RESUME

Personal Data

Name:	Herman Lam	Email: hlam@ufl.edu
Address:	Department of ECE Benton Hall 313, P.O. Box 116200 University of Florida Gainesville, FL 32611-6200, USA	Telephone: (352) 352-2689 FAX: (352) 392-8671
Citizenship:	United States	Marital Status: Married

Areas of interests: Heterogeneous computing, reconfigurable computing, distributed computing, service-oriented architecture, distributed object technology, database management.

Herman Lam is an Associate Professor of Electrical and Computer Engineering at the University of Florida. He has over 30 years of research and development experience in the areas of distributed computing, service-oriented computing, and database management. Currently, Dr. Lam's main research interest is in heterogeneous computing (HGC) and reconfigurable computing (RC), focusing on methods and tools for the acceleration and deployment of scientifically impactful applications on scalable RC and HGC systems. He was a Co-PI of the 2012 Alexander Schwarzkopf Prize for Technology Innovation from the National Science Foundation for "Novo-G: An innovative and synergistic research project and the world's most powerful reconfigurable supercomputer". Dr. Lam also led a team of graduate students at the University of Florida to win the 2018 Dell EMC AI Challenge, recognized for developing and demonstrating a heterogeneous computing system that can support a complete workflow–data analysis and pre-processing, model training, and deployment and inferencing–for machine learning.

Dr. Lam has authored or co-authored over 175 refereed conference and journal articles and one textbook. Since 2007, he has obtained research funding in the amount of over $2,500,000 as PI and over $4,500,000 Co-PI. He served as the Associate Director of CHREC, the NSF Center for High-Performance Reconfigurable Computing. Currently, Dr. Lam is the University of Florida Site Director of the NSF Center for Space, High-Performance, and Resilient Computing.

Academically, Dr. Lam was the Director of the Computer Engineering undergraduate program in the College of Engineering at the University of Florida from 2012 – 2021. He was on the steering committee of the IEEE/ACM Joint Task Group that published the "Computer Engineering Curricula 2016", an IEEE/ACM curriculum guideline for undergraduate degree programs in Computer Engineering. He has earned numerous teaching awards, including awards for co-chairman of a best Ph.D. dissertation in his department, outstanding supervisor of a core laboratory in his department, and outstanding teaching award in the College of Engineering, and UF University Teaching Improvement Program (TIP) award. In 2015, Dr. Lam received the Lifetime Achievement Award from the students of the Electrical & Computer Engineering Department of the University of Florida. He was appointed a University of Florida Term Professor, 2018 - 2020.

Educational Background

Georgia Institute of Technology (Georgia Tech)
1972 - B.S. Electrical Engineering, graduated with distinction

University of Florida
1974 - M.E. Electrical Engineering
Major area of study - Computer Engineering

University of Florida
1979 - Ph.D. Electrical Engineering
Major area of study - Computer Engineering

Employment History

Department of Electrical and Computer Engineering, University of Florida,
Site Director: NSF Center for Space, High-Performance, and Reliable Computing (SHREC): 2017 to present.
Associate Professor: 1985 to present.
Assistant Professor: 1980 to 1985.

College of Engineering, University of Florida
Director: Computer Engineering Undergraduate Program: 2012 to 2021.

Department of Computer and Information Science, University of Florida, Adjunct Assistant Professor: June 1979 to September 1980.

IRC - Inter-institutional Research Council (IRC), Research Assistant. Duration: January 1974 to June 1979.

CIR - Center for Informatic Research, Research Assistant. Duration: January 1973 to September 1973.

Publications – Book

H. Lam and J.R. O'Malley, Fundamentals of Computer Engineering - Logic Design and Microprocessors, John Wiley & Son, New York, N.Y., 1988, 490 pages.

Publications – IEEE/ACM Computer Engineering Curricula Guideline

Joint Task Group on Computer Engineering Curricula, Association for Computing Machinery (ACM) and IEEE Computer Society, "**Computer Engineering Curricula 2016, Curriculum Guidelines for Undergraduate Degree Programs in Computer Engineering**", ISBN: 978-1-4503-4875-1, December 15, 2016. CE2016 Steering Committee from IEEE: Eric Durant, **Herman Lam**, Robert Reese, and Lorraine Herger; Steering Committee from ACM: John Impagliazzo (Chair), Susan Conry, Joseph Hughes, Liu Weidong, Lu Junlin, Andrew McGettrick, and Victor Nelson.

Publications - Refereed Journals

1. C. Jiang, D. Ojika, T. Kurth, Prabhat, S. Vallecorsa, B. Patel, and H. Lam, “Accelerate Scientific Deep Learning Models on Heterogeneous Computing Platform with FPGA”, Invited journal extension from the International Conference on Computing in High Energy and Nuclear Physics, EDP Web of Conferences, Volume 245, 2020, 10 pages.
2. D. Ojika, A. Gordon-Ross, H. Lam, B. Patel, “FaaM: FPGA-as-a-Microservice - A Case Study for Data Compression”, European Physics Journal (EPJ) Web Conf., Vol. 214, Sept. 2019, 8 pages.
3. Y. Zhang, A. Neelakantan, C. Park, N. H. Kim, H. Lam and R. T. Haftka, “Adaptive Sampling with Varying Sampling Cost for Design Space Exploration”, AIAA Journal, Vol. 57, No. 3, doi: 10.2514/1.J057470, March 2019, pp. 1032-1043.
4. S. Craciun, R. Kirchgessner, A. George, J. Principe, and H. Lam, “A Real-Time, Power-Efficient Architecture for Mean-Shift Image Segmentation”, Journal of Real-Time Image Processing, Vol. 14, No. 2, March 2018, pp. 379-394.
5. N. Ghanathe, A. Madorsky, H. Lam, “Software and Firmware Co-Development Using High-level Synthesis”, Journal of Instrumentation (JINST), Vol. 12, January 2017, 11 pages.
6. A. Lawande, A. George, H. Lam, “Novo-G#: a Multidimensional Torus-based Reconfigurable Cluster for Molecular Dynamics,” Concurrency and Computation: Practice and Experience, Vol. 28, No. 8, June 2016, 20 pages.
7. J. Richardson, K. Cheng, A. George, H. Lam, “Analysis of Fixed, Reconfigurable, and Hybrid Devices with Computational, Memory, I/O, & Realizable-Utilization Metrics,” ACM Transactions on Reconfigurable Technology and Systems (TRETS), Vol. 10, No. 1, Jan. 2016, Article 2, 21 pages
8. G. Wang, G. Stitt, H. Lam, and A. George, “Core-Level Modeling and Frequency Prediction for DSP Applications on FPGAs”, International Journal of Reconfigurable Computing, 2015, 20 pages.
9. B. Lam, A. George, H. Lam, and V. Aggarwal, “Low-level PGAS Computing on Many-core Processors with TSHMEM”, Concurrency and Computation, Practice and Experience (CCPE), Volume 27, Issue 17, Dec. 2015, 23 pages.
10. A. Jacobs, G. Cieslewski, A. George, A. Gordon-Ross, and H. Lam, “Reconfigurable Fault Tolerance: A Comprehensive Framework for Reliable and Adaptive FPGA-Based Space Computing,” ACM Transactions on Reconfigurable Technology and Systems (TRETS), Vol. 5, No. 4, Dec. 2012, Art. No. 21, 30 pages.
11. C. Reardon, B. Holland, A. George, G. Stitt, and H. Lam, "RCML: An Environment for Estimation Modeling of Reconfigurable Computing Systems," ACM Transactions on Embedded Computing Systems (TECS), Vol. 11, No. S2, Aug. 2012, Article 43, 24 pages.
12. V. Aggarwal, A. George, C. Yoon, K. Yalamanchili, and H. Lam, "SHMEM+: A Multilevel-PGAS Programming Model for Reconfigurable Supercomputing," ACM Transactions on Reconfigurable Technology and Systems (TRETS), Vol. 4, No. 3, Aug. 2011, Article 26, 27 pages.
13. B. Holland, A. George, H. Lam, and M. Smith, "An Analytical Model for Multi-Level Performance Prediction of Multi-FPGA Systems," ACM Transactions on Reconfigurable Technology and Systems (TRETS), Vol. 4, No. 3, Aug. 2011, Article 27, 28 pages.

14. G. Stitt, A. George, H. Lam, M. 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," IEEE Design & Test of Computers (D&T), Vol. 28, No. 4, July/Aug. 2011, pp. 68-77.

15. A. George, H. Lam, and G. Stitt, "Novo-G: At the Forefront of Scalable Reconfigurable Computing," IEEE Computing in Science & Engineering (CiSE), Vol. 13, No. 1, Jan/Feb. 2011, pp. 82-86.

16. J. Williams, C. Massie, A. George, J. Richardson, K. Gosrani, and H. Lam, "Characterization of Fixed and Reconfigurable Multi-Core Devices for Application Acceleration," ACM Transactions on Reconfigurable Technology and Systems (TRETS), Vol. 3, No. 4, 2010, pp. 19:1-19:29.

17. K. Nagarajan, B. Holland, A. George, K. Slatton, and H. Lam, "Accelerating Machine-Learning Algorithms on FPGAs using Pattern-Based Decomposition," Journal of Signal Processing Systems (JSPS), Vol. 62, No. 1, Jan. 2011, pp. 43 – 63.

18. S. Degwekar, H. Lam, and S.Y.W. Su, “Constraint-based Brokering (CBB) for Publishing and Discovery of Web-services”, Journal of Electronic Commerce Research, Vol. 7, 2007, pp. 45 – 67.

19. A. Matsunaga, M. Tsugawa, S. Adabala, R. Figueiredo, H. Lam, and J.A.B. Fortes, “Science gateways made easy: the In-VIGO approach”. Journal of Concurrency and Computation: Practice and Experience, Wiley Press, v. 19 (6, April 2007), p.905-919.

20. J. Meng, S.Y.W. Su, H. Lam, A. Helal, J. Xian, X. Liu,, and S. Yang, “DynaFlow: A Dynamic Inter-Organizational Workflow Management System,” Int. J. Business Process Integration and Management, Vol. 1, No. 2, 2006, pp. 101 – 115.

21. S. Yang, S.Y.W. Su, and H. Lam, “A Non-Repudiation Message Transfer Protocol for Collaborative E-commerce”, International Journal of Business Process Integration and Management (IJBPIM), Vol. 1, No. 1, 2006, pp. 34-42.

22. H. Li, S.Y.W. Su, and H. Lam, “On Automated E-business Negotiations: Goal, Policy, Strategy, and Plans of Decision and Action,” Journal of Organizational Computing and Electronic Commerce, Volume 16, No.1, 2006, pp. 1-29.

23. M. Lee, S.Y.W. Su, and H. Lam, “A Knowledge Network Approach for Implementing Active Virtual Marketplaces”, Journal on Data Semantics, Vol. 3360 / 2005, February 2005, pp. 113–135.

24. S. Yang, S.Y.W. Su, and H. Lam, “A Non-Repudiation Message Transfer Protocol for Collaborative e-commerce,. IJBPIM 1(1), 2005, pp. 34-42.

25. Q. Liang, L.N. Chakarapani, S.Y.W. Su, R.N. Chikkamagalur, and H. Lam, “A Semi-automatic Approach to Composite Web Services Discovery, Description and Invocation,” International Journal of Web Services Research (JWSR), Vol. 1, No. 4, 2004, pp. 64–89.

26. K. Nagarajan, H. Lam, and S.Y.W. Su, “Integration of Business Event and Rule Management with the Web Services Model”, International Journal of Web Services Research (JWSR), Vol. 1, No. 1, 2004, pp. 41-57.

27. L.J. Zhang, H. Li and H. Lam, "Services Computing: Grid Applications for Today," IT Professional, Vol. 6, No. 4, 2004, pp. 5-7.

28. M. Lee, S.Y.W. Su, and H. Lam, “Event and Rule Services for Achieving a Web-based Knowledge Network, Knowledge-based Systems”, Journal of Knowledge Based

Systems, August 2004, Vol. 17, pp. 179-188.

29. L.J. Zhang, H. Li, and H. Lam, “Toward a Business Process Grid for Utility Computing”, IT Professional”, Vol. 6, No. 5, 2004, pp. 62-64.
30. Y. Liu, F. Yu, S.Y.W. Su, and H. Lam, “A Cost-benefit Evaluation Server for Decision Support in e-Business,” Journal of Decision Support Systems and Electronic Commerce,” Vol. 36/1, September, 2003, pp 81-97.
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32. S.Y.W. Su, C. Huang, J. Hammer, Y. Huang, H. Li, L. Wang, Y. Liu, C.M. Pluempitiwiriyawej, M. Lee, and H. Lam, “An Internet-Based Negotiation Server for E-Commerce,” The VLDB Journal, Vol. 10, No. 1, Aug. 2001, pp. 72-90.
33. S.Y.W. Su, H. Lam, T.F. Yu, J. A. Arroyo-Figueroa, Z. Yang, S. Lee, "NCL: A Common Language for Achieving Rule-Based Interoperability among Heterogeneous Systems", Journal of Intelligent Information Systems, Special Issue on Intelligent Integration of Information, Vol. 6, 1996, pp. 171-198.
34. Y. M. Shyy, J. Arroyo, S.Y.W. Su, and H. Lam, "The Design and Implementation of K: A High-Level Knowledge Base Programming Language of OSAM*.KBMS", Very Large Data Base (VLDB) Journal, Vol. 5, No. 3, 1996, pp. 181-195.
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37. S.Y.W. Su, H. Lam, et. al., "Database Research at the University of Florida", SIGMOD Record, Vol. 22, No. 3, Sept. 1993, pp. 84-90.
38. C. Lee, H. Lam, and S.Y.W. Su, "An Object Flow Computer for Database Applications", Journal of Parallel and Distributed Computing, Vol 17, 1993, pp. 298-314.
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40. H. Lam, S.Y.W. Su, et. al., "GTOOLS: An Active Graphical User Interface Toolset for an Object-oriented KBMS", International Journal of Computer Science and Engineering, Vol.7 No. 2, April 1992, pp. 69-85.
41. H. Lam, C. Lee, and S.Y.W. Su, "A Special Function Unit for Database Operations (SFU-DB): Design and Performance Evaluation", IEEE Transactions on Computers, Vol. 40, No. 3, March 1991, pp. 263-275.
42. V. Krishnamurthy, S.Y.W. Su, and H. Lam, "IMDAS - An Integrated Manufacturing Data Administration System", Data and Knowledge Engineering Journal, Vol. 3, 1988, pp. 109-131.
43. H. Lam, S.Y.W. Su, and N. Koganti, "A Physical Database Evaluation System for CODASYL Databases", IEEE Transactions on Software Engineering, Vol. 14, No. 17, July 1988, pp. 1010-1022.
44. L. Raschid, T. Fei, H. Lam, and S.Y.W. Su, "A Special Function Unit for Sorting and

Sort-based Database Operations", IEEE Transactions on Computers, Vol. C-35, No. 12, December 1986, pp. 1071-1077.

45. S.Y.W. Su, H. Lam, and D.H. Lo, "Transformation of Data Traversals and Operations in Application Programs to Account for Semantic Changes of Databases", ACM Transactions on Database Systems, Vol. 6, No. 2, 1981, pp. 255-294.

Publications - Refereed Conference and Workshops

1. Y. Gao, Z. Wang, W. Piard, W. Wu, and H. Lam, “EIF: A Mediated Pass-Through Framework for Inference as a Service”, submitted to ICCD 2023: International Conference on Computer Design, Paris, France, September 18-19, 2023.
2. T. Johnson and H. Lam, "Incorporating Fault-Tolerance Awareness into System-Level Modeling and Simulation," 2021 IEEE/ACM 11th Workshop on Fault Tolerance for HPC at eXtreme Scale (FTXS), November 2021, pp. 31-40, doi: 10.1109/FTXS54580.2021.00008.
3. Sai P. Chenna, S Balachandar, Herman Lam, Greg Stitt, “Scalable Performance Prediction of Irregular Workloads in Multi-Phase Particle-in-Cell Applications”, International Workshop on Automatic Performance Tuning (IWAPT 2021), May 21, 2021.
4. C. Jiang, D. Ojika, B. Patel, H. Lam, "Optimized FPGA-based Deep Learning Accelerator for Sparse CNN using High Bandwidth Memory," 2021 IEEE 29th Annual International Symposium on Field-Programmable Custom Computing Machines (FCCM), May 9, 2021.
5. R. Blanchard, G. Stitt and H. Lam, "FPGA Acceleration of Fluid-Flow Kernels," 2020 IEEE/ACM International Workshop on Heterogeneous High-performance Reconfigurable Computing (H2RC), GA, USA, November 13, 2020, pp. 29-37.
6. A. Neelakantan, R. Shivakumar, R. Singh, C. Jiang, and H. Lam, “System-level MODSIM of CiM Architectures for Memory-Intensive Applications, Workshop on Modeling & Simulation of Systems and Application (ModSim 2020), Seattle, WA (Virtual), Aug 12, 2020, 2 pages.
7. C. Jiang, D. Ojika, S. Vallecorsa, T. Kurth3, Prabhat, B. Patel, and H. Lam, “Acceleration of Scientific Deep Learning Models on Heterogeneous Computing Platform with Intel FPGA”, Proc. Of 24th International Conference on Computing in High Energy and Nuclear Physics (CHEP19), Adelaide, Australia, Nov. 4-8, 2019, 8 pages.
8. C. Jiang, D. Ojika, B. Patel, A. Gordon-Ross, and H. Lam, “Accelerating Scientific Discovery with SCAIGATE Science Gateway”, 15th International Conference on eScience (eScience), San Diego, CA, Sept. 24-27, 2019, 2 pages.
9. H. Lam, S. Bhat, K. Rajasekaran,V. Srinivasan, and D. Ojika, “Compute Cache Architecture for the Acceleration of Mission-Critical Data Analytics”, Workshop on Modeling & Simulation of Systems and Application (ModSim 2019), Seattle, WA, Aug 14 - Aug 16, 2019, 2 pages.
10. A. Neelakantan, S. Chenna, T. Johnson, H. Lam, and G. Stitt, “BE-SST: Coarse-Grained Simulation Method & Tools for Full-System Modeling and Simulation”, Workshop on Modeling & Simulation of Systems and Application (ModSim 2019), Seattle, WA, Aug 14 - Aug 16, 2019, 2 pages.
11. S. Chenna, G. Stitt, and H. Lam, “Multi-Parameter Performance Modeling using Symbolic

Regression", 17th Annual International Conference on High Performance Computing & Simulation (HPCS 2019), Dublin, Ireland, July 15-19, 2019, 10 pages.

12. D. Ojika, A. Gordon-Ross, H. Lam, et. al., "PCS: A Productive Computational Science Platform", 17th Annual International Conference on High Performance Computing & Simulation (HPCS 2019), Dublin, Ireland, July 15-19, 2019, 6 pages.
13. C. Pascoe, R, Blanchard, H. Lam, and G. Stitt, "A FPGA-Pipelined, High-Throughput Approach to Coarse-Grained Simulation of HPC Systems", 5th International Workshop on Modeling and Simulation of and by Parallel and Distributed Systems (MSPDS, HPCS Conference 2019), Dublin, Ireland, July 15-19, 2019, 10 pages.
14. C. Jiang, D. Ojika, T. Kurth, Prabhat, S. Vallecorsa, B. Patel, and H. Lam, "Acceleration of Scientific Deep Learning Models on Heterogeneous Computing Platform with Intel FPGAs", ISC 19 IXPUG Workshop, ISC High Performance Conference, Frankfurt, Germany, June 16 – 20, 2019, 8 pages.
15. C. Jiang, H. Lam, et. al, "Heterogeneous Computing (HGC) for Deep Learning", Poster, ISC 2019 - ISC High Performance Conference, Frankfurt, Germany, June 16 – 20, 2019.
16. D. Ojika, H. Lam, B. Patel and A. Gordon-Ross, "SCAIGATE: Science Gateway for Scientific Computing with Artificial Intelligence and Reconfigurable Architectures", Proceedings of the 13th Gateway Computing Environments Conference (Gateways 2018), Austin, TX, Sept. 25 - 27, 2018, 3 pages.
17. A. Ramaswamy, N. Kumar, R. Rajagopalan, A. Neelakantan, H. Lam, Greg Stitt, "Scalable Behavioral Emulation of Extreme-Scale Systems Using Structural Simulation Toolkit", Proceedings of the 47th International Conference on Parallel Processing, Eugene, OR, August 13 -16, 2018, 8 pages.
18. H. Lam and D. Ojika, "Research Opportunities in Heterogeneous Computing for Machine Learning", Proceedings of the International Workshop on High Performance and Dynamic Reconfigurable Systems and Networks (DRSN), a keynote address, Orleans, France, July 16 – 20, 2018, 2 pages.
19. D. Ojika, A. Gordon-Ross, H. Lam, B. Patel, "FaaM: FPGA-as-a-Microservice", Proceedings of 23rd International Conference on Computing in High Energy and Nuclear Physics, Sofia, Bulgaria, July 9 – 13, 2018, 8 pages.
20. D. Ojika, A. Gordon-Ross, H. Lam, B. Patel, G. Kaul, and J. Strayer, "Using FPGAs as Microservices: Technology, Challenges and Case Study", 9th Workshop on Big Data Benchmarks Performance, Optimization and Emerging Hardware (BPOE-9), Williamsburg, VA, March 25th, 2018, 6 pages.
21. Y. Zhang (g), A. Neelakantan, N. Kumar, C. Park, R. Haftka, N. H. Kim and H. Lam, "Multi-fidelity Surrogate Modeling for Application/ Architecture Co-design", Performance Modeling, Benchmarking and Simulation of High Performance Computer Systems (PMBS17), Denver, CO, Nov. 13, 2017, pp. 179-196.
22. C. Pascoe, S. Chenna, G. Stitt, and H. Lam, "A FPGA-Pipelined Approach for Accelerated Discrete-Event Simulation of HPC Systems", Heterogeneous High-performance Reconfigurable Computing (H2RC), Denver, CO, Nov. 13, 2017, 2 pages.
23. A. Lawande, A. George, and H. Lam, "An OpenCL framework for distributed apps on a multidimensional network of FPGAs." Proceedings of the Sixth Workshop on Irregular Applications: Architectures and Algorithms. Salt Lake City, UT, 13 Nov. 2016, pp. 42-49.

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26. Barath Ramesh, A. George, and H. Lam, "Real-Time, Low-Latency Image Processing with High Throughput on a Multi-Core SoC", IEEE High Performance Extreme Computing Conference (HPEC'16), Waltham, MA, Sept. 13-15, 2016, 6 pages.
27. C. Pascoe, N. Kumar, K. All, H. Lam, G. Stitt, and A. George, "FPGA-Pipelined Discrete-Event Simulations for Accelerated Behavioral Emulation of Extreme-Scale Systems", Workshop on Modeling & Simulation of Systems and Applications (ModSim 2016), August 10-11, 2016, Seattle, WA, 2 pages.
28. G. Wang, H. Lam, Y. Zou, R. Xavier, S. Gundecha, and A. George, "A Research Platform for Custom Memory Cube", Workshop on Modeling & Simulation of Systems and Applications (ModSim 2016), August 10-11, 2016, Seattle, WA, 2 pages.
29. N. Kumar, C. Pascoe, C. Hajas, H. Lam, G. Stitt, and A. George, "Behavioral Emulation for Scalable Design-Space Exploration of Algorithms and Architectures", 2016 Workshop on Exascale Multi/Many Core Computing Systems (E-MuCoCoS), June 23, 2016, Frankfurt, Germany, 12 pages.
30. E. Durant, J. Impagliazzo, S. Conry, R. Reese, and H. Lam, "CE2016: Updated computer engineering curriculum guidelines", Proc. of Frontiers in Education Conference, El Paso, TX, Oct 21-24, 2015, Waltham, MA, 2 pages.
31. G. Wang, H. Lam, A. George, and G. Edwards, "Performance and Productivity Evaluation of Hybrid-threading HLS Versus HDLs", High Performance Extreme Computing Conference (HPEC), Sept. 15-17, 2015, 7 pages.
32. N. Kumar, M. Sringarpure, T. Banerjee, J. Hackl, S. Balachandar,H. Lam, A. George, and S. Ranka, "CMT-bone: A Mini-app for Compressible Multiphase Turbulence Simulation Software", Workshop on Representative Applications, co-located with IEEE Cluster 2015, Chicago, IL, Sept. 8-11, 2015, pp. 785-792.
33. N. Kumar, A. George, H. Lam, G. Stitt, S. Hammond, "Understanding Performance and Reliability Trade-offs for Extreme-scale Systems using Behavioral Emulation", Workshop on Modeling & Simulation of Systems and Applications (ModSim 2015), August 12-14, 2015, Seattle, WA, 2 pages.
34. K. Hill, S. Craciun, A. George, and H. Lam, "Comparative Analysis of OpenCL vs. HDL with Image-Processing Kernels on Stratix-V FPGA," 26th IEEE International Conference on Application-specific Systems, Architectures and Processors (ASAP), Toronto, Canada, July 27-29, 2015, pp. 189-193.
35. N. Kumar, C. Hajas, A. George, H. Lam, G. Stitt, "Multi-objective Behavioral Emulation of Future-gen Applications and Systems", 2015 Salishan Conference on High-Speed Computing, April 27-30, 2015, Gleneden Beach, OR, 10 pages.
36. C. Wilson, P. Zicari, S. Craciun, P. Gauvin, E. Carlisle, A. George, and H. Lam, "A Power-Efficient Real-Time Architecture for SURF Feature Extraction," Proc. of 2014 International Conference on ReConFigurable Computing and FPGAs (ReConFig 2014), Cancun,

Mexico, Dec. 8-10, 2014, 8 pages.

37. E. Durant, M. Thornton, J. Impagliazzo, H. Lam, S. Conry, R. Reese, and V. Nelson, “Setting the Stage for CE2016. A Revised Body of Knowledge”, Proc. Of 2014 Frontiers in Education Conference, Madrid, Spain, Oct. 22-25, 2014, 4 pages.
38. A. Lawande, H. Yang, A. George, and H. Lam, “Simulative Analysis of a Multidimensional Torus-based Reconfigurable Cluster for Molecular Dynamics”, Proc. of Third International Workshop on Heterogeneous and Unconventional Cluster Architectures and Applications (HUCAA 2014), Minneapolis, MN, Sept. 9-12, 2014, pp. 387-394.
39. A. Milluzzi, J. Richardson, A. George, and H. Lam, “A Multi-Tiered Optimization Framework for Heterogeneous Computing”, Proc. of 2014 IEEE High Performance Extreme Computing Conference (HPEC ‘14), Waltham, MA, Sept. 9-11, 2014, 6 pages.
40. B. Ramesh, A. Bhardwaj, J. Richardson, A. George, and H. Lam, “Optimization and Evaluation of Image- and Signal-Processing Kernels on the TI C6678 Multi-Core DSP”, Proc. of 2014 IEEE High Performance Extreme Computing Conference (HPEC ‘14), Waltham, MA, Sept. 9-11, 2014, 6 pages.
41. N. Kumar, C. Pascoe, D. Rudolph, H. Lam, A. George, and G. Stitt, “Multi-scale, Multi-objective, Behavioral Modeling & Emulation of Extreme-scale Systems, Proc. of Workshop on Modeling & Simulation of Systems & Applications, Seattle, WA, August 13-14, 2014, 2 pages.
42. D. Rudolph, C. Wilson, J. Stewart, P. Gauvin, A. George, and H. Lam, “CSP: A Multifaceted Hybrid Architecture for Space Computing”, Proc. of 28th AIAA/USU Conference on Small Satellites, Logan, UT, August 2-7 2014, 7 pages.
43. P. Gauvin, J Urriste, D. Rudolph, J. Stewart, C. Wilson, C. Morales, A. George, H. Lam, A. Stoddard, A. Wilson, M. Wirthlin, and G. Crum, “CSP: A Multifaceted Hybrid System for Space Computing”, Proc. of Military and Aerospace Programmable-Logic Devices Conference (MAPLD), San Diego, CA, May 19 - 22, 2014, 5 pages.
44. B. Lam, A. Barboza, R. Agrawal. A. George, and H. Lam, "Benchmarking Parallel Performance on Many-Core Processors", Proc. of 1st Workshop on OpenSHMEM Experiences, Implementations, and Tools (OpenSHMEM), Annapolis, MD, March 4-6, 2014, 15 pages.
45. B. Lam, C. Pascoe, S. Schaecher,H. Lam, and A. George, "BSW: FPGA-Accelerated BLAST-Wrapped Smith-Waterman Aligner", Proc. of ReConFig'13, 2013 International Conference on ReConFigurable Computing and FPGAs, Cancun, Mexico, Dec. 9 - 11 Dec 2013, pp. 1-7.
46. C. Wilson, J. Urriste, P. Gauvin, J. Stewart, A. George, H. Lam, T. Flatley, G. Crum, and M. Wirthlin, “CHREC Space Processor (CSP): A Broad Vision for Hybrid Space Computing”, Proc. of 3rd International Workshop on LunarCubes, Palo Alto, CA, Nov. 13-15, 2013, 19 pages.
47. P. Zicari, H. Lam, and A. George, “Reconfigurable Computing Architecture for Accurate Disparity Map Calculation in Real-Time Stereo Vision”, Proc. of The 17th International Conference on Image Processing, Computer Vision, & Pattern Recognition, Las Vegas, NV, July 22-25, 2013, 8 pages.
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Other Publications

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Activities as Director of Computer Engineering Undergraduate Program, College of Engineering, University of Florida (2012 – 2021)

2020-21: In the latter part of 2019, Dr. Lam led a major curriculum task in evaluating and updating the existing CPE curriculum, the last major update of which was in 2015. Several iterations were made during the Spring semester 2020. The updated curriculum was finalized and approved in the CPE curriculum committee by the end of Spring semester 2020. It was presented to and approved by the full CPE faculty in the Fall semester 2020. In Spring 2021, the updated CPE curriculum approved by the HWCOE Curriculum Committee and the University Curriculum Committee in

the Spring semester 2021.

2014: The Computer Engineering program was given over $2,000,000 2014 – 2015 BOG (State University System of Florida Board of Governors) IT Performance Funds to be used to improve the program. The 2014-2015 funds will be used as a part of the College of Engineering building funds to renovate and add to the existing Nuclear Engineering building to provide a showcase teaching and research COE facility. For the $2,000,000, the Compute Engineering program will be provided space in the building, giving the program its own space (and identity) for the first time in its history.

2013: Bridging of the differences between the two departments (CISE, ECE) to gain approval for the curriculum. It took almost a year, but the curriculum was passed overwhelmingly by full faculty and has since gained approval from the COE and UF curriculum committees. The joint curriculum will be available to students beginning from the Summer B Semester, 2014.

The Computer Engineering program was given approximately $700,000 in 2013 – 2014 BOG (State University System of Florida Board of Governors) IT Performance Funds to be used to improve the program. The plan includes both new hardware and room modifications, providing new capabilities for this program as well as a better learning environment over the existing capabilities and facilities. Specifically targeted classes include the following core undergraduate Computer Engineering courses: 3701C, 3923C, 4744C and 4712C. These are all laboratory inclusive classes that have a need for new hardware capabilities, which will allow for additional innovative teaching capabilities that do not currently exist. The intent of these changes are to excite the students in the area of Computer Engineering, further expanding what UF can offer these students to better prepare them for both future educational opportunities, as well as internships, and careers in industry.

2012: Appointed the Director of the Computer Engineering undergraduate program. One key goal was to find ways to improve the curriculum as a whole. The notable achievement was the development of a joint curriculum, replacing two separate track-based curricula for Computer Engineering.

Activities in ACM/IEEE Task Force on Computer Engineering Curriculum

In 2012, a joint ACM/IEEE task force was formed in 2012 to update the curriculum guidelines. Included in the task forces are members from the U.S., Europe and Asia**.** I joined in 2013 as a member of the 6-member Executive Committee overseeing the task force. The committee was very active in 2014 and 2015, interacting via email, phone conferences, and physical meetings. Included were presentations at conferences and a publication:

- E. Durant, M. Thornton, J. Impagliazzo, H. Lam, S. Conry, R. Reese, and V. Nelson, “Setting the Stage for CE2016. A Revised Body of Knowledge”, Proc. Of 2014 Frontiers in Education Conference, Madrid, Spain, Oct. 22-25, 2014, 2 pages.

In 2015, the activities of the Steering Committee for the (newly named) CE2016 Computer Engineering (CE) Curriculum include the following:

- Refine the CE Body of Knowledge (BoK); updated chapters and appendices for the CE report.
- Steering Committee met in Atlanta, Georgia, August 9-12, 2015, focused on the completion and refinement of the report.

- 2015 IEEE Frontiers in Education Conference (FIE), El Paso, TX, October 21-24, presented the complete draft of the CE report and had it on a website for public review and comment.

The new Computer Engineering Curriculum Guideline* was published in December 2016 and should be in a position to have influence on undergraduate Computer Engineering education in the coming decade**.**

***** ACM/IEEE Joint Task Force on Computer Engineering Curricula 2016 (CE2016), Dec. 15, 2016, https://www.computer.org/cms/peb/docs/ce2016-final-report.pdf.

Awards

University of Florida Term Professor, 2018 - 2020.

Led a team of graduate students at the University of Florida to win the 2018 Dell EMC AI Challenge, recognized for developing and demonstrating a heterogeneous computing (HGC) system that can support a complete workflow–data analysis and pre-processing, model training, and deployment and inferencing–for machine learning.

Lifetime Achievement Award from the students of the Electrical & Computer Engineering Department of the University of Florida, 2015.

Co-PI of the 2012 Alexander Schwarzkopf Prize for Technology Innovation from the National Science Foundation for "Novo-G: An innovative and synergistic research project and the world's most powerful reconfigurable supercomputer". The Schwarzkopf Prize recognizes faculty in an Industry/University Cooperative Research Center of the National Science Foundation that demonstrated exemplary research contribution to technology innovation. With this award, CHREC is recognized on a permanent plaque at NSF, 2012.

2010 HPCwire Readers' Choice Award for "Best Use of HPC in Life Sciences" for Novo-G reconfigurable supercomputer

University of Florida, Teaching Improvement Program (TIP) Award, December 1993.

Department of Electrical Engineering, University of Florida, award for supervisor of the Outstanding Senior Design Project, 1991-92.

College of Engineering, University of Florida, undergraduate teaching award, 1991-1992.

Outstanding Paper Award (Co-author), Seventh International IEEE Conference on Data Engineering, Kobe, Japan, April, 1991.

Department of Electrical Engineering, University of Florida, award for outstanding supervisor of an EE core laboratory, 1990-1991.

Department of Electrical Engineering, University of Florida, award for co-chairman of Best Ph.D. dissertation, 1990.

Department of Electrical Engineering, University of Florida, award for outstanding supervisor of an EE core laboratory, 1989-1990.

Department of Electrical Engineering, University of Florida, award for outstanding supervisor of an EE core laboratory, 1988-1989.

Tau Beta Pi, 1986-87 undergraduate teaching award, College of Engineering, University of Florida.

Professional Activities

Program reviewer for NASA Space Technology Graduate Research Opportunities (NSTGRO23) program, NASA's Space Technology Mission Directorate, 2023.

National Science Foundation review panel for NSF IUCRC (Industry/University Collaborative Research Center) solicitation 20-570, October 20, 2022.

Program reviewer for NASA Space Technology Graduate Research Opportunities (NSTGRO22) program, NASA's Space Technology Mission Directorate, 2022.

Program reviewer for DOE Office of Science (DOE/SC) Office of Advanced Scientific Computing Research (ASCR) program, 2021

Program reviewer for NASA Space Technology Graduate Research Opportunities (NSTGRO21) Program, NASA's Space Technology Mission Directorate, 2021.

Program committee, 2021 IEEE International Conference on Application-specific Systems, Architectures and Processors (ASAP 2021), July 7-8, 2021.

Program committee, 2020 IEEE International Conference on Application-specific Systems, Architectures and Processors (ASAP 2020), July 6-8, 2020.

Program committee, 2020 International Symposium on Highly Efficient Accelerators and Reconfigurable Technologies (HEART 2020), Paterborn, Germany, June 18-19, 2020.

Program committee, 2019 IEEE International Conference on Application-specific Systems, Architectures and Processors (ASAP 2019), New York, NY, USA, July 15-17, 2019.

Program committee, 2019 International Symposium on Highly Efficient Accelerators and Reconfigurable Technologies (HEART 2019), Nagasaki, Japan, June 6-7, 2019.

Program committee, 2018 IEEE International Conference on Application-specific Systems, Architectures and Processors (ASAP 2018), Milano, Italy, July 10-12, 2018.

Program committee, 2018 International Symposium on Highly Efficient Accelerators and Reconfigurable Technologies (HEART 2018), Toronto, Canada, June 20-22, 2018

Program committee, 2018 International Conference on ReConFigurable Computing and FPGAs, (ReConFig 2018), Cancun, Mexico, December 3-5, 2018.

National Science Foundation review panel for NSF IUCRC (Industry/University Collaborative Research Center) solicitation 17-516, Sept. 26 - 27, May 18, 2018.

National Science Foundation review panel for NSF IUCRC (Industry/University Collaborative Research Center) solicitation 17-516, Sept. 26 - 27, 2017.

Program committee, The 2017 IEEE International Conference on Application-specific Systems, Architectures and Processors (ASAP 2017), Seattle, WA, July 10-12, 2017.

Program committee, 2017 International Symposium on Highly Efficient Accelerators and Reconfigurable Technologies (HEART 2017), Bochum, DE, June 7-9, 2017.

Member, Curriculum Development Committee of the IEEE Computer Society Professional

& Educational Activities Board, 2015 - current.

Program committee, 2016 International Conference on ReConFigurable Computing and FPGAs, (ReConFig 2016), Cancun, Mexico, Nov. 30 – Dec. 2, 2016.

Program committee, 2016 International Symposium on Highly Efficient Accelerators and Reconfigurable Technologies (HEART 2016), Hong Kong, Hong Kong, July 25-27, 2016.

Program committee, The 2016 IEEE International Conference on Application-specific Systems, Architectures and Processors (ASAP 2016), London, England, July 6-8, 2016.

Program committee, 2015 International Conference on ReConFigurable Computing and FPGAs, Mayan Riviera, Mexico, December 7-9, 2015.

Program committee, 2015 International Symposium on Highly Efficient Accelerators and Reconfigurable Technologies (HEART 2015), Boston, MA, 2015.

Program committee, 2014 International Conference on ReConFigurable Computing and FPGAs, Cancun, Mexico, December 8 - 10, 2014.

Program committee, 21th Reconfigurable Architectures Workshop (RAW 2014), Phoenix, AZ, May 19 – 20, 2014.

Program committee, The 25th IEEE International Conference on Application-specific Systems, Architectures and Processors (ASAP 2014), Zurich, Switzerland, June 18 - 20, 2014.

Program committee, 2014 International Symposium on Highly Efficient Accelerators and Reconfigurable Technologies (HEART 2014), Sendai Miyagi, Japan, June 9 – 11, 2014.

2013-2016: Joined as a member of the Executive Committee, Joint ACM/IEEE Task Force. In 2004, a Joint Task Force on Computing Curricula of ACM and IEEE developed the "Curriculum Guidelines for Undergraduate Degree Programs in Computer Engineering". It has been a very successful and widely referenced document. Currently, a new joint ACM/IEEE task force is in the midst of updating the curriculum guidelines. The task force consists of an Executive Committee and of six members (of which I am one) and a Steering Committee.

Program committee, 2013 International Conference on ReConFigurable Computing and FPGAs, Cancun, Mexico, December 9 - 11, 2013.

Program committee, 2013 International Symposium on Highly Efficient Accelerators and Reconfigurable Technologies (HEART 2013), Edinburgh, Scotland, June 13 – 14, 2013.

Industrial chair, The 24th IEEE International Conference on Application-specific Systems, Architectures and Processors ASAP 2013), Washington, DC, June 5 – 7, 2013.

Program committee, 20th Reconfigurable Architectures Workshop (RAW13), Boston, Mass., May 20 - 21, 2013.

Program committee, 2012 International Conference on ReConFigurable Computing and FPGAs, Cancun, Mexico, December 5 - 7, 2012.

Program committee, 2012 Symposium on Application Accelerators in High-Performance Computing, Argonne National Lab, Chicago, Ill., July 10 – 11, 2012

Program committee, 2012 International Symposium on Highly Efficient Accelerators and Reconfigurable Technologies (HEART 2012), Okinawa, Japan, May 31 – June 1, 2012.

Program committee, 2011 International Conference on ReConFigurable Computing and

FPGAs, Cancun, Mexico, November 30 – December 2, 2011.

Program committee, 2011 Symposium on Application Accelerators in High-Performance Computing, Argonne National Lab, Chicago, Ill., July 19 – 20, 2011.

Program committee, 2011 International Conference on Engineering of Reconfigurable Systems and Algorithms (ERSA'11), Las Vegas, Nevada, USA, July 18 - 21, 2011.

Program committee, 2011 International Workshop on Highly-Efficient Accelerators and Reconfigurable Technologies, London, United Kingdom, June 2 - 3, 2011.

Program committee, 2010 International Conference on ReConFigurable Computing and FPGAs, Cancun, Mexico, December 13 - 15, 2010.

Program committee, 2010 Symposium on Application Accelerators in High-Performance Computing, Knoxville, Tennessee, July 13 - 15, 2010.

Program committee, 2010 International Workshop on High-Performance Reconfigurable Computing Technology and Applications (HPRCTA'10), New Orleans, LA, Nov. 14, 2010.

Editorial Board Member of the International Journal of Business Process Integration and Management (IJBPIM), 2004 - 2009

Program committee, WoRMES'2009 International Workshop on Reconfigurable and Multi-core Embedded Systems, Vancouver, Canada, Aug 29 - 31, 2009.

Program committee, 2009 Symposium on Application Accelerators in High-Performance Computing (SAAHPC09), Urbana, Illinois, July 27 - 31, 2009.

Program committee, 2009 International Conference on ReConFigurable Computing and FPGAs (ReConFig09), Cancun, Mexico, December 9 -11, 2009.

Program committee, International Workshop on High-Performance Reconfigurable Computing Technology and Applications (HPRCTA'09), Portland, Oregon November 15, 2009.

Program committee, IEEE International Conference on Web Services (ICWS08), Beijing, China, September 23 - 26, 2008.

Program committee, ReConFig'08,2008 International Conference on ReConFigurable Computing and FPGAs, Cancun, Mexico, December 3 - 5, 2008.

Program committee, IEEE Workshop on Data and Knowledge Engineering for E-service and E-business, Xi'an, China, October 22 - 24, 2008.

Program committee, IEEE International Conference on Web Services (ICWS 2007), Beijing, China, September 23 - 26, 2008.

Program committee, 8th International Conference on Web Information Systems Engineering (WISE 2007), Nancy, France, December 3 - 7, 2007.

Program committee, IEEE International Conference on Web Services (ICWS 2007), Salt Lake City, Utah, July 9 - 13, 2007.

Program committee, 7th International Conference on Web Information Systems Engineering (WISE 2006), Wuhan, China, October 23 - 26, 2006.

Program committee, IEEE International Conference on Web Services (ICWS 2006), Chicago, Illinois, September 18 - 22, 2006.

Review panel to evaluate IT proposals submitted to the Portuguese Science Foundation

(FCT), November 2004.

National Science Foundation review panel of NSF Middleware Initiative (NMI), a major infrastructure program in Grid middleware, June 17 - 18, 2004.

Program committee, 6th International Conference on Web Information Systems Engineering (WISE 2005), New York City, NY, November 2005.

Program committee, IEEE International Conference on Web Services (ICWS 2005), Orlando, Florida, July 12 -15, 2005.

Editorial Board Member of the International Journal of Business Process Integration and Management (IJBPIM) 2003 - present.

Program committee, The Fifth International Conference on Web Information Systems (WISE 2004), Brisbane, Australia, November 2004.

Program committee, IEEE Conference on E-Commerce Technology (CEC'04), San Diego, California, USA , July 6 - 9, 2004.

Program committee, The Twelfth International Conference on Information and Knowledge Management CIKM 2003.

Proposal Reviewer, Sino Software Research Centre, Univ. Of Science and Technology, Hong Kong, 1996, 1997.

Proposal Reviewer, Dept. Of Defense EPSCoR Program, Louisiana State Board of Regents, 1996.

Sabbatical visit to GMD University, Darmstadt, Germany, February 1993 through June 1993.

Sabbatical visit to IASI (Istituto Di Analisi Dei Sistemi Ed Informatica), Rome, Italy, September 1992 through January 1993.

Program committee, International Computer Science Conference '92 (ICSC '92), 1992.

Program committee, 9th. International Conference on Data Engineering, 1992.

Reviewer, 18th. Intern. Conf. on Parallel Processing, 1990.

Co-chair for Database Track, 14th. International Computer Software and Applications Conference (COMPSAC '90), 1989.

Session chair, 13th. International Computer Software and Applications Conference (COMPSAC 89), 1989.

Program committee, 13th. International Computer Software and Applications Conference (COMPSAC 89), 1989.

Invited lectures at universities in China, 1988:

Zhoug-Shao Univ. and Univ. of Science & Engr. in Guang-Zhou

Xi'an Jiaotong Univ. in Xi'an

Qing-Hua Univ. in Beijing

Reviewer, 16th. Intern. Conf. on Parallel Processing, 1988.

Session chair, IEEE's 12th Computer Software & Applications Conf., 1988.

Program committee, Fifth International Conference on Data Engineering, 1988.

Reviewer, ACM-SIGMOD Intern. Conf. on Management of Data, 1985.

Exhibits Chairman, ACM-SIGMOD Intern. Conf. on Management of Data, 1982.

Reviewer, 7th. International Conference on Very Large Data Bases, 1981.

Reviewer for journals:

- ACM Transactions on Reconfigurable Technology and Systems
- IEEE Transactions on Software Engineering.
- International Journal of Computer and Information Science.
- IEEE Transactions on Computers.
- ACM Computing Surveys.
- Data and Knowledge Engineering Journal.
- IEEE Transactions on Knowledge and Data Engineering.
- IEEE MICRO
- Journal of Computer Systems Science and Engineering.
- IEEE Internet Computing.
- IEEE Journal of Transactions on Parallel and Distributed Systems
- IBM Systems Journal
- IEEE Transaction on Service Computing
- International Journal of Reconfigurable Computing

Grants and Research Support

"Center for Space, High-Performance, and Resilient Computing (SHREC), Phase-I IUCRC", NSF, $750,000 Sept 2017 – August 2022, H. Lam, PI.
SHREC membership and other supplemental fundings via SHREC

- 2017-18 $95,000
- 2018-19 $245,000 (plus $8K REU)
- 2019-20 $285,000 (plus $8K REU)
- 2020-21 $300,000 (plus $16K REU),
- 2021-22 $175,000
- 2022-23 $280,000 (committed)

Total award = NSF + (membership and other supplement) = $750,000 + $1,412,000
= $2,162,000

"Collaborative Research: Large-Scale FPGA-Centric Cluster with Direct and Programmable Communication", NSF, $487,000 ($999,946 total, UF share $650,000), Aug 2014 – July 2019, M. Herbordt (Boston University); A. George (UF); H. Lam, (UF), My portion $270,235 as PI, $379,765 as Co-PI.

"PSAAP-II: Center for Compressible Multiphase Turbulence (CCMT)", Department of Energy (PSAAP-II), ($10,000,000 total, $2,253,000 UF-ECE share), Dec 2013 – Jan 2019, S. Balachandar (Center Director), H. Lam, (UF-ECE), my portion $379,765 as PI, $766,788 as Co-PI.

"Center for High-Performance Reconfigurable Computing (CHREC), Phase-2 IUCRC, NSF, 2012 – 2018, A. George (Center Director), my portion $1,582,382 as Co-PI.

"FRP: Productive Scientific Computing on Heterogeneous Systems" NSF, $100,000,

September 2012 – February 2014, A. George, PI, H. Lam, Co-PI.

"CRI: Large-Scale, FPGA-Centric Computing" NSF, $50,000, May 2012 – April 2013, A. George, PI, H. Lam, Co-PI.

"Center for High-Performance Reconfigurable Computing (CHREC) REEF Laboratory", Air Force Research Lab, Munitions Directorate, $260,000, 2011, A. George, PI, H. Lam, Co-PI.

"Exploration of a Research Roadmap for Application Development and Execution on FPGA-based Systems" DARPA (subcontract from George Washington University), $175K, September 1, 2007 – June 16, 2008, A. George, PI, H. Lam, Co-PI.

"Equipment Grant for FPGA-based Laboratory Equipment for a New Course in Reconfigurable Computing", Rockwell Collins, $24K, August 2007, A. George, PI, H. Lam, Co-PI.

"Research on Data Management in High-Performance Reconfigurable Computing", NSF, I/UCRC Fundamental Research Supplement, $75K, May 2007 – December 2009, A. George, PI, H. Lam, Co-PI.

"Center for High-Performance Reconfigurable Computing (CHREC), Phase-1 IUCRC, NSF, 2007 – 2012, A. George (Center Director), my portion $183,000 as PI, $1,248,000 as Co-PI.

"NMI Deployment (Eng): Nanohub", NSF, $587,810, October 1, 2004 – September 30, 2007, participate in the project as a senior personnel.

"Research on Advanced Technologies to Support Internet-based Scalable E-business Enterprises (ISEE)", NSF, $100,000, Sept. 1, 2000 – Aug. 31, 2001, S. Y. W. Su, PI, H. Lam, Co-PI, and Sherman Bai, Co-PI.

"Extended Enterprise Coalition for Integrated Collaborative Manufacturing Systems (EECOMS)", NIST, $895,000, Oct. 1997 – June 2001, S. Y. W. Su, PI, H. Lam, Co-PI, and J. Hammer, Co-PI.

"Establishment of a Sloan Center for Information-Technology-Enhanced Learning", Alfred P. Sloan Foundation, $135,000, H. Latchman (PI), H. Lam, Investigator.

"Solution for MES-Adaptable Replicable Technology (SMART)", National Institute of Standards and Technology (NIST), Co-principal Investigator, $600,800, 6/1996 – 5/2000.

"Consortium for Integrated Intelligent Manufacturing Planning and Execution (CIIMPLEX)", IBM/National Institute of Standards and Technology (NIST),Co-principal Investigator, $582,800,March 1996 - June 30, 1999.

"National Industrial Information Infrastructure Protocols (NIIIP)", IBM/ARPA, Co-principal Investigator, $1.4 million for 3 years, April 1, 1994 - August 31, 1997.

"Commercialization of a Schema Translation and Integration System ORECOM, "Enterprise Florida Innovation Partnership, Inc.,Co-principal Investigator, $45,000, 2/94-1/95.

"Integration of OSAM*.KBMS and ORECOM Technologies with CDF/MVS", IBM, Co-principal Investigator, $150,000, 3/93 - 3/94.

"An Object-oriented Rule-based Approach to Product Data Exchange and Specification", State of Florida High Technology and Industrial Council, Co-principal Investigator, $49,983, 1/93 - 7/94.

"Integration of OSAM*.KBMS and ROSE Technologies", IBM, Co-principal Investigator, $180,000, Co-principal Investigator, 12/90 – 3/92.

"An Object-oriented Rule-based Approach to Product Data Exchange and Specification", State of Florida High Technology and Industrial Council, Co-principal Investigator, $78,000, 12/27/90 - 12/26/92.

"An Object Flow Computer for Object-oriented Database Applications", National Science Foundation, Co-principal Investigator, $163,000, 7/1/89 - 6/30/92.

"Semantic Models and Their Transformations", National Institute of Standards and Technologies, Co-principal Investigator, $75,000, 9/1/89 - 8/31/91.

"A Special Function Unit for Sorting and Sort-based Database Operations"National Science Foundation, Co-principal Investigator, $131,000, 9/1984 – 2/1987.