

STEVEN ALAN VELINSKY

POSITION:

Distinguished Professor Emeritus
Department of Mechanical & Aerospace Engineering
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LICENSES:

Registered Professional Engineer, State of California, No. M30328.

ACADEMIC DEGREES:

B.S. Mechanical Engineering, State University of New York at Buffalo, 1977.
M.S. Mechanical Engineering, University of Illinois at Urbana-Champaign, 1979.
Ph.D. Theoretical & Applied Mechanics, University of Illinois at Urbana-Champaign, 1981.

ACADEMIC CAREER:

- Faculty Member (Associate Professor, Professor, Distinguished Professor, Distinguished Professor Emeritus), Department of Mechanical & Aerospace Engineering, University of California, Davis, August 1989 - Present.
- Director, Advanced Highway Maintenance & Construction Technology Research Center, Department of Mechanical & Aerospace Engineering, University of California, Davis, September 1991 – September 2016.
- Chair of the Design & Controls Group, Department of Mechanical & Aeronautical Engineering, University of California, Davis, July 1994 - December 1996.
- Faculty Member (Assistant Professor, Associate Professor), Department of Mechanical Engineering, University of Wisconsin-Madison, August 1983 - August 1989.
- Chairman of the Design Division, Department of Mechanical Engineering, University of Wisconsin-Madison, March 1988 - August 1989

INDUSTRIAL EXPERIENCE:

- Harris Government Aerospace Systems Division, Melbourne, Florida, Associate Principal Engineer, April 1982 - August 1983.
- U.S. Army Corps of Engineers Construction Engineering Research Laboratory, Champaign, Illinois, Structural Engineer, October 1981 - January 1982.

AWARDS:

- Federal Laboratory Consortium (FLC) Award for Excellence in Technology Transfer, US Department of Energy, 2012
- Finalist, Construction Innovation Forum's NOVA Award, 2009

- American Society of Mechanical Engineers' Machine Design Award, 2007
- American Society of Mechanical Engineers' Robert E. Abbott Award, 2005
- California Transportation Foundation's Tranny Award, 2002
- California State Department of Transportation's Excellence in Transportation Award, 2001
- California Transportation Foundation's Tranny Award, 2001
- American Society of Mechanical Engineers' Distinguished Service Award, 1999
- Fellow, American Society of Mechanical Engineers, 1998
- American Society of Mechanical Engineers' Leonardo Da Vinci Award, 1996
- Society of Automotive Engineers' Ralph R. Teetor Educational Award, 1986

TECHNICAL SOCIETY ACTIVITIES:

- Vice President, Systems and Design, American Society of Mechanical Engineers (ASME), 2002-2005
- Member, Executive Committee, ASME Design Engineering Division (1994-1999; Chair 1998-99)
- Member, Executive Committee, ASME Systems and Design Group (1999-2005)
- Technical Editor, Mechanics Based Design of Structures and Machines (1999-2018)
- Associate Technical Editor, ASME Journal of Mechanical Design (1993-1995)
- Editorial Board Member, International Journal of Vehicle Systems (1993-2018)
- Member, IEEE/ASME Transactions on Mechatronics Management Committee, 1999-2002
- Member, Executive Committee, University of California Partners for Advanced Transit and Highways (PATH) Program, 1999-2003
- Member, Advisory Committee, ASME Design Engineering Division, 1999-2004 (Chair 1999-2000)
- Member, ASME Council on Engineering Task Force on Conferences and Publications, 1999
- Representative, ASME Systems and Design Group Operating Board, 1998-99
- Chair, Honors & Awards Committee, ASME Design Engineering Division (1993-95)
- Member (Chair 1987-93), Vehicle Design Committee, ASME Design Engineering Division
- Member, Design Automation Committee, ASME Design Engineering Division
- Member, Transportation Machinery Committee, International Federation for the Theory of Machine and Mechanisms

RESEARCH PUBLICATIONS:

1. Velinsky, S.A. and White, R.A., "Increased Vehicle Energy Dissipation Due to Changes in Road Roughness with Emphasis on Rolling Losses," Presented at the SAE Passenger Car Meeting, June 1979, Dearborn, Michigan, SAE Paper No. 790653.
2. Velinsky, S.A. and Costello, G.A., "Axial Response of Oval Wire Ropes," Presented at the ASME Winter Annual Meeting, Nov. 1980, Chicago, Illinois, ASME Paper No. 80-WA/OCE-3.

3. Velinsky, S.A. and White, R.A., "Vehicle Energy Dissipation Due to Road Roughness," *Vehicle Systems Dynamics Journal*, Vol. 9, No. 6, pp. 359-384, 1980.
4. Velinsky, S.A., Phillips, J.W., Anderson, G.L., and Costello, G.A., "Axial Wire Stresses in Rope" , Presented at the Ninth U.S. National Congress of Applied Mechanics, June 1982, Ithaca, New York.
5. Velinsky, S.A., Anderson, G.L., and Costello, G.A., "Wire Rope with Complex Cross Sections," *Journal of Engineering Mechanics, Transactions ASCE*, Vol. 110, No. 3, pp. 380-391, 1984.
6. Velinsky, S.A., "General Nonlinear Theory for Complex Wire Rope," *International Journal of Mechanical Sciences*, Vol. 27, No. 7/8, pp. 497-507, 1985.
7. Velinsky, S.A., "Analysis of Fiber Core Wire Rope," *Journal of Energy Resources Technology, Transactions ASME*, Vol. 107, No. 3, pp. 388-393, 1985.
8. Velinsky, S.A. and Su, X., "Design Considerations for Wire Rope," Presented at the 1985 National Design Engineering ASME Conference, March 1985, Chicago, Illinois.
9. Bryant, M.R., Velinsky, S.A., Beachley, N.H. and Fronczak, F.J., "A Design Methodology for Obtaining Infinite Stiffness in an Aerostatic Thrust Bearing," *Journal of Mechanisms, Transmissions and Automation in Design, Transactions ASME*, Vol. 108, No. 4, pp. 448-453, 1986. Also appeared as ASME paper #86-DET-32, 1986.
10. Bryant, M.R., Velinsky, S.A., Plesha, M.E. and Clarke, G.P., "Computer-Aided Surgical Design in Refractive Keratotomy," *CLAO Journal, Transactions Contact Lens Association of Ophthalmologists*, Vol. 13, No. 4, pp. 238-242, 1987.
11. Velinsky, S.A. and Lembeck, M.F., "Progress Towards an Expert System Environment for Design," Proceedings of the NSF Workshop on Design Theory and Methodology, Oakland, CA, February 1987.
12. Velinsky, S.A., editor, *Trends in Vehicle Design Research - 1987*, ASME Special Publication #DE-Vol. 11, 1987.
13. Velinsky, S.A. and Schmidt, J.D., "A Simplified Treatise on the Effect of Wear in Cables," *Journal of Offshore Mechanics and Arctic Engineering, Transactions ASME*, Vol. 109, No. 1, pp. 32-37, 1988. Also in Proceedings of the Fifth International Symposium on Offshore Mechanics and Arctic Engineering, Tokyo, pp. 556-563, 1986.
14. Velinsky, S.A., "Discussion of paper entitled 'Closed-Form Analysis for Elastic Deformations of Multilayered Strands'," *Journal of Applied Mechanics, Transactions ASME*, Vol. 55, pp. 744, 1988.
15. Velinsky, S.A., "Design and Mechanics of Multi-Lay Wire Strands," *Journal of Mechanisms, Transmissions and Automation in Design, Transactions ASME*, Vol. 110, No. 2, pp. 152-160, 1988. Also in Proceedings of the ASME Design Technical Conference, *Advances in Design Automation - 1987*, Vol. 1, pp. 221-230, 1987.
16. Lembeck, M.F. and Velinsky, S.A., "A Prototype Expert System for Wire Rope Based Mechanical Systems Design," Proceedings of the Seventh World Congress on the Theory of Machines and Mechanisms (IFTToMM), Seville, Spain, pp. 1029-1032, 1987.
17. Lembeck, M.F., Velinsky, S.A. and Dwyer, T.A.W. III, "A Prototype Expert System for the Design of a Multi-Bodied Comet Explorer Spacecraft," Proceedings of the IEEE International Symposium on Intelligent Control, Philadelphia, PA, pp. 384-389, 1987.

18. Straitiff, D.G., Freeman, J.S. and Velinsky, S.A., "A Simple Methodology for Evaluating and Implementing Vehicle Anti-Lock Brake Systems," *Proceedings of the ASME Winter Annual Meeting, ASME Special Publication #DE-Vol. 11*, pp. 35-43, 1987.
19. Velinsky, S.A., "On the Design of Wire Rope," *Journal of Mechanisms, Transmissions and Automation in Design, Transactions ASME*, Vol. 111, No. 3, pp. 382-388, 1989. Also in *Proceedings of the ASME Design Technical Conference, Advances in Design Automation - 1988*, pp. 315-322, 1988.
20. Freeman, J.S. and Velinsky, S.A., "Comparison of the Dynamics of Conventional and Worm-Gear Differentials," *Journal of Mechanisms, Transmissions and Automation in Design, Transactions ASME*, Vol. 111 No. 4, pp. 605-610, 1989. Also in *Proceedings of the ASME Winter Annual Meeting, Advanced Automotive Technologies - 1989*, pp. 249-264, 1989.
21. Bryant, M.R. and Velinsky, S.A., "Design of Keratorefractive Surgical Procedures - Radial Keratotomy," *Journal of Mechanical Design, Transactions ASME*, Vol. 113, No. 2, pp. 150-157, 1991. Also in *Proceedings of the ASME Design Technical Conference, Advances in Design Automation - 1989*, Vol. 3, pp. 383-391, 1989.
22. Freeman, J.S. and Velinsky, S.A., "Dynamic Analysis of Vehicle Powertrain Systems," *Proceedings of the 12'th Canadian Congress on Applied Mechanics, Ottawa, Canada*, pp. 160-161, 1989.
23. Bryant, M.R. and Velinsky, S.A., "Optimal Design of Corneal Refractive Surgery," *Proceedings of the IEEE 11'th Annual International Engineering in Medicine and Biology Conference, Seattle, WA*, pp. 1946-1947, 1989.
24. Karmel, A.M., Law, E.H. and Velinsky, S.A., editors, *Advanced Automotive Technologies - 1989*, ASME Special Publication #DSC-Vol. 13, 1989.
25. Wong, J.Y., Moskwa, J.J. and Velinsky, S.A., editors, *Transportation Systems - 1990*, ASME Special Publication #AMD-Vol. 108, 1990.
26. Jing, L., Kirschke, K., Quinlin, T., Schultheis, E.D., Smith, M. and Velinsky, S.A., "On the Automatic Sealing of Cracks in Pavement," UC-Davis Manufacturing Automation and Productivity Program Technical Report #MAP 90-03-01, 1990.
27. Velinsky, S.A. and Lembeck, M.F., "Designing Wire Rope Based Mechanical Systems in an Expert System Environment," *Engineering with Computers*, Vol. 6, pp. 167-176, 1990.
28. Lin, M.C., Velinsky, S.A. and Ravani, B., "Analysis and Design of High-Speed Thrust Ball Bearings," *Proceedings of the Eighth World Congress on the Theory of Machines and Mechanisms (IFTToMM)*, pp. 193-196, 1991.
29. Velinsky, S.A. and Kirschke, K.R., "Design Considerations for Automated Pavement Crack Sealing Machinery," *Proceedings of the Second ASCE International Conference on Applications of Advanced Technologies in Transportation Engineering*, pp. 76-80, 1991.
30. Freeman, J.S. and Velinsky, S.A., "Four-wheel-drive Powertrain Models for Real-time Simulation," *Proceedings of the ASME Winter Annual Meeting, ASME Special Publication #DE -Vol. 40*, pp. 175-182, 1991.
31. Velinsky, S.A., Fries, R., Haque, I. and Wang, D., editors, *Advanced Automotive Technologies - 1991*, ASME Special Publication #DE-Vol. 40, 1991.

32. Schultheis, E.D. and Velinsky, S.A., "On the Development of a Design Concept for Automated Crack Sealing Machinery," Interim Report of SHRP H-107A, Strategic Highway Research Program, National Research Council, Washington, DC, 1991.
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35. Velinsky, S.A., "Pavement Crack and Joint Sealing Automated Machine," Proceedings of the Transportation Research Board's Ninth Equipment Management Workshop, Research Triangle Park, North Carolina, June 1992.
36. Kirschke, K.R. and Velinsky, S.A., "Histogram-Based Approach for Automated Pavement-Crack Sensing," *Journal of Transportation Engineering, Transactions ASCE*, Vol. 118, No. 5, pp. 700-710, 1992.
37. Chen, H.F. and Velinsky, S.A., "Designing Articulated Vehicles for Low-Speed Maneuverability," *Journal of Transportation Engineering, Transactions ASCE*, Vol. 118, No. 5, pp. 711-728, 1992.
38. Velinsky, S.A. and Bryant, M.R., "On the Computer-Aided and Optimal Design of Keratorefractive Surgery," *Corneal and Refractive Surgery*, Vol. 8, No. 2, pp. 173-182, 1992.
39. Velinsky, S.A., "A Stress Based Methodology for the Design of Wire Rope Systems," *Journal of Mechanical Design, Transactions ASME*, Vol. 115, No. 1, pp. 69-73, 1993. Also in Proceedings of the ASME Design Technical Conference, *Advances in Design Automation - 1990*, Vol. 2, pp. 417-424, 1990.
40. Velinsky, S.A., "Heavy Vehicle System for Automated Pavement Crack Sealing," *Heavy Vehicle Systems, Special Series of the International Journal of Vehicle Design*, Vol.1, No. 1, pp. 114-128, 1993.
41. Huang, R.W. and Velinsky, S.A., "Spark Ignition Engine Modeling for Vehicle Dynamic Simulation," Proceedings of the ASME Winter Annual Meeting, 1993.
42. Winters, S.E. and Velinsky, S.A., "Development of a Tethered Mobile Robot (TMR) for Highway Maintenance," AHMCT Research Report #UCD-ARR-92-11-25-01, November, 1993.
43. Velinsky, S.A., "Fabrication and Testing of Maintenance Equipment Used for Pavement Surface Repairs," Final Report of SHRP H-107A, Strategic Highway Research Program, National Research Council, Washington, DC, 1993, 446 pp.
44. Velinsky, S.A., "Automated Crack Sealing Machine Operation and Maintenance Manual," Report of SHRP H-107A, Strategic Highway Research Program, National Research Council, Washington, DC, 1993, 350 pp.
45. Boyden, D. and Velinsky, S.A., "Dynamic Modeling of Wheeled Mobile Robots," AHMCT Research Report #UCD-ARR-93-10-05-01, 1993, 80 pp.
46. Koçekali, H. and Velinsky, S.A., "Adaption of Wheeled Mobile Robots to Highway Maintenance Operations," AHMCT Research Report #UCD-ARR-94-1-5-01, 1994, 27 pp.

47. Zhang, Y. and Velinsky, S.A., "Tracking Control Algorithms for the Tethered Mobile Robot," AHMCT Research Report #UCD-ARR-94-06-30-01, 1994, 143 pp.
48. White, W.A., Siacunco, J.P., Tseng, P.K., Spano, J.S., Bennett, D.A. and Velinsky, S.A., "Assessment of Cone Placement Methods and the Development of Automated Machine Specifications And An Integrated System Concept," AHMCT Research Report #UCD-ARR-94-10-30-01, 1994, 36 pp.
49. Hong, D., Mueller, K.J., and Velinsky, S.A., "Development of a Tethered Mobile Robot for Highway Maintenance," AHMCT Research Report #UCD-ARR-94-10-31-01, 1994, 121 pp.
50. Winters, S.E., Velinsky, S.A., Hong, D. and Yamazaki, K., "A New Robotic System Concept for Automating Highway Maintenance Operations," Proceedings of the ASCE Conference on Robotics for Challenging Environments, pp. 374-382, 1994.
51. Ravani, B., Velinsky, S.A. and West, T., "Requirements for Applications of Robotics and Automation in Highway Maintenance Tasks," Proceedings of the ASCE Conference on Robotics for Challenging Environments, pp. 356-364, 1994.
52. Boyden, F.D. and Velinsky, S.A., "Dynamic Modeling of Wheeled Mobile Robots for High Load Applications," Proceedings of the 1994 IEEE Conference on Robotics and Automation, pp. 3071-3078, 1994.
53. Boyden, F.D. and Velinsky, S.A., "Limitations of Kinematic Models for Wheeled Mobile Robots," *Advances in Robot Kinematics and Computational Geometry* (J. Lenarčič & B. Ravani, eds.), Kluwer Academic Publishers, Dordrecht, Netherlands, pp. 151-160, 1994.
54. Hong, D., Yamazaki, K., and Velinsky, S.A., "S-cube: Super Servo System for Intelligent Motion Control for Mechatronics Systems," *Intelligent Automation and Soft Computing* (M. Jamshidi, C.C. Nguyen, R. Lumia, and J. Yuh, eds.), Vol. 1, TSI Press, pp. 505-510, 1994.
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56. Lin, M.C., Ravani, B. and Velinsky, S.A., "Kinematics of the Ball Screw Mechanism," *Journal of Mechanical Design, Transactions ASME*, Vol. 116, No. 3, pp. 849-855, 1994. Also in Proceedings of the ASME Design Technical Conference, *Advances in Design Automation - 1991*, Vol. 2, pp. 383-390, 1991.
57. Lin, M.C., Velinsky, S.A. and Ravani, B., "Design of the Ballscrew Mechanism for Optimal Efficiency," *Journal of Mechanical Design, Transactions ASME*, Vol. 116, No. 3, pp. 856-861, 1994. Also in Proceedings of the ASME Design Technical Conference, *Advances in Design Automation - 1989*, Vol. 3, pp. 315-322.
58. Freeman, J.S. and Velinsky, S.A., "Mixed Planar and Spatial Modeling for Multibody Dynamics," Proceedings of the 1993 ASME Design Technical Conference, *Advances in Design Automation -1993*, Vol 1, pp. 37-42.
59. Freeman, J.S. and Velinsky, S.A., "Design of Vehicle Power Transmission Systems," *Journal of Mechanical Design & Journal of Vibration and Acoustics, Special Combined Issue, Transactions ASME*, Vol 117(B), pp. 113-120, 1995.

60. West, T.H., Velinsky, S.A., and Ravani, B., "Advanced Highway Maintenance and Construction Technology Applications - The Future Generation of Highway Machinery," *TR News*, Transportation Research Board, No. 176, pp. 17-23, 1995.
61. Velinsky, S.A., "On the Path Curvature of Vehicles," Proceedings of the ASME International Congress on Mechanical Engineering, ASME Special Publication #DSC-Vol. 56 DE-Vol. 86, pp. 49-54, 1995.
62. Hong, D., Mueller, K.J., and Velinsky, S.A., "Mobile Robot Localization by Cable-Extension Transducers," *Computational Kinematics '95*, pp. 19-30, 1995.
63. Stroup, A.M. and Velinsky, S.A., "Robotic Maintenance and Construction for Automated Highway Systems: Economic Analysis," AHMCT Research Report #UCD-ARR-94-09-29-01, 1995, 79 pp.
64. Ravani, B., Velinsky, S.A. Lasky, T.A., Broverman I., and Stroup, A., "A Precursor System Analysis of Automated Construction, Maintenance, and Operational Requirements for Automated Highway Systems (AHS)," AHMCT Research Report #UCD-ARR-95-01-17-01, 1995.
65. Velinsky, S.A. and Bhattacharya, A., "Assessment of the Development of a Pavement Damage Model," AHMCT Research Report #UCD-ARR-95-09-09-01, 1995, 42 pp.
66. Velinsky, S.A., "Torsional Stiffness of a Machine Drive Element with Tensile Structure Web," *Mechanism and Machine Theory*, Vol. 31, No. 8, pp. 1043-1052, 1996.
65. Mueller, K.J., Hong, D., and Velinsky, S.A., "A Wheeled Mobile Robot for Automated Crack Sealing," Proceedings of the ASCE Conference on Robotics for Challenging Environments, pp. 178-184, 1996.
66. Feng, X. and Velinsky, S.A., "Pulse Width Modulated Control for the Dynamic Tracking of Wheeled Mobile Robots," Proceedings of the Eleventh CISM-IFTOMM Symposium on Theory and Practice of Robots and Manipulators, in Press, 1996.
67. Jazbec, W.C. and Velinsky, S.A., "Pavement Heat Transfer Modeling for Crack Sealing Preparation," *Computer Modeling and Simulation in Engineering*, Vol. 1, No. 4, pp. 492-510, 1996.
68. Tseng, P.K., Siacunco, J.P., White, W.A., and Velinsky, S.A., "Development of Subsystems for an Automated Cone Placement and Retrieval Machine," AHMCT Research Report #UCD-ARR-96-06-01-01, 1996, 254 pp.
69. Feng, X. and Velinsky, S.A., "Distributed Control of a Multiple Tethered Mobile System for Highway Maintenance and Construction," *Microcomputers in Civil Engineering*, Vol. 12, pp. 383-392, 1997.
70. Zhang, Y., Velinsky, S.A. and Feng, X., "On the Tracking Control of Differentially Steered Wheeled Mobile Robots," *Transactions ASME, Journal of Dynamic Systems, Measurements, and Control*, in Press, Vol. 119, No. 3, pp. 455-461, 1997.
71. Hong, D., Velinsky, S.A. and Yamazaki, K., "Tethered Mobile Robot for Automating Highway Maintenance Operations," *Robotics and Computer-Integrated Manufacturing*, in Press, Vol. 13, No. 4, pp. 297-307, 1997.
72. Bhattacharya, A. and Velinsky, S.A., "A Novel Finite Element Based Tool to Identify the Critical Parameters in Pavement Design," Proc. of the 1997 ASME Design Technical Conference.

73. Feng, X. and Velinsky, S.A., "Multimedia and Virtual Reality for the Control of a Multiple Wheeled Mobile Robot System," Proc. of the 1997 ASME Design Technical Conference.
74. Velinsky, S.A. and Feng, X., "A Coordinated, Multiple Wheeled Mobile Robot System for AHS Maintenance and Construction," Proc. of the 1997 SAE Future Transportation Technology Conference, SAE Paper #972654.
75. Feng, X. and Velinsky, S.A., "Development of a Distributed Multiple Mobile Robot Control System for Automatic Highway Maintenance and Construction," Proc. of the 40th IEEE Midwest Symposium on Circuits and Systems, 1997.
76. Zhang, Y., Hong, D. and Velinsky, S.A., "Robust Control of a Differentially Steered Wheeled Mobile Robot," Proc. of the 1997 ASME International Congress, Pub. #DSC-Vol. 61, pp. 475-480.
77. Chung, J.H., Velinsky, S.A. and Hess, R.A., "Motion Control of a Mobile Manipulator by Input-Output Linearization," Proc. of the 1997 ASME International Congress, Pub. #DSC-Vol. 61, pp. 481-485.
78. Velinsky, S.A., "Discussion of paper entitled 'A General Formulation of the Theory of Wire Ropes'," *Journal of Applied Mechanics, Transactions ASME*, Vol. 64, pp. 244, 1997.
79. Hong, D., Mueller, K.J., Stiles, J.M., and S.A. Velinsky and Velinsky, S.A., "Description and Operational Instructions of the Demo TMRR" AHMCT Research Report #UCD-ARR-97-01-31-01, 1997, 42 pp.
80. Hong, D., Stiles, J.M., Mueller, K.J., and Velinsky, S.A., "Development of Tethered Mobile Routing Robot (TMRR)," AHMCT Research Report #UCD-ARR-97-02-24-01, 1997, 192 pp.
81. Feng, X., Stiles, J.M., Mueller, K.J., Hong, D., and Velinsky, S.A., "Development of a Multiple Tethered Mobile Robot (MTMR) System," AHMCT Research Report #UCD-ARR-97-09-30-01, 1997, 99 pp.
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83. Feng, X., Stiles, J.M., Mueller, K.J., Hong, D., and Velinsky, S.A., "Development of a Multiple Tethered Mobile Robot (MTMR) System," AHMCT Research Report #UCD-ARR-97-09-30-01, 1997, 99 pp.
84. Tseng, P.K., Clesen, S.F., Siacunco, J.P., White, W.A., and Velinsky, S.A., "Development of an Automated Cone Placement and Retrieval Machine," AHMCT Research Report #UCD-ARR-97-12-17-01, 1997, 303 pp.
85. Chung, J.H. and Velinsky, S.A., "Mobile Manipulator System for Highway Maintenance and Construction – Modeling and Control," AHMCT Research Report #UCD-ARR-98-07-28-01, 1998, 113 pp.
86. Chung, J.H., Velinsky, S.A. and Hess, R.A., "Interaction Control of a Redundant Mobile Manipulator," *International Journal of Robotics Research*, Vol. 17, No. 12, pp. 1302-1309, 1998.
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88. Chung, J.H. and Velinsky, S.A., "Modeling and Control of a Mobile Manipulator," *Robotica*, Vol. 16, pp. 607-613, 1998.
89. Zhang, Y., Hong, D. and Velinsky, S.A., "Dynamic Model Based Robust Tracking Control of a Differentially Steered Wheeled Mobile Robot," Proc. of the American Control Congress, pp. 850-855, 1998.
90. Feng, X., Baker, T.L. and Velinsky, S.A., "Long Reach Robotic Manipulator for Advanced Highway Maintenance and Construction Equipment," ROMANSY 12 - Theory and Practice of Robots and Manipulators, Proceedings of the Twelfth CISM-IFTToMM Symposium on Theory and Practice of Robots and Manipulators, pp. 309-316, 1998.
91. Feng, X., Bennett, D.A. and Velinsky, S.A., "Embedded PC Control System for a Highway Crack Sealing Machine," Proceedings of the ASME Design Technical Conferences, Paper #DETC98/CIE-5531, 1998.
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93. Chung, J.H. and Velinsky, S.A., "Robust Control of a Mobile Manipulator - Dynamic Modeling Approach," Proceedings of the 1999 American Control Congress, 1999.
94. Stiles, J.M., Chung, J.H. and Velinsky, S.A., "Dynamic Modeling and Interaction Effects for Mobile Manipulators," Proceedings of the Tenth World Congress on the Theory of Machines and Mechanisms (IFTToMM), pp. 1228-1233, 1999.
95. Chung, J.H. and Velinsky, S.A., "Intelligent Reconfigurable Control Of Robot Manipulators," Proceedings of the Joint IEEE and the International Neural Network Society's International Conference on Neural Networks, 1999.
96. Baker, T.L., Hemmerlin, B.D., Feng, X., Bennett, D.A., and Velinsky, S.A., "Development of the Operator Controlled Crack Sealing Machine - The Long Reach Arm and Control Unit," AHMCT Research Report #UCD-ARR-99-06-30-02, 1999, 202 pp.
97. Chung, J.H., Eveland, D., Gardner, J.F., Stiles, J.M., and Velinsky, S.A., "Mobile Robotic System for Highway Maintenance and Construction," AHMCT Research Report #UCD-ARR-99-06-30-04, 1999, 252 pp.
98. Feng, X. and Velinsky, S.A., "Software Library for Highway Maintenance and Construction Devices," AHMCT Research Report #UCD-ARR-99-06-30-05, 1999, 26 pp.
99. Bhattacharya, A., Hong, D., Feng, X., and Velinsky, S.A., "Modeling of Wheel Slip and Pavement-Tire Interaction of Wheeled Mobile Robots for Highway Maintenance," AHMCT Research Report #UCD-ARR-99-06-30-06, 1999, 51 pp.
100. Cline, M.B., Belltawn, C.J., McLeod, J.B., White, W.A., and Velinsky, S.A., "Development of a Prototype Automated Cone Machine and a High Capacity Storage System," AHMCT Research Report #UCD-ARR-99-06-30-07, 1999, 170 pp.
101. Chung, J.H. and Velinsky, S.A., "Robust Interaction Control of a Mobile Manipulator - Dynamic Model Based Coordination," *Journal of Intelligent and Robotic Systems*, Vol. 26, pp. 47-63, 1999.
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RESEARCH STUDENTS GRADUATED: Ph.D.: 14; M.S.: 57; Postdoctoral Researchers
Advised: 10