation. In *Proceedings of the seventeenth annual symposium on Computational geometry* (pp. 274-283). ACM.
825. A. Gregory, A. Mascarenhas, S. Ehmann, M. C. Lin and D. Manocha. (2000, October). Six degree-of-freedom haptic display of polygonal models. In *Proceedings of the conference on Visualization'00* (pp. 139-146). IEEE Computer Society Press.
826. A. Wilson, M. Lin, D. Manocha, B. Yeo and M. Yeung. (2000, October). A video-based rendering acceleration algorithm for interactive walkthroughs. In *Proceedings of the eighth ACM international conference on Multimedia* (pp. 75-83). ACM.

827. C. Pisula, K. Hoff, M. Lin and D. Manocha. (2000). Randomized path planning for a rigid body based on hardware accelerated Voronoi sampling. In *Proc. Workshop on Algorithmic Foundation of Robotics* (Vol. 18).
828. K. Hoff, T. Culver, J. Keyser, M. Lin and D. Manocha. (2000). Interactive motion planning using hardware-accelerated computation of generalized Voronoi diagrams. In *Robotics and Automation, 2000. Proceedings. ICRA'00. IEEE International Conference on* (Vol. 3, pp. 2931-2937). IEEE.
829. E. Larsen, S. Gottschalk, M. Lin and D. Manocha. (2000). Fast distance queries with rectangular swept sphere volumes. In *Robotics and Automation, 2000. Proceedings. ICRA'00. IEEE International Conference on Robotics and Automation* (Vol. 4, pp. 3719-3726). IEEE.
830. D. Aliaga, J. Cohen, A. Wilson, E. Baker, H. Zhang, C. Erikson, K. Hoff III, T. Hudson, W. Stürzlinger, R. Bastos, M. Whitton, F. P. Brooks Jr., and D. Manocha. (1999, April). MMR: An interactive massive model rendering system using geometric and image-based acceleration. In *Proceedings of the 1999 symposium on Interactive 3D graphics* (pp. 199-206). ACM.
831. C. Erikson and D. Manocha. (1999, April). GAPS: general and automatic polygonal simplification. In *Proceedings of the 1999 symposium on Interactive 3D graphics* (pp. 79-88). ACM.
832. T. Culver, J. Keyser and D. Manocha (1999). Accurate computation of medial axis of a polygon. *Proc. of ACM Symposium on Solid Modeling* (pp. 179-190).
833. A. Wilson, D. Manocha and M. Lin. (1999). Representation and interactive manipulation of massive CAD databases. In *Proc. of Workshop on Integrated Spatial Databases: Digital Images and GIS* (pp. 268-285). Springer Berlin Heidelberg.
834. J. Keyser, T. Culver, S. Krishnan and D. Manocha. (1999, June). MAPC: A library for efficient and exact manipulation of algebraic points and curves. In *Proceedings of the 15th Annual Symposium on Computational Geometry* (pp. 360-369). ACM.
835. M. Gopi and D. Manocha. (1998, October). A unified approach for simplifying polygonal and spline models. In *Visualization'98. Proceedings* (pp. 271-278). IEEE.
836. S. Krishnan, A. Pattekar, M. Lin and D. Manocha. (1998). Spherical shell: A higher order bounding volume for fast proximity queries. *Proc. of Third Workshop on Algorithmic Foundations of Robotics* (pp. 177-190).
837. A. Wallack, I. Emiris, and D. Manocha. (1998, August). MARS: a MAPLE/MATLAB/C resultant-based solver. In *Proceedings of the 1998 International Symposium on Symbolic and Algebraic Computation* (pp. 244-251). ACM.
838. A. Gregory, A. State, M. Lin, D. Manocha and M. Livingston (1998). Polyhedral morphing using feature-based surface decomposition. *Proc. of Computer Animation*. (pp. 64-71).
839. J. Cohen, D. Manocha and M. Olano. (1997, October). Simplifying polygonal models using successive mappings. In *IEEE Visualization '97, Proceedings* (pp. 395-402). IEEE.

840. S. Kumar, D. Manocha, H. Zhang and K. Hoff. (1997, April). Accelerated walkthrough of large spline models. *Proc. of ACM Symposium on Interactive 3D Graphics* (pp. 91-102). ACM.
841. T. Hudson, D. Manocha, J. Cohen, M. Lin, K. Hoff and H. Zhang. (1997, August). Accelerated occlusion culling using shadow frusta. In *Proceedings of the 13th Annual Symposium on Computational Geometry* (pp. 1-10). ACM.
842. J. Keyser, S. Krishnan and D. Manocha (1997). Efficient boundary computation of low degree sculptured solids using exact arithmetic. *Proc. of ACM Symposium on Solid Modeling*. (pp. 42-55).
843. T. Hudson, M. Lin, J. Cohen, S. Gottschalk and D. Manocha. (1997, February). V-COLLIDE: accelerated collision detection for VRML. In *Proceedings of the second symposium on Virtual reality modeling language* (pp. 119-125). ACM.
844. S. Kumar, C. Chang and D. Manocha. (1996). Scalable algorithms for interactive visualization of curved surfaces. Supercomputing, Pittsburgh, PA., 10 pages. **Received best paper award.**
845. S. Krishnas and D. Manocha. (1996, August). Computing boolean combinations of solids composed of free-form surfaces. In *Proceedings of the 1996 ASME Design for Manufacturing Conference*.
846. S. Krishnan and D. Manocha. (1996, May). Algebraic Loop Detection & Evaluation Algorithms for Curve & Surface Interrogations. In *Graphics Interface* (Vol. 96, pp. 87-94).
847. S. Kumar and D. Manocha. (1996, May). Hierarchical visibility culling for spline models. In *Graphics Interface* (Vol. 96, pp. 142-150).
848. S. Kumar, D. Manocha, W. Garrett and M. Lin. (1996, March). Hierarchical back-face culling. In *7th Eurographics Workshop on Rendering* (pp. 231-240). Porto, Portugal.
849. S. Krishnan and D. Manocha. (1996). Efficient representations and techniques for computing B-rep's of CSG models with NURBS primitives. In *Proc. of CSG'96* (pp. 101-122). Winchester, England.
850. M. Hughes, M. Lin, D. Manocha and C. Dimattia. (1996, June). Efficient and accurate interference detection for polynomial deformation. In *Proc. of Computer Animation'96*. (pp. 155-166). IEEE.
851. S. Kumar and D. Manocha. (1996). Dynamic mesh generation for parametric iso-surfaces. In *Proc. of 5th International Conference on Numerical Grid Generation in Computational Fluid Dynamics and Related Fields* (pp. 303-312). Starkville, MS.
852. S. Krishnan and D. Manocha. (1995). Numeric-symbolic algorithms for evaluating one-dimensional algebraic sets. In *Proc. of ACM International Symposium on Symbolic and Algebraic Computation* (pp. 59-67). Montreal, Canada.
853. K. Ponamgi, D. Manocha and M. Lin. (1995). Incremental algorithms for collision detection between solid models. In *Proc. of ACM/Siggraph Conference on Solid Modeling and Applications* (pp. 293-304). Salt Lake City, UT.

854. S. Kumar, S. Krishnan, D. Manocha and A. Narkhede. (1995). High speed and high fidelity visualization of complex CSG models. In *Proc. of BCS International Conference on Visualization and Modeling* (pp. 203-222). Leeds, England.
855. A. Varshney, F. Brooks, D. Richardson, W. Wright and D. Manocha. (1995). Defining, computing, and visualizing molecular interfaces. In *Proc. of IEEE Visualization'95* (pp. 36-43).
856. S. Krishnan, A. Narkhede and D. Manocha. (1995). Representation and Computation of Boolean operations of sculptured models. In *Proc. of ACM Conference on Computational Geometry* (pp. C8-C9).
857. J. Cohen, M. Lin, D. Manocha and K. Ponamgi. (1995). I-COLLIDE: An interactive and exact collision detection system for large-scale environments. In *Proc. of ACM Interactive 3D Graphics Conference* (pp. 189-196). Monterey, CA.
858. S. Kumar, D. Manocha and A. Lastra. (1995). Interactive display of large-scale NURBS models. In *Proc. of ACM Interactive 3D Graphics Conference* (pp. 51-58). Monterey, CA.
859. M. C. Lin, D. Manocha and M.K. Ponamgi. (1995). Fast algorithms for penetration and contact determination between non-convex polyhedral models. In *Proc. of IEEE Conference on Robotics and Automation* (pp. 2707-2712). Nagoya, Japan.
860. D. Manocha and Y. Zhu. (1994). Kinematic manipulation of molecular chains subject to rigid constraints. In *Proc. of Second International Conference on Intelligent Systems for Molecular Biology* (pp. 285-294). Stanford, CA.
861. D. Manocha. (1994). Computing selected solutions of polynomial systems. In *Proc. of ACM International Symposium on Symbolic and Algebraic Computation* (pp. 1-8). Oxford, England.
862. J. Cohen, M. Lin, D. Manocha and K. Ponamgi. (1994). Efficient collision detection for interactive environments. *Proc. of 10th ACM Computational Geometry Conference* (pp. 391-392) Stony-Brook, NY.
863. D. Manocha, Y. Zhu and W. Wright. (1994). Conformational analysis of molecular chains using nano-kinematics. In *Proc. of IEEE Computer Society Workshop on Shape and Pattern Matching in Computational Biology* (pp. 3-29). Seattle, WA.
864. M. Lin, D. Manocha and J. Canny. (1994). Fast contact determination in dynamic environments. In *Proc. of IEEE Conference on Robotics and Automation* (pp. 602-608). San Diego, CA.
865. D. Manocha and Y. Zhu (1994). A fast algorithm and system for the inverse kinematics of general serial manipulators. *Proc. of IEEE Conference on Robotics and Automation* (pp. 3348-3354). San Diego, CA.
866. A. Wallack, J. Canny and D. Manocha (1993). Object recognition using cross beam sensing. *Proc. of IEEE Conference on Robotics and Automation* (pp. 692-699). Atlanta, GA.
867. D. Manocha (1993). Solving polynomial systems for curve, surface and solid modeling. *Proceedings of ACM/SIGGRAPH Conference on Solid Modeling'93* (pp. 169-178). Montreal, Canada.
868. D. Manocha (1992). Robust techniques for curve and surface intersections. *Proc. of SPIE Conference on Curves and Surfaces in Computer Vision and Graphics III* (pp. 58-69). (invited paper).

869. D. Manocha and J. F. Canny (1992). Real time inverse kinematics for general 6R manipulators. *Proc. of IEEE Conference on Robotics and Automation* (pp. 383-389). Nice, France.
870. D. Manocha and James Demmel (1992). Intersecting parametric and algebraic curves. *Proc. of Graphics Interface'92* (pp. 232-241). Vancouver, British Columbia.
871. D. Manocha and J. F. Canny (1992). Multipolynomial resultant algorithms and linear algebra. *Proc. of International Symposium on Symbolic and Algebraic Computation* (pp. 158-167). Berkeley, California.
872. D. Manocha and J. F. Canny (1992). Efficient inverse kinematics for general serial manipulators. *Proc. of Japan-USA symposium on flexible automation* (pp. 125-131). San Francisco, CA.
873. D. Manocha and J. F. Canny (1991). A new approach for surface intersection. *Proc. of First ACM Conference on Solid Modeling and CAD/CAM* (pp. 209-220). Austin, Texas.
874. D. Manocha and J. F. Canny (1991). Efficient techniques for multipolynomial resultant algorithms. *Proceedings of International Symposium on Symbolic and Algebraic Computation* (pp. 86-95). Bonn, Germany.
875. D. Manocha and J. F. Canny (1991). MultiPolynomial resultant algorithms. *Proc. of International Conference on Intelligent Robotics* (pp. 348-358) Bangalore, India.
876. D. Manocha and B. A. Barsky (1991). Varying the shape parameters of rational continuity. *Proc. of IMACS'91* (pp. 203-207). Dublin, Ireland.
877. D. Manocha (1990). Regular curves and proper parametrizations. *Proc. of International Symposium on Symbolic and Algebraic Computation* (pp. 271-276). ACM.
878. D. Manocha and B. A. Barsky (1990). Basis functions for rational continuity. *Proc. of Computer Graphics International '90*, eds. T.S. Chua and T.L. Kunii, (pp. 521-542). Springer-Verlag. Japan.
879. D. Manocha and J. F. Canny (1990). Rational curves with polynomial parametrizations. *Proc. of SPIE conference on Curves and Surfaces for Computer Vision and Graphics* (pp. 151-162).

Refereed Video Publications

880. S. J. Guy, J. van der Berg, M. C. Lin and D. Manocha, "Geometric Methods for Multi-Agent Collision Avoidance", *Proc. Of 26th ACM Symposium on Computational Geometry*, Video Publication, 2010.
881. N. Govindaraju, M. C. Lin and D. Manocha (2005). "Reliable Collision Culling using Graphics Processors", *Proc. of 21st ACM Computational Geometry Conference*, Video Publication.
882. Y. J. Kim, M. Otaduy, M. C. Lin and D. Manocha (2003). "Fast penetration depth estimation using rasterization hardware and hierarchical refinement." *Proc. of 19th ACM Computational Geometry Conference*, Video Publication.
883. K. Hoff, T. Culver, J. Keyser, M. Lin and D. Manocha (2000). "Fast computation of generalized voronoi diagrams using graphics hardware." *Proc. of 16th ACM Computational Geometry Conference*, Video Publication.

884. A. Gregory, A. State, M. Lin, D. Manocha and M. Livingston (1999). "Feature-based surface decomposition for polyhedral morphing." *Proc. of 15th ACM Computational Geometry Conference*, Video Publication.
885. A. Wilson, E. Larsen, D. Manocha, and M. Lin (1999). "Graph partitioning and ordering for interactive proximity queries." *Proc. of 15th ACM Computational Geometry Conference*, Video Publication.
886. S. Kumar, D. Manocha, W. Garrett and M. Lin (1997). "Hierarchical backface computation." *Proc. of 13th ACM Computational Geometry Conference*, Video Publication, v11-12.
887. S. Kumar and D. Manocha (1996). "The power of coherence: Fast tessellation of surfaces." *Proc. of 12th ACM Computational Geometry Conference*, Video Publication, pp. v17-18.
888. K. Ponamgi, D. Manocha and M. Lin (1995). "Incremental collision detection between solid models." *Proc. of 11th ACM Computational Geometry Conference*, Video Publication, pp. v7-8.
889. J. Cohen, M. Lin, D. Manocha and K. Ponamgi (1994). "Efficient collision detection for interactive environments." *Proc. of 10th ACM Computational Geometry Conference*, Video Publication, pp. 391-392, Stony Brook, NY.

GRADUATE STUDENTS

Currently Supervised

1. Rayyan Abdalla (UMD)
2. Yohan Abeysinghe (UMD)
3. Jianyu An (UMD)
4. Samuel Audia (UMD)
5. Stephen Cheng (UMD)
6. Rocktim Jyoti Das (UMD)
7. Vishnu Dorbala (UMD)
8. Soumya Suvra Ghosal (UMD)
9. Sreyan Ghosh (UMD)
10. Dongki Jung (UMD)
11. Sonal Kumar (UMD)
12. Yonghan Lee (UMD)
13. Chris Maxey (UMD)
14. Bhrij Patel (UMD)
15. FNU Sakshi (UMD)
16. Gershom Seneviratne (UMD)
17. Ashish Seth (UMD)
18. Xiyang Wu (UMD)
19. Ruiqi Xian (UMD)

Ph.D. Students Graduated

1. Lakulish Antani (Ph.D. Summer'13) First Appointment: Impulsonic Inc.
2. Senthil Hariharan Arul (Ph.D. Summer'25). First Appointment: Startup.
3. Aniket Bera (Ph.D. December'17) First Appointment: UNC Chapel Hill
4. Andrew Best (Ph.D. December'18) First Appointment: Toyota Research Institute
5. Uttaran Bhattacharya (Ph.D. Fall'22) First Appointment: Adobe Research
6. Jonathan Cohen (Ph.D. December '98). First Appointment: Assistant Professor at Johns Hopkins University. Currently a senior research scientist, Lawrence Livermore Labs.
7. Anish Chandak (Ph.D. December '11). First Appointment: Impulsonic Inc.
8. Rohan Chandra (Ph.D. Spring'22). First Appointment: Postdoc at UT Austin. Current an Assistant Professor at University of Virginia.
9. Jaehoon Choice (Ph.D. Spring'26). First Appointment: Genesis.AI.
10. Sanjoy Choudhary (Ph.D. Spring'26): First Appointment: Apple
11. Tim Culver (Ph.D. Fall'00). First Appointment: Think3 Inc. Currently, a senior technical staff member, Autodesk.
12. Sean Curtis (Ph.D. Spring'14): First Appointment: Senior Manager at Boeing R & D
13. Carl Erikson (Ph.D. Spring'00). First Appointment: BOPS Inc. Currently self-employed.
14. Russell Gayle (Ph.D. Spring'10; Co-Supervised with Ming Lin). First Appointment: Google. Currently at Sandia National Labs.
15. Stefan Gottschalk (Ph.D. Summer'00; Co-Supervised with Ming Lin). First Appointment: Nvidia Inc.
16. Naga Govindraju (Ph.D. Summer'04). First Appointment: Research Assistant Professor, UNC Chapel Hill. Currently a VP at Microsoft.
17. Tianrui Guan (Ph.D. Summer'25). First Appointment: Waymo.
18. Pooja Guhan (Ph.D. Summer'25). First Appointment: Dolby Research.
19. Stephen Guy (Ph.D. Summer'12). First Appointment: Assistant Professor, University of Minnesota.
20. Liang He (Ph.D. Fall'2023). First Appointment, a startup.
21. Biao Jia (Ph.D. Fall'2023) First Appointment: Robotics Industry
22. John Keyser (Ph.D. Summer'00). First Appointment: Assistant Professor at Texas A&M University. Currently a Tenured Professor of Computer Science.
23. Sujeong Kim (Ph.D. Fall'15). First Appointment: Member of Technical Staff, Sarnoff Labs, Princeton
24. Divya Kothandaraman (Ph.D. Fall'24). First Appointment, Dolby Research.
25. Pavel Krajcevski (Ph.D. Fall 2016. First Appointment: Google Inc.
26. Shankar Krishnan (Ph.D. July '97). Member of Technical Staff, AT&T Research Labs. Currently, head of graphics/vision research group at AT & T Labs.
27. Subodh Kumar (Ph.D. Fall '96). First Appointment: Assistant Professor, Johns Hopkins University. Currently a professor of Computer Science and Engineering, IIT Delhi, India.
28. Christian Lauterbach (Ph.D. Fall'10). First Appointment: Google Inc.
29. Geonsun Lee (Ph.D. Fall'25). First Appointment: Meta Inc.
30. Jing Liang (Ph.D. Fall'25). First Appointment: Stanford University
31. Brandon Lloyd (Ph.D. Fall'07). First Appointment: Microsoft Research. Currently at NVIDIA Research
32. Ravish Mehra (Ph.D., Spring'15). First Appointment: Oculus Research.
33. Paul Merrell (Ph.D. Fall'09). First Appointment: Postdoc, Stanford University. Currently at Google.
34. Trisha Mittal (Ph.D. Spring'23). First Appointment: Research Scientist, Dolby Research.
35. Nicolas Morales (Ph.D. Spring'18). First Appointment: Sandia National Labs.
36. Puneet Mathur (Ph.D. Fall'23). First Appointment: Adobe Research.

37. Qi Mo (Ph.D. Fall'15) First Appointment: Member of Technical Staff, Google.
38. James Mullen (Ph.D. Fall'25) First Appointment: Apple Research
39. Sahil Narang (Ph.D. December'18) First Appointment: General Motors/Cruise
40. Jia Pan (Ph.D. Fall'2013). First Appointment: Postdoc UC Berkeley followed by faculty position at Hong Kong University
41. Zherong Pan (Ph.D. Fall'2019). First Appointment: Postdoc UIUC
42. Chonhyon Park (Ph.D. Fall'2016). First Appointment, Zoox Inc.
43. Jaesung Park (Ph.D. Spring'2020). First Appointment, Cupix, S. Korea.
44. Srihari Pratapa (Ph.D. Spring'2020). First Appointment, Intel Research.
45. Tanmay Randhavane (Ph.D. Spring'2020). First Appointment, Microsoft Research.
46. Anton Ratnarajah (Ph.D. Summer'2024). First Appointment, Amazon.
47. Atul Rungta (Ph.D. Spring'2019). First Appointment, UNC Chapel Hill.
48. Adarsh Jagan Satyamoorthy (Ph.D. Spring'2024). First Appointment, startup.
49. Carl Schissler (Ph.D. Summer'2017). First Appointment, Oculus Research.
50. Jamie Snape (Ph.D. Fall'12). First Appointment (Kitware)
51. Avneesh Sud (Ph.D. Fall'06). First Appointment, Postdoc, UNC Chapel Hill. Currently a researcher at Google Researcher.
52. Qingyang Tan (Ph.D. Summer'23). First Appointment, Tencent Research.
53. Zhenyu Tang (Ph.D. Spring'22). First Appointment, Research Scientist, ByteDance Inc.
54. Micah Taylor (Ph.D. Spring'14). First Appointment, Assistant Professor, Rose-Hulman University.
55. Gokul Varadhan (Ph.D. Fall'05): First Appointment: Google Inc.
56. Ruichen Wang (Ph.D. Spring'24). First Appointment: startup.
57. Xijun Wang (Ph.D. Summer'25). First Appointment: Amazon.
58. Kasun Weerakon (Ph.D. Spring'25). First Appointment: Startup..
59. Niall Williams (Ph.D. Fall'24). First Appointment, New York University.
60. Andrew Wilson (Ph.D. Fall'02). First Appointment: Sandia National Labs
61. Sungeui Yoon (Ph.D. Fall'05): First Appointment: Lawrence Livermore Labs. Currently an Associate Professor of Computer Science, KAIST, S. Korea.
62. Hansong Zhang (Ph.D. Fall '98). First Appointment: Silicon Graphics. Currently Chief Scientist at Niantics.
63. Liangjun Zhang (Ph.D. Summer'09). First Appointment: NSF CI-Fellow, Stanford University. Currently a group leader at General Motors.

M.S. Students Graduated

1. Aakriti Agrawal (M.S. Fall'2022). UMD College Park
2. Rohith Aralikatti (M.S. Fall'2022). UMD College Park
3. Tianrui Guan (M.S. Spring'2022). UMD College Park
4. Shrey Banga (M.S. Spring'12). UNC Chapel Hill
5. Bill Baxter (M.S. Spring'01). UNC Chapel Hill
6. Sean Curtis (M.S. Spring'08): UNC Chapel Hill
7. Mark Foskey (M.S. Spring'01). UNC Chapel Hill
8. Sean Hanlon (M.S. Spring'05): UNC Chapel Hill
9. Mark Harris (M.S. Spring'00): UNC Chapel Hill
10. Michael Henson (M.S. Spring'06): UNC Chapel Hill
11. Karl Hillesland (M.S. Spring'02): UNC Chapel Hill
12. Tom Hudson (M.S. Summer'97). UNC Chapel Hill
13. Kenny Hoff (M.S. Summer'99). UNC Chapel Hill

14. Wesley Hunt (M.S. Spring'00): UNC Chapel Hill
15. Nitin Jain (M.S. Spring'05): UNC Chapel Hill
16. Ilknurk Kabul (M.S. Spring'07): UNC Chapel Hill
17. Nithish Sanjeev Kumar (M. S. Spring'2020). UMD College Park
18. Eric Larsen (M.S. Spring'99). UNC Chapel Hill
19. Sang Woo Lee (M.S. Spring'09). UNC Chapel Hill
20. Puneet Mathur (M.S. Spring'21). UMD College Park
21. Gopi Meenakshisundaram (M.S. Spring'99): UNC Chapel Hill
22. Alok Mesharam (M.S. Spring'2014): UNC Chapel Hill
23. Venkatraman Narayanan (M.S. Spring'2020): UMD College Park
24. Atul Narkhede (M.S. Spring '95). UNC Chapel Hill
25. David O'Brien (M.S. Spring'01): UNC Chapel Hill
26. Amol Pattekar (M.S. Spring'98). UNC Chapel Hill
27. Sachin Patil (M.S. Spring'09). UNC Chapel Hill
28. Moumita Paul (M.S. Spring'2021). UNC Chapel Hill
29. Kris Ponamgi (M.S. Fall '95). UNC Chapel Hill
30. Zhimin Ren (M.S. Spring'2010). UNC Chapel Hill
31. Yash Savle (M.S. Spring'2021). UMD College Park
32. Saadiq Shaik (M.S. Spring'21): UMD College Park
33. Brian Salomon (M.S. Fall'07): UNC Chapel Hill
34. Priyadarshi Sharma (M.S. Spring'2014). UNC Chapel Hill
35. TVN Sriram (Spring'06): UNC Chapel Hill
36. Micah Taylor (Spring'11): UNC Chapel Hill
37. Kyle Wilson (M.S. Summer '97). UNC Chapel Hill
38. Andrew Zaferakis (M.S. Spring'02). UNC Chapel Hill
39. Yu Zheng (M.S. Fall'2011). UNC Chapel Hill

UNDERGRADUATE SUPERVISION

1. Amanuel Awoke (UMD, Fall'2020)
2. Erik Andersen (UNC, Spring'2007)
3. Hugo Burbelo (UMD, Fall'2020)
4. V. Chadva (UNC, Spring'2016)
5. Elizabeth Childs (UMD, Spring'2020)
6. Arthur Gregory (UNC, Spring'2000)
7. Tianrui Guan (UMD, Spring'2021)
8. Scott Loftin (UNC, Spring'2016)
9. Austin Plummer (UMD, Spring'2020)
10. Nick Rewkowski (UNC, Spring'2018)
11. Christian Roncal (UNC, Spring'2020)
12. Carl Schissler (UNC, Spring'2009)
13. Logan Stevens (UMD, Fall'2020)
14. Jack Sturtevant (UMD, Fall'2019)
15. T. Wong (B.S. Spring'2016)
16. Yukun Zheng (UMD, Spring'2020)

POSTDOCS, RESEARCH SCIENTISTS & VISITING RESEARCHERS

Currently Supervised

Previously Supervised

1. Amrit Bedi, University of Maryland. First appointment, Asst. Professor, University of Central Florida.
2. Aniket Bera, University of Maryland. First appointment, Associate Professor, Purdue University.
3. Jur van der Berg (co-supervised with Ming C. Lin). First appointment, Asst. Professor, University of Utah
4. Mark Foskey (Co-Supervised with Ming C. Lin). Research Assistant Professor, UNC Chapel Hill
5. Naga Govindaraju. UNC Chapel Hill. Currently a Distinguished Engineer at Microsoft
6. Jae-Ho Nah, UNC Chapel Hill. First Appointment, LG, Korea.
7. Nare Karapetyan, University of Maryland. First Appointment, Assistant Scientist, Woods Hole Oceanographic Institute (WHOI).
8. Young Kim (Co-Supervised with Ming C. Lin). Assistant Professor, Ehwa University, S. Korea
9. Kurtulus Kullu, Ankara University, Turkey
10. Vivek Kwatra (Co-Supervised with Ming C. Lin). Google Research, California
11. Yuexin Ma, UNC Chapel Hill
12. Sarala Padi, University of Maryland. Currently a research scientist at NIST.
13. Li Sheng, UNC Chapel Hill.
14. Daeun Song, University of Maryland
15. Avneesh Sud (Co-Supervised with Ming C. Lin). UNC Chapel Hill. First Appointment Microsoft
16. Gokul Varadhan: UNC Chapel Hill. Currently a member of Technical Staff at Google Inc.
17. Min Tang: Professor, Zhejiang University, China.
18. Hao Tang, East China Normal University, China
19. Qiaoyun Wu, University of Maryland
20. Xinyu Zhang, UNC Chapel Hill, First Appointment, Associate Professor, East China University, China
21. Liangliang Zhou. University of Maryland

PH.D. COMMITTEES & EXTERNAL REVIEWER

1. Sydrak Abdi (PhD 2024, UMD)
2. Temitayo Adeyeye (UMD, in progress)

3. Aakriti Agrawal (UMD, in progress)
4. Angeline Aguinaldo (PhD 2024, UMD)
5. Fatimeh Alimardani (Ph.D. 2022, UMD)
6. Omid Aramoon (Ph.D. 2022, UMD)
7. Rui Bastos (Ph.D. 1999, UNC)
8. Michael Bajura (Ph.D. 1997, UNC)
9. Deepak Bandopadhyaya (Ph.D. 2005, UNC)
10. William Baxter (Ph.D. 2004, UNC)
11. Chris Bowens (Ph.D. 2018, UNC)
12. Levi Burner (Ph.D. 2025, UMD)
13. Benjamin Chretien (Universite De Montpellier, France) (Ph.D. 2016)
14. David Chen (Ph.D. 1998, UNC)
15. Changan Chen (PhD 2024, UT Austin)
16. Robby Cochran (PhD 2016, UNC)
17. Yuran Dang (UMD, ongoing)
18. Philip Dasler (PhD, 2020, UMD)
19. Chinmaya Devaraj (UMD, 2024)
20. Rohit Dubey (PhD, 2020, ETH Zurich)
21. Fredo Durand (Univ. of Grenoble, France) (Ph.D. 1999)
22. David Eberly (Ph.D. 1994, UNC)
23. Max Ehrlich (Ph.D 2022, UMD)
24. Usman Amin Fian (UMD, in progress)
25. Jilia Fliberti (UMD, in progress)
26. Jacob Furst (Ph.D. 1999, UNC)
27. Nico Gallopo (Ph.D. 2008, UNC)
28. Kanishka Ganguly (Ph.D. 2022, UMD)
29. Yunchao Gong (Ph.D. 2014, UNC)
30. Karl Hillebrand (Ph.D. 2005, UNC)
31. Jesse Cooper Himmelstein (University of Toulouse, Ph.D. 2008)
32. Abhinav Golas (2014, UNC)
33. Rong Guodong (National University of Singapore, Ph.D. 2008)
34. Faisal Hamman (UMD, PhD 2025)
35. Sara Honarvar (UMD, PhD 2024)
36. Martin Isenburg (Ph.D. 2004, UNC)
37. Peyman Jabbarzade (UMD, in progress)
38. Zahra Zare Jousheghani (UMD, in progress)
39. Shoken Kaneko (Ph.D. 2023, UMD)
40. Robert Katz (Ph.D. 2002, UNC)
41. Mohammed Khalid (UMD, in progress)
42. Ted Kim (Ph.D. 2006, UNC)
43. Hanna Kurniawati (National University of Singapore, Ph.D. 2008)
44. Shiyi Lan (UMD, in progress)
45. Yingjie Li (UMD, PhD. 2025)
46. Junbang Liang (Ph.D. 2021, UMD)
47. Xiaomin Lin (PhD 2024, UMD)
48. Kok-Lim Low (Ph.D. 2005, UNC)
49. Weizi Li (PhD 2019, UNC)
50. Chihuang Liu (PhD 2021, UMD)
51. Yunshan Liu (PhD 2015, UNC)

52. David Luebke (Ph.D. 1998, UNC)
53. Ajith Masceranhas (Ph.D. 2005, UNC)
54. Michael Maynord (UMD, Ph.D. 2024)
55. Bruce Merry (University of Cape Town, Ph.D. 2007)
56. Manfred Minimair (Math Department, NC State, Spring 2001)
57. David Millman (2012, UNC)
58. Khalid Mohamed (UMD, in progress)
59. Martin Mortaheb (UMD, Ph.D. 2025)
60. Rahul Narain (Ph.D. 2011, UNC)
61. Phil Nguyen (UMD, in progress)
62. Trevine Shane Jude Oorloff (Ph.D. 2024, UMD)
63. Miguel Otaduy (Ph.D. 2004, UNC)
64. Sachin Patil (Ph.D. 2013, UNC)
65. Jeff Poole (Ph.D. 2012, UNC)
66. Voicu Popescu (Ph.D. 2001, UNC)
67. Cory Quammen (UNC)
68. Zhimin Ren (Ph.D. 2014, UNC)
69. John Rhoades (Ph.D. 1993, UNC)
70. Nikunj Raghuvanshi (Ph.D. 2010, UNC)
71. David Rogers (INRIA, Grenoble, Ph.D. 2008)
72. Vinu Sankar Sadasivan (UMD, PhD 2025)
73. Nitin Sanket (UMD, PhD 2021)
74. Ayhan Samet (UMD, Ph.D. 2019)
75. Animesh Sastry (UMD Ph.D. 2024)
76. Jason Sewall (Ph.D. 2011, UNC)
77. Paul Segars (Bio-Medical Engineering Department, UNC) (Ph.D. 2001)
78. Yi-Ting Shen (UMD, in progress)
79. Guangyao Shi (Ph.D. 2023, UMD)
80. Ariana Spalter (UMD, in progress)
81. Sam S. Sohn (Ph.D. 2024, Rutgers University)
82. Sanghyun Son (UMD, in progress)
83. Auston Sterling (UNC, PhD 2019)
84. Yanchao Sun (UMD, PhD 2023)
85. Nilesch Suriyarachchi (UMD, PhD 2023)
86. Varun Suryan (UMD, PhD 2022)
87. Tetsuya Takahashi (UNC, PhD 2020)
88. Muhammad Faizan Tariq (UMD, in progress)
89. Timothy Terriberly (Ph.D. 2006, UNC)
90. Andrew Thall (Ph.D. 2004, UNC)
91. Adrian Theetten (INRIA, Ph.D. 2007)
92. Luis Torres (UNC)
93. Jeffrey Twigg (UMD, Ph.D. 2022)
94. Amitabh Varshney (Ph.D. 1994, UNC)
95. Ke Wang (Ph.D. 2018, UNC)
96. Kelly Ward (Ph.D. 2005, UNC)
97. Hong Wei (Ph.D. 2020, UMD)
98. David Wilkie (Ph.D. 2014, UNC)
99. Justin Wilson (Ph.D. 2020, UNC)
100. Hongyu XU (Ph.D. 2019, UMD)

101. Chengxi Ye (UMD, in progress)
102. Alex Yang (Ph.D. 2018, UNC)
103. Li Yi (Simon Fraser University, Ph.D. 2008)
104. Hengchen Yeh (Ph.D. 2014, UNC)
105. Zhongshun Zhang (in progress, UMD)
106. Yu Zheng (Ph.D. 2014, UNC)
107. Bowen Zhi (UMD, in progress)
108. Yunshan Zhu (Ph.D. 1998, UNC)

M.S. COMMITTEES

- Daniel Aliaga (M.S. 1993)
- Audra Sugerman (M.S. 1995)
- Atul Narkhede (M.S. 1995)
- Nico Gallopo (M.S. 2005)
- Kris Georges (M.S. 1995)
- Abhinav Golas (M.S. 2011)
- Bill Baxter (M.S. 2001)
- Ted Kim (M.S. 2004)
- Rahul Narain (M.S. 2009)
- Miguel Otaduy (M.S. 2003)
- Sachin Patil (M.S. 2010)
- Zhimin Ren (M.S. 2011)
- Jason Sewall (M.S. 2009)
- Ryan Anthony Tse (M.S. 2024)
- David Wilkie (M.S. 2012)
- Kelly Ward (M.S. 2003)

REFeree FOR

- ACM Transactions on Graphics
- Journal of Symbolic Computation
- Computer Vision, Graphics and Image Processing
- Presence
- IEEE Computer Graphics and Applications
- Computer
- Computer-Aided Design
- Computer Aided Geometric Design
- SIAM Journal on Computing
- Applicable Algebra in Engineering, Communication and Computing
- Journal of Robotics System
- International Journal of Computational Geometry and Applications
- IEEE Transactions on Robotics and Automation
- IEEE International Conference on Robotics and Automation
- Computer Graphics Forum
- IEEE/ACM SuperComputing
- ACM SIGGRAPH
- ACM Interactive 3D Graphics Conference
- ACM/SIGGRAPH Solid Modeling Conference

- ACM Volume Visualization Symposium
- IEEE Visualization
- Graphics Interface
- EuroGraphics
- AAEEC (Applied Algebra and Error Correcting Codes)
- ACM Symposium on Computational Geometry
- International Conference on Robotics & Automation
- International Symposium on Symbolic and Algebraic Computation
- Army Research Office Proposals
- National Science Foundation Proposals
- National Research Council

INVITED COLLOQUIA

- **Planning Technologies for Human-Robot Interaction**
 1. Tsinghua University, China, April 2017
 2. Shenzhen University, China, April 2017
 3. Baidu, China, April 2017
 4. Guangdong University of Technology, China, December 2016
 5. Nanyang Technological University, Singapore, December 2016
- **Interactive Sound Simulation and Rendering**
 1. South China University, September 2016
 2. Google Research, March 2016
 3. Tianjin University, November 2015
 4. University of Pennsylvania, November 2015
 5. New York University, October 2015
 6. Peking University, April 2015
 7. Biehang University, April 2015
 8. University of Central Florida, February 2015
 9. Shenzhen Institute of Advanced Technology, December 2014
 10. Korea University, October 2014
 11. Disney Imagineering, May 2014
 12. Institute of Creative Technologies, May 2014
 13. NASA Ames, May 2014
 14. Zhejiang University, April 2014
 15. Samsung, Dallas, March 2014
 16. Apple, December 2013
 17. University of Wisconsin, May 2012
 18. KAUST, S. Arabia, February, 2011
 19. University College London, February 2011
 20. Department of Computer Science, NYU, October 2010
 21. Technical University of Catalonia, Barcelona, July 2010
 22. Department of Computer Science, Technical University of Vienna, April 2010
 23. Department of Computer Science, Columbia Univ., February 2010
 24. Department of Computer Science, UNC Charlotte, February, 2010
- **Interactive Large-Scale Crowd Simulation**

1. Oculus Research, September 2017
2. Brown University, August 2017
3. Shandong University, June 2015
4. Department of Computer Science, Qatar University, Qatar, March 2015
5. Qatar Computing Research Institute, Qatar, March 2015
6. Google Research, June 2014
7. Department of Computer Science, University of Edinburgh, March 2014
8. Department of Computer Science, Helsinki Institute of Technology, Finland, November 2012
9. Department of Computer Science, Universidade Federal do Rio de Janeiro, July 2012
10. IMPA - Instituto de Matematica Pura e Aplicada, July 2012
11. Department of Computer Science, Universidade de São Paulo, June 2012
12. Department of Computer Science, ETH Zurich, June 2012
13. Julisch SuperComputing Center, Germany, November 2011
14. Department of Computer Science, City University of New York, October 2010
15. Department of Computer Science, Hong Kong University, April 2010
16. Department of Computer Science, City University of Hong Kong, March 2010
17. Department of Computer Science, Chinese University of Hong Kong, April 2010

- **Real-Time Motion Planning**

1. Chinese University of Hong Kong, November 2015
2. Beihang University, July 2015
3. Beijing Institute of Technology, April 2015
4. ROS-Industrian Meeting, Chicago, March 2015
5. Google Research, June 2014
6. Department of Computer Science, University of Edinburgh, March 2014
7. LAAS Toulouse, March 2014
8. CNRS, Montpellier, France, March 2014
9. AIST, Scuba City, Japan, November 2013

- **Bringing Realism to Virtual Environments: Physics, Sound and Crowd**

1. Department of Computer Science, KAIST, September 2008
2. AT & T Research Labs, NJ, November, 2008
3. Department of Computer Science, Univ. of Central Florida, February, 2009
4. Department of Computer Science, Texas A & M, June 2009

- **Motion Planning in Real and Virtual Worlds: Algorithms and Applications**

1. University of Maryland, April 2011
2. University of Tokyo, February 2008
3. Simon Fraser University, July 2008
4. Korea Institute of Science and Technology, September 2008
5. University of Pennsylvania, October 2006.
6. Rensselaer Polytechnic Institute, October 2006.

- **Interactive Ray Tracing and Sound Rendering in Complex, Dynamic Environments**

7. Department of Computer Science, Indian Institute of Technology, Delhi (April 2008)
8. ACM SIGGRAPH Course, Los Angeles (August 2008)
9. Department of Computer Science, Seoul National University (September 2008)

- **Interactive Rendering of Massive Models: Rasterization or Ray Tracing**
 1. Aiya Napa Seminar, Cyprus, June 2006
 2. Department of Computer Science, University of Stuttgart, July 2006
- **Discrete Geometric Processing with Topological Guarantees**
 1. SUNY Stony Brook, June 2008
 2. Peking University, June 2007
 3. Tsinghua University, June 2007
 4. University of Minnesota, May 2007
- **Real-Time Display & Walkthroughs of Massive Models**
 1. Pacific Graphics, October 2005
 2. Institute of Creative Technologies, September, 2004.
 3. Department of Computer Science, ETH, Swiss Federal Institute of Technology, Zurich, July 2004.
 4. ONR PI Meetings, Naval Research Labs, 2000-2004
 5. Department of Computer Science, University of Maryland, May 2003.
 6. Intel, Oregon, August 2002.
 7. ARMY STRICOM, March 2000.
 8. Department of Computer Science, USC, February 2000.
 9. Department of Computer Science, UCSD, November 1999.
 10. Institute of Creative Technologies, USC, November 1999.
 11. Department of Computer Science, UCLA, May 1999.
 12. Lawrence Livermore National Labs, Livermore, March 1999.
 13. Department of Computer Science, New York University, October 1998.
 14. NASA Ames, Mountain View, CA, August 1998.
 15. Interval Research, Palo Alto, CA, July 1998.
 16. Hewlett-Packard Research Labs, Palo Alto, CA, June 1998.
 17. Intel, Santa Clara, CA, June 1998.
- **General Purpose Computation using Graphics Processors**
 1. Institute for Infocomm Research, ASTAR, Singapore, November 2012
 2. NVIDIA, India, December 2011
 3. Computational Research Labs, Pune, India, December 2011
 4. Department of Computer Science, Zhejiang University, May 2011
 5. KAUST, May 2010
 6. Department of Computer Science, HKUST, March 2010
 7. Microsoft Research, Asia, June 2007
 8. Intel, Santa Clara, March 2007
 9. MATREX Meeting, RDECOM, February, 2006
 10. SAIC, November 2005
 11. Hong Kong University of Science and Technology (HKUST), October 2005
 12. Workshop on High Performance Embedded Computing, September 2005
 13. Intel, Santa Clara, August 2005
 14. Army Research Labs, July 2005
 15. Army Modeling and Simulation Office, July 2005
 16. High Performance Computing Symposium, June 2005
 17. MERL, Cambridge, MA, June 2005

18. Army CERDEC, New Jersey, June 2005
 19. Department of Computer Science, University of California at Irvine, September 2004.
 20. National Simulation Center, February 2004
 21. Intel, Oregon, October 2003.
 22. I/ITSEC, November 2004
 23. PEO STRI, May 2003
 24. RDECOM, STTC, Orlando, May 2003
- **Exact and Accurate Computations with non-linear Algebraic primitives**
 - Max-Planck Institute, Saarbrücken, Germany, June 2002.
 - **Collision Detection between Rigid and Deformable Models**
 - Workshop on Surgical Simulation, Stanford, CA, 2001.
 - **MultiPolynomial Resultants: Algorithms, Implementation and Applications**
 1. US Naval Academy, Annapolis, MD, May 1996.
 2. Invited speaker, East Coast Computer Algebra Day, IBM TJ Watson Research Center, April 1996.
 - **Collision Detection: Algorithms and Applications**
 - Invited minisymposium speaker, SIAM Conference on Geometric Design, November 1995.
 - Second Workshop on Algorithmic Robotics, Toulouse, France, July 1996.
 - **Towards Interactive Walkthrough of large CAD models**
 1. National Institute of Standards and Technology, Gaithersburg, MD, March 1997.
 2. State University of New York at Stony Brook, March 1997.
 3. University of Michigan, Ann Arbor, MI, March 1997.
 4. Northwestern University, February, 1997.
 5. National Institute of Standards and Technology, Gaithersburg, MD, June 1995.
 6. Workshop on Geometric Software and Visualization, Princeton, NJ, June 1996.
 7. Invited speaker, Graphicon'96 conference, St. Petersburg, July 1996.
 8. Invited speaker, First CGC Workshop on Computational Geometry, John Hopkins University, October 1996.
 - **Modeling and Rendering with Algebraic Constraints**
 1. AT&T Bell Labs, Murray Hill, NJ, May 1995.
 2. University of California at Davis, CA, April 1995.
 3. Naval Postgraduate School, Monterey, CA, April 1995.
 4. Princeton University, Princeton, NJ, April 1995.
 5. University of Utah, Salt Lake City, UT, March 1995.
 6. University of Florida, Gainesville, FL, March 1995.
 - **Interactive Model Construction, Display and Collision Detection for Virtual Environments**
 - ONR PI's meeting, Arlington, VA, March 1995.
 - **Geometric Problems in the Non-linear World**
 - Invited speaker, Geometry software workshop, University of Minnesota, MN, January 1995.
 - **Geometric and Solid Modeling**

- Invited colloquium, Indian Institute of Technology, N. Delhi, India, January 1994.
- **Non-Linear Polynomial Equations and Matrix Computations**
 - Invited speaker, “Advances in Computational Mathematics”, N. Delhi, India, January 1994.
- **Surface Intersection in Lower Dimensions**
 - Invited minisymposium speaker, SIAM Conference on Geometric Design, Tempe, AZ, November 1993.
- **Modeling with Algebraic Constraints**
 1. University of Geneva, Geneva, Switzerland, June 1993.
 2. INRIA, Nice, France, June 1993.
 3. Department of Computer Science, Duke University, Durham, NC, February 1993.
 4. Department of Computer Science, University of North Carolina at Chapel Hill, NC, February 1993.
- **Robust Methods for Curve and Surface Intersection**
 - Invited presentation, SPIE Conference on Curves and Surfaces for Computer Graphics and Vision, Boston, MA, November 1992.
- **Non-Linear Geometry and Linear Algebra**
 1. Mitsubishi Electric Research Lab, Cambridge, MA, April 1992.
 2. Department of Computer Science, University of North Carolina at Chapel Hill, NC, April 1992.
 3. School of Computer Science, Carnegie Mellon University, Pittsburgh, PA, April 1992.
 4. College of Computing, Georgia Institute of Technology, Atlanta, GA, April 1992.
 5. Department of Computer Science, University of Toronto, Toronto, Canada, March 1992.
 6. Department of Computer Science, State University of New York, Stony Brook, NY, March 1992.
 7. Department of Computer Science, University of Maryland at College Park, MD, March 1992.
 8. Department of Computer Science, University of California at Santa Barbara, CA, March 1992.
 9. Department of Computer Science, University of Minnesota, Minnesota, MN, March 1992.
 10. Department of Computer Science, University of Waterloo, Waterloo, Canada, March 1992.
 11. Department of Computer and Information Science, University of California at Santa Cruz, CA, February 1992.
 12. IBM TJ Watson Research Center, Yorktown Heights, NY, February 1992.
- **Algorithms for curve and surface intersections**
 - Invited colloquium, Xerox Palo Alto Research Center, Palo Alto, CA, February 1992.
- **Efficient techniques for implicitization**
 - Invited presentation, Minisymposium on Base Points and Computer Aided Geometric Design, SIAM Conference on Geometric Design, Tempe, AZ, November 1991.
- **Real time inverse kinematics for general 6R manipulators**
 - Invited colloquium, Department of Computer Science, Stanford University, Palo Alto, CA, October 1991.
- **A New Approach for Curve and Surface Intersection**
 - Invited colloquia, Hewlett-Packard Research Laboratories, Palo Alto, CA, March 1991.

- **Efficient Algorithms for Inverse Kinematics**
 - Invited Speaker at Industrial Liaison Program, College of Engineering, University of California, Berkeley, CA, March 1991.
- **Implicitizing Rational Parametric Surfaces**
 - Invited Workshop speaker, Geometric Design Seminar, Wayne State University, Detroit, MI, May 1990.
- **Regular Curves and Proper Parameterizations**
 - Invited colloquium, Indian Institute of Technology, Delhi, January 1990.
- **Multipolynomial Resultant Algorithms**
 - Invited presentation, Minisymposium on Computational Algebraic Geometry and Geometric Modeling, SIAM conference on Geometric Design, Tempe, Arizona, November 1989.