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EDUCATION

2003 Ph.D., Computer Engineering, University of Tennessee, Knoxville, TN

Dissertation Title: *Analytical Modeling of High-Performance Reconfigurable Computers: Prediction and Analysis of System Performance*

Advisor: *Gregory Peterson*

1994 M.Sc., Electrical Engineering, Florida State University

1993 B.Sc., Electrical Engineering, Florida State University

1990 A.A., Pre-Engineering, University of West Florida

PROFESSIONAL REGISTRATION

1994 Engineer Intern, Florida, No. 1092ET296

2022 Intercultural Development Inventory (IDI) Qualified Administrator

PROFESSIONAL EXPERIENCE

2024–present Chair of Engineering and Science Education Department, Clemson University

2021–present Professor of Electrical and Computer Engineering, Clemson University

2020–present Associate Dean for Graduate Studies, Clemson University

2013–2021 Associate Professor of Electrical and Computer Engineering, Clemson University

2006–2013 Assistant Professor of Electrical and Computer Engineering, Clemson University

2006–2010 Adjunct Professor of Electrical and Computer Engineering, Jackson State University

1994–2006 Electrical Engineering Research Associate, Oak Ridge National Laboratory

2002–2003 Graduate Student Instructor, University of Tennessee

1993–1994 Graduate Research Assistant, Florida State University

1991–1993 Undergraduate Teaching Assistant, Florida State University

1989–1993 Electrical Engineering Intern, Naval Aviation Depot, Pensacola, FL

LEADERSHIP

- Clemson Chair Academy, Inaugural Cohort (2024–2025)
- CECAS Liaison to Clemson University Division of Community, Engagement, Belonging and Access (CEBA) (2024–)
- Developer and Director, Future Engineers Creative Inquiry Team, STEM Outreach Partnership with BRIEF (2024–)
- Associate Dean for Inclusive Excellence, College of Engineering, Computing, and Applied Sciences (2020–2024)
- Co-Chair of the Frederick National Laboratory Advisory Committee (FNLAC) advising the collaborations between the National Cancer Institute and the Department of Energy (DOE) on the use of High–Performance Computing and Machine Learning in Cancer Research (2018–2021)
- YMCA Greater Charlotte Stratford award for Diversity and Inclusion – for development and leadership of STEAM activities in summer resident camps (2017)
- CECAS Trailblazer and Pacesetter, Provost Leadership Initiative (2017–2018)
- Chair, ECE Graduate Committee (2015–2020)
- Chair, ECE Computer Systems Architecture Focus Area (2014–2022)
- Developer and Director, Future Engineers STEAM Outreach Creative Inquiry Team, STEM Outreach Partnership with Clemson and Six Mile Elementary Schools (2008–2021)
- Faculty Advisor, Society of Women Engineers, Student Chapter (2006–2023)

CONSULTING

- Barceló, Harrison and Walker, LLP, Newport Beach, CA (2024–), Expert Witness
- Gardela Grace PA, Washington, D.C. (2021–), Expert Witness
- Oak Ridge National Laboratory, Oak Ridge, TN (2006–2015), developed applications for reconfigurable computing and architectures for smart sensors

MEMBERSHIPS

- Senior Member (2005), Institute of Electrical and Electronics Engineers, IEEE (1989–)
- Member, Association for Computing Machinery, ACM (2001–)

- Member, Society of Women Engineers, SWE (1990–1995, 2006–)
- Member, OpenFPGA, (2005–2013)

PROFESSIONAL ACTIVITIES

- IEEE Computer Society (1998–)
- IEEE Circuits and Systems Society (1995–2008)
- OpenFPGA Benchmarking Working Group (2006–2010)
- Associate Editor IEEE Transactions on Parallel and Distributed Computing (TPDS) (2015– 2019)

PUBLICATIONS

Journal Publications

Published

[1] Marquez, Ethan, A.J. Niemczura, C.J. Taylor, M.H. Faykus, **M.C. Smith**, and J.C. Calhoun, "Real-Time Inference for Unmanned Ground Vehicles Using Lossy Compression and Deep Learning," *in press International Test and Evaluation Association Journal*, pp. 15, (2025), DOI: 10.61278/itea.46.1.1004.

[2] Ai, Xusheng, **M.C. Smith**, and F.A. Feltus, "GEMDiff: A Diffusion workflow bridges between normal and tumor gene expression states: A breast cancer study," *Briefings in Bioinformatics*, **26/2**, pp.11, (2025), DOI: 10.1093/bib/bbaf093.

[3] Max H Faykus III, A. Pickeral, E. Marquez, **M.C. Smith**, and J.C. Calhoun, "Efficient Vision Transformers for Autonomous Off-Road Perception Systems," *Journal of Computer and Communications, Special Issue: Computer Vision and Pattern Recognition*, **12/9**, pp. 20, (2024), DOI: 10.4236/jcc.2024.129011.

[4] Ai, Xusheng, F.A. Feltus, and **M.C. Smith**, "Generative Adversarial Networks Applied to Gene Expression Analysis: An Interdisciplinary Perspective," *Computational and Systems Oncology*, pp. 17, (2023), DOI: 10.1002/cso2.1050.

[5] Fulp, Megan H., D. Fulp, C. Zou, C. Sanders, A. Biswas, **M.C. Smith** and J.C. Calhoun, "Accelerated Dynamic Data Reduction Using Spatial and Temporal Properties," *The International Journal of High Performance Computing Applications (IJHPCA)*, pp. 21, (2023), DOI: 10.1177/10943420231180504.

[6] Hadish, John, T.D. Biggs, B.T. Shealy, M.R. Bender, C.B. McKnight, C. Wytko, **M.C. Smith**, F.A. Feltus,L.A. Honaas and S.P. Ficklin, "GEMmaker: Process Massive RNA-seq Datasets on Heterogenous Computational Infrastructure," *BMC Bioinformatics*, **23**, pp. 11, (2022), DOI: 10.1186/s12859-022-04629-7.

[7] Burns, Josh, B.T. Shealy, M. Greer, J. Hadish, M. McGowan, T. Biggs, **M.C. Smith**, F.A. Feltus, S. Ficklin, "Addressing Noise in Co-Expression Network Construction," *Briefings in Bioinformatics*, pp. 12, (2022), DOI: 10.1093/bib/bbab495.

[8] Lin, Ju, A.J. van Wijngaarden, K.C. Wang, and **M.C. Smith**, "Speech Enhancement Using Multi-Stage Self-Attentive Temporal Convolutional Networks," *IEEE Transactions on Audio, Speech, and Language*, pp. 11, (2021), DOI: 10.1109/TASLP.2021.3125143.

[9] Ahmadi, Afshin, **M.C. Smith**, E.R. Collins, and S. Jin, "Fast Newton-Raphson Power Flow Analysis Based on Sparse Techniques and Parallel Processing," *IEEE Transactions on Power Systems*, pp. 11, (2021), DOI: 10.1109/TPWRS.2021.3116182.

[10] Woo, MinJae, P. Mishra, J. Lin, S. Kar, N. Deas, C. Linduff, S. Niu, Y. Yang, J. McClendon, D.H. Smith, S.L. Shelton, C.E. Gainey, WC. Gerard, **M.C. Smith**, S.F. Griffin, R.W. Gimbel, and K.C. Wang, "Complete and Resilient Documentation (CARD) for Operational Medical Environments Leveraging Mobile Hands-free Technology in a Systems Approach," *Journal of the American Medical Informatics Association*, **9/10** pp. 13, (2021), DOI: 10.2196/32301

[11] Shealy, Benjamin T., M. Yousefi, A.T. Srinath, **M.C. Smith**, and U.D. Schiller, "GPU Acceleration of the HemeLB code for Lattice Boltzmann Simulations in Sparse Complex Geometries," *IEEE ACCESS*, **9**, pp. 13, (2021), DOI: 10.1109/ACCESS.2021.3073667.

[12] Ahmadi, Afshin, A. Khademi, F. Manganiello, and **M.C. Smith**, "A Parallel Jacobi-Embedded Gauss-Seidel Method," *IEEE Transactions on Parallel and Distributed Systems*, **32/6**, pp. 12, (2021), DOI: 10.1109/TPDS.2021.3052091.

[13] Targonski, Colin, M.R. Bender, B.T. Shealy, B. Husain, B. Paseman, **M.C. Smith**, and F.A. Feltus, "Cellular State Transformations Using Deep Learning for Precision Medicine Applications," *Patterns*, **1/6**, pp. 17, (2020), DOI: 10.1016/j.patter.2020.100087.

[14] Shealy, Benjamin T., J.R. Burns, **M.C. Smith**, F.A. Feltus, and S.P. Ficklin, "GPU Implementation of Pairwise Gaussian Mixture Models for Multi-Modal Gene Co-Expression Networks," *IEEE Access*, **7**, pp. 14, (2019), DOI: 10.1109/ACCESS.2019.2951284.

[15] Targonski, Colin, C.A. Shearer, B.T. Shealy, **M.C. Smith**, and F.A. Feltus, "Uncovering biomarker genes with enriched classification potential from Hallmark gene sets," *Scientific Reports*, **9**, pp. 10, (2019), DOI: 10.1038/s41598-019-46059-1.

[16] Defever, Ryan, C.A. Targonski, S. Hall, **M.C. Smith**, S. Sarupria, "A generalized deep learning approach for local structure identification in molecular systems," *Chemical Science*, **10**, pp. 13 (2019), DOI: 10.1039/C9SC02097G.

[17] Pallipuram, V.K., **M.C. Smith**, N. Sarma, E. Weill, and K. Sapra, "Subjective versus Objective: Classifying Analytical Models for Productive Heterogeneous Performance Prediction," *Journal of Supercomputing*, **71/1**, pp. 39, (2015), DOI: 10.1007/s11227-014-1292-9.

[18] Pallipuram, V.K., **M.C. Smith**, N. Raut, and X. Ren, "A Regression-Based Heterogeneous Performance Prediction Framework for GPGPU Clusters," *Concurrency and Computation: Practice and Experience*, **26/2**, pp. 27, (2014), DOI: 10.1002/cpe.3017.

[19] Feltus, F.A., S.P. Ficklin, S.M. Gibson, and **M.C. Smith**, "Maximum Capture of an Organism's Gene Co-Expression Space via Gene Interaction Layer Construction," *BMC Systems Biology*, **7/44**, pp. 12, (2013), DOI: 10.1186/1752-0509-7-44.

[20] Gibson, S.M., S.P. Ficklin, S. Isaacson, F. Luo, F.A. Feltus, and **M.C. Smith**, "Massive-Scale Gene Co-expression Network Construction and Robustness Testing using Random Matrix Theory," *PLoS ONE*, **8/2**: e55871, pp. 33, (2013), DOI: 10.1371/journal.pone.0055871.

[21] **Smith, M.C.** and G.D. Peterson, "Optimization of Shared High-Performance Reconfigurable Computing Resources," *ACM Transactions on Embedded Computing Systems*, **11/2**, pp. 22, (2012), DOI: 10.1145/2220336.2220348.

[22] Stitt, G., A. George, H. Lam, **M.C. Smith**, V. Aggarwal, G. Wang, C. Reardon, B. Holland, S. Koehler, and J. Coole, "An End-to-End Tool Flow for FPGA-Accelerated Scientific Computing," *Special Issue of IEEE Design and Test of Computers*, **Jul/Aug**, pp. 68-77, (2011), DOI: 10.1109/MDT.2011.46.

[23] Holland, B., A.D. George, H. Lam, and **M.C. Smith**, "An Analytical Model for Hierarchical Performance Prediction of Multi-FPGA Systems," *ACM Transactions on Reconfigurable Technology and Systems (TRETS)*, **4/3**, pp. 28, (2011), DOI: 10.1145/2000832.2000839.

[24] Pallipuram, V.K., **M.C. Smith**, and M.A. Bhuiyan, "A Comparative Study of GPU Programming Models and Architectures," *Journal of Supercomputing*, **May**, pp. 46, (2011), DOI: 10.1007/s11227-011-0631-3.

[25] Bhuiyan, M.A., **M.C. Smith**, and V.K. Pallipuram, "Performance, Optimization and Fitness: Connecting Applications to Architectures," *Concurrency and Computation: Practice and Experience*, **23/10**, 1066–1100, (2011), DOI: 10.1002/cpe.1688.

[26] Alam, S.R., P.K. Agarwal, J.S. Vetter, and **M.C. Smith**, "Throughput Improvement of Molecular Dynamics Simulations Using Reconfigurable Computing," *Scalable Computing: Practice and Experience - Scientific International Journal for Parallel and Distributed Computing*, **8/4**, 395-410, (2007).

[27] Alam, S.R., P.K. Agarwal, **M.C. Smith**, J.S. Vetter, and D. Caliga, "Using FPGA Devices to Accelerate Biomolecular Simulations," *IEEE Computer*, **40/3**, 66-73, (2007).

[28] **Smith, M.C.** and G.D. Peterson, "Parallel Application Performance on Shared High Performance Reconfigurable Computing Resources," *Performance Evaluation: An International Journal, Special Issue on Performance Modeling and Evaluation of High-Performance Parallel and Distributed Systems*, **60/1-4**, 107-125, (2005).

[29] Adler, S.S., M. Allen, G. Alley, R. Amirikas, Y. Arai, T.C. Awes, K.N. Barish, F. Barta, S. Batosouli, S. Belikov, M.J. Bennett, M. Bobrek, J.G. Boissevain, S. Boose, C. Britton, L. Britton, W.L. Bryan, M.M. Cafferty, T.A. Carey, W.C. Chang, C.Y. Chi, M. Chium, V. Cianciolo, B.A. Cole, P. Constantin, K.C. Cook, H. Cunitz, E.J. Desmond, K. Ebisu, Y.V. Efremenko, K. El Chenawi, M.S. Emery, D. Engo, N. Ericson, D. Fields, S. Frank, J.E. Frantz, A. Franz, A.D. Frawely, J. Fried, J. Gannon, T.F. Gee, R. Gentry, P. Giannotti, H.-A. Gustafsson, J.S. Haggerty, S. Hahn, J. Halliwell, H. Hamagaki, A.G. Hansen, H. Hara, J. Harder, S. He, F. Heistermann, T.K. Hemmick, M. Hibino, J.C. Hill, K. Homma, B.V. Jacak, U. Jagadish, J. Jia, F. Kajihara, S. Kametani, Y. Kamyshkov, A. Kandasamy, J.H.

Kang, J. Kapustinsky, K. Katou, M.A. Kelley, S. Kelly, J. Kikuchi, S.Y. Kim, Y.G. Kim, E. Kistenev, D. Kotchetkov, K. Kurita, J.G. Lajoie, M. Lenz, W. Lenz, X.H. Li, S. Lin, M.X. Liu, S. Markacs, F. Matathias, T. Matsumoto, J. Mead, R.E. Mischke, G.C. Mishra, A. Moore, M. Muniruzzamann, M. Musrock, J.L. Nagle, B.K. Nandi, J. Newby, J. Nystrand, E. O'Brien, P. O'Connor, H. Ohnishi, A. Oskarsson, L. Osterman, K. Oyama, L. Pa rath, C.E. Pancake, V.S. Pantuev, A.N. Petridis, R.P. Pisani, T. Plagge, F. Plasil, M.L. Purschke, S. Rankowitz, R. Rao, M. Rau, K.F. Read, S.S. Ryu, T. Sakaguchi, H.D. Sato, R. Seto, T. Shiina, D. Silvermyr, J. Simon-Gillo, M. Simpson, W. Sippach, H.D. Skank, S. Skutnik, G.A. Sleege, G.D. Smith, **M. Smith**, et al., "PHENIX On-line Systems," *Nuclear Instruments and Methods in Physics Research Section A*, **499/2-3**, 560-592, (2003).

[30] Adcox, K., J. Ajitanand, J. Alexander, J. Barrette, R. Belkin, D. Borland, W.L. Bryan, R. du Rietz, K. El Chanawi, A. Cherlin, J. Fellenstein, K. Filimonov, Z. Fraenkel, D. Gan, S. Garpman, Y. Gil, S.V. Greene, H.-Å. Gustafsson, W. Holzmann, M. Issah, U. Jagadish, R. Lacey, J. Lauret, W. Liccardi, S.K. Mark, J. Milan, T.E. Miller, A. Milov, J.T. Mitchell, P. Nilsson, L. Nikkinen, J. Nystrand, E. O'Brien, A. Oskarsso, L. Österman, I. Otterlund, Y. Qi, 5, B. Pasmantirer, C. Pinkenburg, I. Ravinovich, M. Rosati, A. Rose, D. Silvermyr, M. Sivertz, **M.C. Smith**, et al., "Construction and Performance of the PHENIX Pad Chambers," *Nuclear Instruments and Methods in Physics Research Section A*, **A497**, 263-293, (2003).

[31] Nilsson, P., J. Barrette, W. Bryan, Z. Fraenkel, V. Greene, S. Garpman, H.A. Gustafsson, U. Jagadish, L. Nikkinen, R. Lacey, J. Lauret, S.K. Mark, A. Milov, E. O'Brien, A. Oskarsson, L. Osterman, I. Otterlund, C. Pinkenburg, I. Ravinovich, A. Rose, D. Silvermyr, M. Sivertz, **M. Smith**, et al., "The Pixel Readout System for the PHENIX Pad Chambers," *Panic99 Nuclear Physics*, **A661**, 665-668, (1999).

[32] **Smith, M.C.**, W.L. Bryan, D. Smith, U. Jagadish, D. McMilan, J. Walker, G.R. Young, A. Oskarsson, L. Osterman, V. Greene, and L. Nikkinen, "A Front-End Electronics Module for the PHENIX Pad Chamber," *IEEE Transactions on Nuclear Science*, **46/6**, 1998-2002, (1999).

[33] Ericson, M.N., M.D. Allen, J. Boissevain, C.L. Britton, M.S. Emery, S.F. Hahn, J.S. Kapustinsky, R.E. Lind, M.S. Musrock, J. Simon-Gillo, D.E. Smith, J.P. Sullivan, H. Van Hecke, G.R. Young, and **M.C. Smith**, "Front-End Module Readout and Control Electronics for the PHENIX Multiplicity Vertex Detector," *IEEE Transactions on Nuclear Science*, **45/3**, 833-837, (1998).

[34] Paulus, M.J., J.T. Mihalczo, T.E. Valentine, J.A. Mullens, J.E. Breeding, T. Uckan, J. Mattingly, G. Turner, **M.C. Smith**, and J.A. McEvers, "A Novel Method for Determining Pulse Counting Circuitry Dead Time Using the Nuclear Weapons Inspection System," *IEEE Transactions on Nuclear Science*, **45/3**, 710-714, (1998).

[35] Morrison, D.P., Y. Akiba, O. Alford, M. Allen, W. Allen, G. Alley, Y. Arai, J.B. Archuleta, J.R. Archuleta, S.H. Aronson, I. Atatekin, D. Autrey, T.C. Awes, C. Barlag, J. Barrette, B. Bassalleck, S. Bathe, Y. Batygin, V. Baublis, A. Bazilevsky, R. Begay, J. Behrendt, S. Belikov, S. Bellavia, S. Belyaev, M.J. Bennett, Y. Berdnikov, J. Bernardin, D.D. Bluhm, C. Blume, E.M. Bohne, J.G. Boissevain, E. Bosze, J. Bowers, J. Branning, C.L. Britton, M.L. Brooks, W.L. Bryan, D. Bucher, H. Buesching, V. Bumazhnov, G. Bunce, S. Butsyk, M. Cafferty, T.A. Carey, P. Chand, J. Chang, W.-C. Chang, R. Chappell, S.K. Charagi, L.L. Chavez, S. Chernichenko, C.-Y. Chi, J. Chiba, A. Chikanian, R.K. Choudhury, M.S. Chung, V. Cianciolo, D. Clark, A. Claussen, S. Coe, B. Cole, R. Conway, L. Cope, D. Crook, H. Cunitz, R. Cunningham, S.Q. Daniel, G. David, A. Denisov, E.J.

Desmond, O. Dietzsch, B.V. Dinesh, S. Durrant, A. Durum, D. Dutta, Y.V. Efremenko, S. Eiseman, M.S. Emery, K. Enosawa, H. En'yo, M.N. Ericson, V. Evseev, J. Ferriera, D.E. Fields, K. Filimonov, S. Fokin, D. Fong, Z. Fraenkel, S.S. Frank, A.D. Frawley, J. Fried, S.Y. Fung, D. Gan, J. Gannon, S. Gavin, T.F. Gee, B. Gim, Y. Goto, S.V. Greene, S.K. Gupta, W. Guryn, H.-A. Gustafsson, Y. Gutnikov, J.S. Haggerty, S. Hahn, J.W. Halliwell, H. Hamagaki, H. Hara, J. Harder, A. Harvey, K. Hatanaka, R. Hayano, N. Hayashi, H. Hayashi, R. Hazel, X.C. He, H.W. van Hecke, N. Heine, S. Held, T.K. Hemmick, M. Hibino, J.S. Hicks, R. Higuchi, J.C. Hill, T. Hirano, R. Holmes, B. Hong, R. Hutter, T. Ichihara, M. Ikeno, K. Imai, M. Inaba, M. Ippolitov, M. Ishihara, T. Ishikawa, Y. Iwata, B. Jacak, G. Jackson, C. Jacobs, D. Jaffe, U. Jagadish, G. James, B.M. Johnson, J.W. Johnson, S. Johnson, R.G. Jones, J.P. Jones,Jr., S. Kahn, Y.A. Kamyshkov, A. Kandasamy, M. Kaneta, J.H. Kang, M. Kann, S.S. Kapoor, J. Kapustinsky, K. Karadjev, T. Katayama, S. Kato, T. Kawaguchi, W.L. Kehoe, M.A. Kelley, M. Kennedy, E.J. Kennedy, A. Khanzadeev, A. Khomoutnikov, J. Kikuchi, S.Y. Kim, Y.G. Kim, W.W. Kinnison, P.N. Kirk, E. Kistenev, A. Kiyomichi, S. Klinksiek, C. Knapp, L. Kochenda, V.I. Kochetkov, T. Kohama, B. Komkov, V. Kozlov, T. Kozlowski, P.J. Kroon, L. Kudin, S. Kumar, M. Kurata, V. Kuriatkov, K. Kurita, G.S. Kyle, J.G. Lajoie, A. Landran, A. Lebedev, V. Lebedev, D.M. Lee, K.S. Lee, S.J. Lee, M.J. Leitch, Q. Li, Z. Li, M. Libkind, S.X. Lin, R. Lind, X. Liu, J. Lowe, C.F. Maguire, Y.I. Makdisi, A. Makeev, V.V. Makeev, V. Manko, Y. Mao, L.J. Marek, S.K. Mark, D. Markushin, R. Martin, M. Marx, A. Masaike, T. Matsumoto, K. McCabe, J. McClelland, P.L. McGaughey, R. McGrath, D.E. McMillan, J.A. Mead, E. Melnikov, Y. Miake, N. Miftakhov, T.J. Miller, A. Milov, K. Minuzzo, J.T. Mitchell, Y. Miyamoto, O. Miyamura, A.K. Mohanty, M. Montag, J.A. Moore, C. Morris, D.P. Morrison, L.J. Morrison, C. Moscone, J.M. Moss, S.T. Mulhall, L. Mullins, M.M. Murray, M.S. Musrock, S. Nagamiya, Y. Nagasaka, J.L. Nagle, Y. Nakada, T. Nayak, J.A. Negrin, L. Nikkinen, S. Nikolaev, P. Nilsson, S. Nishimura, J.W. Noe, A. Nianine, F. Obenshain, E. O'Brien, P. O'Connor, H. Ohnishi, I.D. Ojha, M. Okamura, V. Onuchin, A. Oskarsson, L. Osterman, I. Otterlund, K. Oyama, L. Paffrath, R. Palmer, C. Pancake, V. Pantuev, V. Papavassiliou, J.H. Park, B. Pasmantirer, S.F. Pate, A. Patwa, P. Paul, C. Pearson, T. Peitzmann, V. Penumetcha, V. Perevoztchikov, R. Petersen, G. Petitt, A. Petridis, R.P. Pisani, P. Pitukhin, F. Plasil, M. Pollack, K. Pope, A. Posey, R. Prigl, M.L. Purschke, Y. Qi, D.E. Quigley, S. Rankowitz, G.S. Rao, I. Ravinovich, K. Read, K. Reygers, Y. Riabov, V. Riabov, G. Richardson, S.H. Robinson, J. Romanski, M. Rosati, E. Roschin, A.A. Rose, S.S. Ryu, N. Saito, T. Sakaguchi, A. Sakaguchi, Y. Sakemi, H. Sako, T. Sakuma, S. Salomone, V. Samsonov, C. Sangster, R. Santo, O. Sasaki, H.D. Sato, S. Sato, H. Satoh, H. Schlagheck, B.R. Schlei, R. Schleuter, J. Schmidt, V. Semenov, R. Seto, T.K. Shea, I. Shein, V. Shelikhov, T.-A. Shibata, K. Shigaki, T. Shiina, T. Shimada, I. Sibiriak, K.S. Sim, J. Simon-Gillo, M.L. Simpson, C.P. Singh, V. Singh, F.W. Sippach, H.D. Skank, G.A. Sleege, N. Smirnov, D.E. Smith, G. Smith, **M.C. Smith**, et al., "The PHENIX Experiment at RHIC," *Nuclear Physics*, **A638**, 565-570, (1998).

[36] Britton, C.L., W.L. Bryan, M.S. Emery, M.N. Ericson, M.S. Musrock, M.L. Simpson, **M.C. Smith**, J.W. Walker, A.L. Wintenberg, G.R. Young, M.D. Allen, L.G. Clonts, R.L. Jones, E.J. Kennedy, R.S. Smith, J. Boissevain, B.V. Jacak, D. Jaffe, J.S. Kapustinsky, J. Simon-Gillo, J.P. Sullivan, H. Van Hecke, and N. Xu, "Design and Performance of Beam Test Electronics for the PHENIX Multiplicity Vertex Detector," *IEEE Transactions on Nuclear Science*, **44/3**, 283-288, (1997).

[37] Mihalczo, J.T., J.A. Mullens, J.E. Breeding, T.E. Valentine, V.K. Pare, D.E. McMillan, T.A. Gafford, R.R. Bentz, G.W. Turner, **M.C. Smith**, J.A. McEvers, J.K. Mattingly, R.I. Vandermolen, E.D. Blakeman, M.J. Paulus, and T. Uckan, "New Processor for Subcritical Fissile System Measurements for

Nuclear Criticality Safety," *Transactions of American Nuclear Society*, **75**, 178-179, (1996).

Conference Proceedings (Reviewed)

Submitted and In Preparation

[1] Marquez, Ethan, A.J. Niemczura, C.J. Taylor, M.H. Faykus, **M.C. Smith**, and J.C. Calhoun, "Real-Time Inference for Unmanned Ground Vehicles Using Lossy Compression and Deep Learning Architectures," *submitted to 2024 IEEE International Conference on Big Data*, Washington DC, December 5-18, 2024.

Published

[1] Faykus, Max, (**M.C. Smith**), "Effects of Lossy Compression Data on Machine Learning Models," *SC'24 PhD Dissertation Showcase*, Atlanta, GA, November 21, 2024.

[2] Edmunds, Andrew, and **M.C. Smith**, "An Ecosystem of Support Initiatives for BIPOC, Women, and Domestic Graduate Students in STEM," *Collaborative Network for Engineering & Computing Diversity (CoNECD)*, February 25-27, 2024.

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[4] Macrae, R., C. Sumner, E. Weill, A. Kulshrestha, **M.C. Smith**, "Understanding Deep Learning for Computer Vision Systems," Poster presentation at Clemson University 13th Annual Focus on Creative Inquiry Forum, Clemson, SC, April 2018.

[5] **Smith, M.C.**, "Deep Learning For Automated Systems: From the Warehouse To the Road," presented at GTC, San Jose, CA, March 2018.

[6] Weill E., J. Tetreault, **M.C. Smith**, "Mobile Deep Learning for Warehouse Label Detection," presented to BMW, May 2017.

[7] Weill E., J. Tetreault, V. Praveen, **M.C. Smith**, "Deep Learning Perception System for Autonomous Driving," presented to CU-ICAR (DO8), April 2017.

[8] **Smith, M.C.**, "Autonomous Driving and Object Detection," featured research presented at EMAG!NE STEM Leadership Summit, May 7, 2016.

[9] Feltus, A., **M. C. Smith**, and K. Sapra, "G3NA-V: an NVIDIA Powered Biograph Alignment and Visualization Tool," presented in the Nvidia Booth at SC15, Austin, TX, November 2015.

[10] **Smith, M.C.**, "Big Data in Society," South Carolina Accelerate 10th Grade Classes, (2014, 2015).

[11] **Smith, M.C.**, "I Believe in Myself: Inspiring Girls to Choose Engineering," 2014 Introduce a Girl to Engineering (EWeek Event) at A.J. Whittenberg Elementary School in Greenville, SC, (2014).

[12] Stahlberg, E., **M.C. Smith**, and S. Bogaerts, "Parallel and Accelerated Computing Experiences for Successful Industry Careers in High-Performance Computing," BOF session at SC'12, Salt Lake City, UT, (November 13, 2012).

[13] Pallipuram, V.K., S. Naik, **M.C. Smith**, and M.A. Bhuiyan, "Fitness Model: Analytical Tool to Connect Applications to Architectures," 2012 AMD Fusion Developer Summit, Bellevue, WA, (June

11-15, 2012).

[14] **M.C. Smith**, V.K. Pallipuram, and M.A. Bhuiyan, "Implementation of Spiking Neural Networks on Emerging Multi-Core and GPGPU Architectures," Invited Talk at the NSF Workshop on COPN - Cognitive Optimization and Prediction Networks, Arlington, VA, (December 1-3, 2011).

[15] Bhuiyan, M.A., **M.C. Smith**, and V.K. Pallipuram, "Perforamnce Analysis of AMD Multi-core Processor and Graphical Processing Units," 2011 AMD Fusion Developer Summit, Bellevue, WA, (June 13-16, 2011).

[16] Bogaerts, S., Burke, K., Shelburne, B., **Smith, M.C.**, and Stahlberg, E., "Concurrency and Parallelism as a Medium for Computer Science Concepts," Curricula for Concurrency and Parallelism workshop at Systems, Programming, Languages, and Applications: Software for Humanity 2010 (SPLASH-2010), Reno, NV, (October 2010).

[17] **Smith, M.C.**, "Mommies know best: Continuing the Discussion on Pregnancy in Graduate School and Beyond," 2010 Grace Hopper Celebration of Women in Computing in Atlanta, GA, (October 1, 2010).

[18] **Smith, M.C.**, "Applications to Architectures," Modeling Advanced Materials and Systems Biology NSF Workshop and External Review at Clemson Madren Center, (September 20-22, 2010).

[19] **Smith, M.C.**, "Acceleration of Bio-molecular simulations using FPGA-based Reconfigurable Systems," Bio-molecular Simulations on Future Computing Architectures Workshop at Oak Ridge National Lab, (September 16-17, 2010).

[20] **Smith, M.C.**, "Scientific Computing: Computing Beyond multi-core CPUs," Clemson University Physics Department Colloquium, (April 15, 2010).

[21] **Smith, M.C.**, M.A. Bhuiyan, K. Pallipuram, and E. Stahlberg, "Accelerators to Applications: Programming Introduction Workshop," Springfield, OH, (April 7-9, 2010).

[22] **Smith, M.C.**, "Careers In Electrical and Computer Engineering," WISE Experience Camp, Clemson University, (July 16, 2009).

[23] **Smith, M.C.**, "Careers In Electrical and Computer Engineering," WISE Choice Camp, Clemson University, (March 27, 2009).

[24] **Smith, M.C.**, "Computing with FPGAs," Math Sciences Department, Clemson University, (January 8, 2009).

[25] **Smith, M.C.**, "Reconfigurable Computing at Clemson University," NSF Workshop: Reconfigurable Computing for Undergraduates, University of North Carolina Charlotte, (May 9, 2008).

[26] **Smith, M.C.**, "A Career In Computer Engineering," WISE Experience Camp, Clemson University, (July 18, 2007).

[27] **Smith, M.C.**, "Scientific Computing a New Frontier: Modeling and Application of Custom Computing Architectures," Computer and Software Engineering Department, Embry Riddle Aeronautical University, (April 24, 2006).

[28] **Smith, M.C.**, "Scientific Computing Beyond CPUs: Reconfigurable and Multi-Paradigm Computing Architectures," High-performance Computing and Simulation, University of Florida, (March 8, 2006).

[29] **Smith, M.C.**, "Reconfigurable and Multi-Paradigm Computing Architectures," Electrical and Computer Engineering Department, University of Tennessee, (March 2, 2006).

[30] **Smith, M.C.**, "Multi-Paradigm Programming Tools," Reconfigurable Computing Birds-of-a-Feather Panel, The 8th annual Military & Aerospace Programmable Logic Device (MAPLD) International Conference, NASA Office of Logic Design, Washington D.C., (September 8, 2005).

[31] **Smith, M.C.**, "Computing Beyond CPUs: Customizable Path to Performance with Reconfigurable Computing Systems," Future Technologies Colloquium Series, Oak Ridge National Laboratory, (April 14, 2005).

SPONSORED RESEARCH

Government ($50M+)

- *Preparing for Submission* "NRT: TERRAIN- Traineeships in Efficient Robust Off-Road Autonomy and AI-HumaN Teaming," NSF, Senior Personnel {Inclusive Excellence, artificial intelligence, and GPU Computing}, (2025–2029).
- *Preparing for Submission* "MRI: Track 1 Acquisition of Computing Resources to Support Machine Learning and Artificial Intelligence Across Disciplines," NSF, Co-Investigator {GPU computing and artificial intelligence}, (2024-2027).
- *Preparing for Submittion* "NSF Engineering Research Center for Humanizing Manufacturing Environments & Systems (ERC HuManE Systems)," NSF, Co-Investigator and Associate Director of Inclusion Team {inclusive excellence}, (2025-2035).
- *Pending* "FMRG: Cyber: Internet of People and Things – Collaborative Intelligence through Human–AI Team Building," NSF, Co-Investigator, {GPU computing and artificial intelligence}, $3,000,000, (2024).

[1] "Virtual Prototyping Ground Systems Center: On-Road and Off-Road Autonomy for Multi-Scale Vehicle Fleets," Army Ground Vehicle Systems Center, Co-Investigator {GPU/FPGA/TPU architectures and artificial intelligence}, $100,000,000, (2%) (2025–2027).

[2] "RII Track-1: ADAPT in SC: AI-enabled Devices for the Advancement of Personalized and Transformative healthcare in South Carolina," NSF, Co-Investigator {GPU computing and artificial intelligence}, $20,000,000, (2023–2028).

[3] "Virtual Prototyping Ground Systems Center: On-Road and Off-Road Autonomy for Multi-Scale Vehicle Fleets," Army Ground Vehicle Systems Center, Co-Investigator {GPU/FPGA/TPU architectures and artificial intelligence}, $100,000,000, (2%) (2023–2025).

[4] "MRI: Acquisition of a Cyberinstrument for AI-Enabled Computational Science & Engineering," NSF, Co-Investigator {GPU computing and artificial intelligence}, $1,400,000, (2020–2023).

[5] "Virtual Prototyping Ground Systems Center: On-Road and Off-Road Autonomy for Multi-Scale Vehicle Fleets," Army Ground Vehicle Systems Center, Co-Investigator {GPU/FPGA/TPU architectures and artificial intelligence}, $5,163,370, (10%) (2020–2023).

[6] "GAANN - Leadership development for Ph.D. students in electrical and computer engineering," Department of Education, Co-PI {co-administrator and advisor}, $945,870, (25%) (2018–2021).

[7] "Collaborative Research: SPECTRA Student Pathways in Engineering and Computing for Transfers," NSF, Co-Investigator {advisor in architectures and artificial intelligence and curriculum development}, $4,277,149, (2019–2024).

[8] "Complete And Resilient Documentation (CARD) for Operational Medical Environments," DoD HFEHRI, Co-PI {architectures and artificial intelligence}, $1,644,510, (20%) (2017–2020).

[9] "CC*Data: National Cyberinfrastructure for Scientific Data Analysis at Scale (SciDAS)," NSF, Co-PI {architectures, artificial intelligence, and performance modeling}, $2,952,217, (50%) (2017-2021).

[10] "Graduate Fellowships in Electrical & Computer Engineering," Department of Education, Co-PI {co-administrator and advisor}, $591,834, (25%) (2015–2020).

[11] "Collaborative Research: Planning Grant: I/UCRC for Real-Time Intelligence for Smart Electric Grid Operations (RISE)," NSF, Co-PI {FPGA architectures}, $15,999, (2015–2016).

[12] "Graduate Fellowship in Electrical & Computer Engineering," Department of Education, Co-PI {co-administrator and advisor}, $408,315, (2012–2016).

[13] "MRI: Acquisition of High-Performance Computing Instrument for Collaborative Data-Enabled Science," NSF, Co-PI {GPU computing and performance modeling}, $994,160, (2012-2015).

[14] "CAREER: Harnessing Hybrid Computing Resources in PetaScale Computing and Beyond," NSF, PI {architectures and performance modeling}, $477,144, (100%) (2012–2018).

[15] "SHF: Small: RUI: Collaborative Research: Accelerators to Applications – Supercharging the Undergraduate Computer Science Curriculum," NSF, PI {architectures, performance modeling, and curriculum development}, $499,655, ($309,415), (2009–2013).

[16] "Accelerating Biomolecular simulations on Reconfigurable Computing Hardware," NIH in collaboration with Oak Ridge National Laboratory, Co-PI {GPU/FPGA computing}, $300,000, ($144,712), (2008–2010).

[17] "Exploration of a Research Roadmap for Application Development and Execution on FPGA-based Systems," DARPA in collaboration with the University of Florida, Investigator {FPGA architectures and and tools}, $300,000, ($44,999), (2008).

[18] "Support for Power and Avionics Super Problem Resolution Team (SPRT)," NASA, PI {architectures and controls}, $42,099, (100%) (2006–2008).

[19] "Consultation: NASA Engineering and Safety Center's Power and Avionics Super Problem Resolution Team," NASA, PI {architectures and controls}, $26,185, (100%) (2006).

Industry ($120K)

[1] "Deep Learning for Autonomous Driving / BMW NVIDIA Drive PX Exploration and Deployment," BMW, PI {GPU computing and artificial intelligence}, $50,006, (2015-2016).

[2] "Network Intrusion Detection at 100Gbs with FPGAs," Altera, Inc., PI {FPGA architectures}, $50,000, (2015-2016).

[3] "A Student-Centric Approach for a New CUDA Curriculum," nVIDIA, Co-PI {curriculum development}, $10,000, (2014-2016).

[4] "Network Intrusion Prevention and Detection System using SNORT on the Solarflare SFA6902F Application Onload Engine Platform," Solarflare Communications, Inc., PI {FPGA architectures}, $10,000, (2012-2013).

University and National Laboratories ($888K)

[1] "Checkpointing: Internship for M. Gossman," Argonne National Laboratory, Co-PI {architectures and HPC}, (2020-2022).

[2] "Root transcriptomes at the level of single cells," Clemson SUCCEEDS, Co-PI {architectures and artificial intelligence}, $12,515, (30%) (2020).

[3] "Architectural support for transiently-powered computing," Clemson URGC, Co-PI {FPGA architectures and low-power computing}, $10,000, (50%) (2013).

[4] "NetFPGA Laboratory for Future Internet and Any-layer Programmable Wired and Wireless Networking Research at Clemson University" Sponsored by Stanford University, co-PI {FPGA architectures}, $16,640, ($4,990), (30%) (2010-2011)

[5] "Giga-Bit Interface Module for Use with SNS Physical Layer Communications Standard," ORNL, PI {FPGA architectures and system development}, $146,204, (100%) (2009-2011).

[6] "Spallation Neutron Source Timing and OCC Dual Functionality Module," ORNL, PI {FPGA architectures and system development}, $64,078, (100%) (2008-2009).

[7] "Spallation Neutron Source Timing Module," ORNL, PI {FPGA architectures and system development}, $57,605, (100%) (2007-2008).

[8] "Exploring Alternative Technologies for Next-Generation Leadership-Class Computing," Oak Ridge National Laboratory Director's R&D Fund, Terascale Computing and Simulation Science, Investigator {architectures and performance modeling}, $581,000, ($185,400), (2004-2006).

Other Sponsored Activity ($210K)

[1] Gift in kind, BMW for Deep Learning Research, $50,000, (2017).

[2] Gift in kind, BMW for Deep Learning Research, $25,000, (2016).

[3] Equipment Grant, Solarflare Communications, $10,000, (2012).

[4] Equipment Grant, Altera, $96,776, (2010).

[5] Equipment Grant, Nvidia, $900, (2010).

[6] Equipment Grant, AMD/ATi, $1,600, (2010).

[7] Equipment Grant, Sun Microsystems, $4,000, (2008).

[8] Equipment Grant, Xilinx, $5,675, (2006).

[9] Equipment Grant, XtremeData, $15,500, (2006).

GRADUATE STUDENT ADVISING

Doctoral Graduates

[1] Green, B. (PhD), "The Development of TIGRA: A Zero Latency Interface for Accelerator Communication in RISC-V Processors," (May 2022).

[2] Lin, J. (PhD), "Deep Learning Based Speech Enhancement and Its Application to Speech Recognition," (December 2021).

[3] Shealy, B. (PhD), "Intelligent Resource Prediction for HPC and Scientific Workflows," (December 2021).

[4] Ahmadi, A. (PhD), "Accelerating Power Flow Studies Through Parallel Computing," (December 2020).

[5] Niu, S. (PhD), "Improving Deep Reinforcement Learning Using Graph Convolution and Visual Domain Transfer," (December 2018).

[6] Sarpa, K. (PhD), "Framework for Lifecycle enrichment of HPC Applications towards Exascale Heterogeneous Architectures," (December 2018).

[7] Weill, E. (PhD), "Edge-Computing Deep Learning-based Computer Vision Systems," (December 2018).

[8] Pallipuram, K. (PhD), "Exploring Multiple Levels of Performance Modeling for Heterogeneous Systems," (December 2013).

[9] Bhuiyan, M. (PhD), "Performance Analysis and Fitness of GP-GPU and Multicore Architectures for Scientific Applications," (December 2011).

Masters Graduates

[1] Pikeral, A. (MS) "Using Efficient Vision Transformers to Improve Perception Systems in Autonomous Off-Road Vehicles," (August 2024).

[2] Shaughanessy, M. (MS) "Analysis of CNN Performance utilizing JPEG Compressed Images Created on an FPGA," (May 2024).

[3] Selee, B. (MS), “Improving Inference Speed of Perception Systems in Autonomous Unmanned Ground Vehicles,” (May 2023).

[4] Byars, B. (MS), “Surrogate Modeling of Nonlinear Components and Circuits,” (December 2022).

[5] Lan, X. (MS), “Noise Types Adaptation For Speech Enhancement With Recurrent Neural Network,” (December 2021).

[6] Younginer, C. (MS), “Using Transfer Learning to Train Individualized Models to Detect Eating Episodes from Daily Wrist Motion,” (December 2021).

[7] Le, T. (MS), “A Tightly Integrated Generic Instruction RISC-V Accelerator (TIGRA) for the Rocket Core,” (August 2021).

[8] Todd, D. (MS), “Tightly Coupling the PicoRV32 RISC-V Processor with Custom Logic Accelerators via a Generic Interface,” (May 2021).

[9] Langbehn, D. (MS), “Privacy-Preserving Image Classification Using Convolutional Neural Networks,” (May 2021).

[10] Sattiraju, M. (MS), “Encoding Additional Information with Modified Yolo Object Detector and Extension to Single-Shot Keypoint Detection,” (August 2019).

[11] Targonski, C. (MS), “Deep Learning Applications for the Natural Sciences,” (May 2019).

[12] Kulshrestha, A. (MS), “Compressing Deep Neural Networks via Knowledge Distillation,” (May 2019).

[13] Curry, E. (MS), “Measuring Blood Flow for Concussion Detection,” (August 2018).

[14] Guo, H. (MS), “One-shot Learning In Deep Sequential Generative Models,” (December 2017).

[15] Shetty, A. (MS), “X-MAP A Performance Prediction Tool for Porting Algorithms and Applications to Accelerators,” (August 2017).

[16] Tetreault, J. (MS), “Deep Multimodal Fusion Networks for Semantic Segmentation,” (August 2017).

[17] Robinson, J. (MS), “An Analysis of Variation Between Cores For Intel Xeon Phi Knights Corner And Xeon Phi Knights Landing,” (May 2017).

[18] Joshi, A. (MS), “A performance focused, development friendly and model aided parallelization strategy for scientific applications,” (December 2016).

[19] Ali, S. (MS), “Self-Adapting Parallel Framework for Long-Term Object Tracking,” (August 2015).

[20] Weill, E. (MS), “Scientific Application Acceleration Using Heterogeneous Architectures,” (December 2014).

[21] Anand, R. (MS), “Verifying a Systematic Application to Accelerator Road-Map using Shallow Water Wave Equations,” (August 2014).

[22] Raut, N. (MS), “Statistical Regression Methods for GPGPU Design Space Exploration,” (August 2013).

[23] Naik, S. (MS), "Connecting Architecture, Fitness, Optimizations and Performance using an Anisotropic Diffusion Filter," (December 2012).

[24] Rayrikar, B. (MS), "Parallel Implementation of the Singular Value Decomposition Using OpenCL," (December 2011).

[25] Dwivedi, H. (MS), "Analysis and Implementation of Room Assignment Problem and Cannon's Algorithm on GP-GPUs with CUDA," (December 2011).

[26] Janefalkar, T. (MS), "Towards Securing Virtualization Using A Reconfigurable Platform," (May 2011).

[27] Pallipuram, K. (MS), "GPU Acceleration of Compute-intensive Image Processing Algorithms," (May 2010).

[28] Nallamuthu, A. (MS), "Porting a Biomolecular Simulator to Reconfigurable Architectures," (May 2010).

[29] Singh, B., (MS), "FPGA Timing Module for Spallation Neutron Source," (May 2010).

[30] Alam, N., (MS), "Implementation of Genetic Algorithms in FPGA-Based Reconfigurable Computing Systems," (August 2009).

[31] Martin, P.M., (MS), "Acceleration Methodology for the Implementation of Scientific Applications on Reconfigurable Hardware," (May 2009).

MS Non-Thesis

[1] Mckiernan, C. (MS, non-Thesis) (December 2025).

[2] Boulware, R. (MS, non-Thesis), (May2023).

[3] Stacey, J. (MS, non-Thesis), (May 2022).

[4] Bandaru, N. (MS, non-Thesis), (May 2021).

[5] Zhang, S. (MS, non-Thesis), (December 2019).

[6] Srikantan, G. (MS, non-Thesis), (December 2019).

[7] Madhivanan, S. (MS, non-Thesis), (December 2017).

[8] Joshi, C. (MS, non-Thesis), (December 2017).

[9] Sarma, N. (MS, non-Thesis), (December 2017).

[10] Deodhar, S. (MS, non-Thesis), (May 2017).

[11] Lokre, P. (MS, non-Thesis), (May 2017).

[12] Praveen, V. (MS, non-Thesis), (December 2016).

[13] Ren, X. (MS, non-Thesis), (December 2014).

[14] Ramadurai, K. (MS, non-Thesis), (May 2013).

[15] Phatak, G. (MS, non-Thesis), (May 2011).

[16] Udanapalli, S. (MS, non-Thesis), (May 2010).

[17] Swathi Polamraju (MS, non-Thesis), (December 2009).

Current Graduate Advising

[1] Faykus, M. (PhD) Program Start Fall 2019

[2] Ai, X. (PhD) Program Start Spring 2021

[3] Odetoye, O.A. (PHD) Program Start Fall 2023

[4] Maxumder, S. (MS, non-Thesis) Program Start Fall 2023

UNDERGRADUATE STUDENT ADVISING

Undergraduate Honors

[1] Oldberg, Z. "ULTRA: Unmanned Locomotion Training Through Reinforcement and Imitation Learning," (May 2022).

[2] Shappell, E. "Predicting EEG Data of Epeileptic Patients Using 1D CNN and LSTM," (May 2020).

[3] Targonski, C. "A Comparison of Classification Techniques for Feature Extracted Images," (May 2017).

[4] Shealy, B. "Performance and Accuracy Trade-offs of Hyperparameters in a Face Recognition System," (May 2017).

[5] Hall, M. "Faster Facial Recognition by Hyper-parameter Tuning for Subspace Analysis," (May 2017).

[6] Bailey, J. "Microarchitecture to Support Controlled Precision Reduction in a Low-Power Embedded Processor," (May 2015).

[7] Huckabee, Chris, "Failure-Resistant Architecture through Approximate Computing and Power Gating," (May 2015).

[8] Goodall, T. "Parallelizing Principle Component Analysis for Robust Facial Recognition using CUDA," (May 2012).

[9] Stovall, K. "Parallel Implementation of Component Analysis Algorithms," (May 2011).

[10] Gelhausen, R. "Accelerating a Bottleneck Function in the LAMMPS MD Framework," (May 2010).

[11] Kruzner, A. "Numerical Analysis of the ICA Algorithms," (May 2010).

[12] Gibson, S. "Robust Facial Recognition on Reconfigurable Platforms," (May 2009).

Creative Inquiry

[1] "Future Engineers Creative Inquiry Team + BRIEF," Clemson University, PI, 5 to 8 students per semester, (2024–)

[2] "Big Data and Deep Learning Creative Inquiry Team," Clemson University, PI, 10 to 16 students per semester, (2016–)

[3] "Future Engineers Creative Inquiry Team," Clemson University, PI, 8 to 12 students per semester, (2014–2021)

[4] "Future Computing Technology Research Creative Inquiry Team," Clemson University, PI, 8 to 10 students per semester, (2008–2018)

TEACHING

Even Sp12–24	ECE8790, FPGA Design and Applications	Clemson University
Odd Sp13–25	ECE8780, HPC with GPUs	Clemson University
Each Fa13–21	ECE8030, Computing Frontiers	Clemson University
Sp11–Sp20, Fa21,22,23	ECE3270, Digital Computing Design	Clemson University
Fa09	ECE8930, Accelerators in Embeddd and HPC	Clemson University
Sp08 & Sp10	ECE3270, Digital Computing Design	Clemson University
Fa07	ECE4530, Software Practicum	Clemson University
Fa06–Sp07	ECE8930, Emerging Computing Architectures	Clemson University
Each Fa06–09	ECE2220, System Programming Concepts	Clemson University
Fa02–Sp03	ECE4000, EE Capstone Senior Design	University of Tennessee

New Course Development

Fa19	ECE3270, ReDevelop Digital Computing Design	Clemson University
Fa13	ECE8930, Computing Frontiers	Clemson University
Sp13	ECE8930, HPC with GPUs	Clemson University
Fa10	ECE8930, FPGA Design and Applications	Clemson University
Sp09	ECE8930, Reconfigurable Computing	Clemson University

HONORS AND AWARDS

- 2023 INSIGHT Into Diversity Inspiring Programs in STEM Award for STEM-ALL-IN (Press Release August 2023)
- 2017 Pacesetter for CECAS Trailblazers, Provost Leadership Initiative
- 2017 YMCA Greater Charlotte Stratford award for Diversity and Inclusion
- 2012 NSF CAREER
- 2009 Clemson National Scholars Program Award of Distinction
- 2008 Broader Engagement Participation Grant for SuperComputing (SC08)
- 2008 Women's Institute Summer Enrichment (WISE) Fellow
- 2007 Sigma Xi Full Member
- 2006 Tribute to Women Award in Science and Technology, YWCA, Oak Ridge, TN
- 2005 IEEE Senior Member
- 2005, 2006 Celebrate Women in Science, Oak Ridge National Laboratory
- 2001 Women in History Honoree, Oak Ridge National Laboratory
- 2000–2003 Research Sabbatical Award, Oak Ridge National Laboratory
- 1998 Technical Achievement Award, Oak Ridge National Laboratory
- 1998, 1996 Significant Event Award, Oak Ridge National Laboratory
- 1999 Phi Kappa Phi
- 1997 Eta Kappa Nu
- 1992 Tau Beta Pi
- 1992 Golden Key National Honor Society
- 1988 Florida Undergraduate Scholar, Florida Board of Education

UNIVERSITY AND PUBLIC SERVICE

Continuing Education

- "Future Technologies, Summer Student Symposium," Developer (July 2005).
- "Computing Beyond CPUs: Reconfigurable Computing with FPGAs and multi-threaded array processors," Lecturer (May 2005).
- "The EKV MOS Transistor Model," Lecturer (July 1998).

Committees

- Department:

  Chair, Graduate Committee (2015–2020)

  Chair, Computer Systems Architecture (2014–2022)

  Member, Computer Systems Architecture (2006–)

  Member, Service Sub-committee (2006–2011)

  Member, Circuits Committee (2007–2009)

  Member, Graduate Program Committee (2007–2020)

  Member, ECE Awards Committee (2023–2024)

- University:

  Member, Provost's Faculty Advisory Committee (2007–2010)

  Member, Calhoun Honors College Committee (2015–2019)

Other Service

- Developer, Future Engineers Program with BRIEF (2024–).
- Faculty Advisor, Society of Women Engineers, Student Chapter (2006–2023).
- Membership Committee, Sigma Xi, Clemson Chapter (2007–2010).
- WISE Experience Camp (2007, 2009).
- WISE Choice (2009).
- Department Presentations to General Engineering Class(es) (2007–2010).
- Robot Inspector, FIRST Robotics Palmetto Regional (2008–2009).
- Developer, Future Engineers Program, Clemson and Six Mile Elementary Schools (2008–2021).

PROFESSIONAL SERVICE

- Editorial Board Member, IEEE Computing in Science and Engineering (CiSE) (2021–)
- Co-Chair of the National Cancer Institute's (NCI) Frederick National Laboratory Advisory Committee (FNLAC) ad hoc NCI/DOE Collaborations Working Group (2018–2021)
- Technical Program Committee Supercomputing 2022, Dallas, TX (2022)
- Technical Program Committee Supercomputing 2019, Denver, CO (2019)
- Associate Editor, IEEE Transactions on Parallel and Distributed Systems (2015–2019)

- Doctoral Showcase Chair Supercomputing 2015, Austin, TX (2015)
- General Co-Chair IEEE International Conference on Application-specific Systems, Architectures, and Processors (ASAP'14) (2014)
- Doctoral Showcase Committee Supercomputing 2014, New Orleans, LA (2014)
- Reviewer IEEE Cluster (2014)
- Poster Showcase Committee Supercomputing 2013, Denver, CO (2013)
- Program Chair IEEE International Conference on Application-specific Systems, Architectures, and Processors (ASAP'13) (2013)
- Program Chair Clemson University Supercomputing Research (2013–2016)
- Program Committee Clemson University Supercomputing Research (2010–)
- Program Committee South Carolina Computing Consortium (2008–2009)
- Track Chair and Program Committee IEEE Midwestern Symposium on Circuits and Systems (2008)
- Reviewer for ACM Transactions on Reconfigurable Technology and Systems (2008–)
- Reviewer for Journal of Parallel Computing (2008–)
- Reviewer for Symposium on Architecture Accelerators for High Performance Computing (SAAHPC) (2011–)
- Reviewer and Program Committee Computing Frontiers (CF) (2011–)
- Reviewer and Program Committee High-Performance Reconfigurable Computing Technology and Applications (HPRCTA) (2008–2010)
- Reviewer and Program Committee International Conference on Reconfigurable Computing and FPGAs (ReConfig) (2008–)
- Session Chair International Conference on Engineering of Reconfigurable Systems and Algorithms (2007)
- Reviewer for International Journal of Modeling and Simulation (2007–)
- Program Committee International Conference on Engineering of Reconfigurable Systems and Algorithms (2007–)
- Reviewer for National Science Foundation (2006–)
- Reviewer for IEEE Computer Special Issue on High-performance Reconfigurable Computing (2006)
- Reviewer for IEEE Transactions on Computing (2006–)
- Reviewer for IEEE Transactions on VLSI Systems (2006–)
- Reviewer for IEEE Transactions on Parallel and Distributed Systems (2006–)

- Program Committee 19th International ISCA Conference on Parallel and Distributed Computing Systems (PDCS–2006)
- Technical Committee Military & Aerospace Programmable Logic Device (MAPLD) International Conference (2006–2009)
- Session Chair Military & Aerospace Programmable Logic Device (MAPLD) International Conference (2006)
- Reviewer for the Reconfigurable Systems Summer Institute (RSSI) (2006–2008)
- Reviewer for the Oak Ridge National Laboratory Director's R&D Fund (2006)
- Reviewer for 48th IEEE International Midwest Symposium on Circuits and Systems (2005)
- Mentor for MentorNet (2004–2010)
- Reviewer for IEEE Field-Programmable Custom Computing Machines (1999–2001)
- Reviewer for IEEE Transactions on Nuclear Science (1998–2000)
- Web Administrator for IEEE Transactions on Nuclear Science (1999–2000)
- Web Administrator for Monolithic Systems Group internal website (1998–2006)
- Reviewer for IEEE Nuclear Science Symposium and Medical Imaging Conference (1996–1999)
- Junior Science and Humanities Symposium (1995–1997)
- Shadow a Mentor (1995–1997)
- Women in Science and Technology (1995–1997)
- Upward Bound Program (1995)
- Oak Ridge National Laboratory Instrumentation & Controls Division Outreach Action Committee (1995)
- Tau Beta Pi, FAMU/FSU Student Chapter President (1993–1994)
- FSU College of Engineering Student Counsel (1993–1994)
- FSU College of Engineering, Society of Women Engineers, High School Outreach Program (1991–1994)

June 5, 2025