

VITAE – JOHN KIRBY ANTONIO

Contact Information

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Professional Appointments

2017 – Present Senior Associate Dean of Gallogly College of Engineering, Howard and Suzanne Kauffmann Chair, University of Oklahoma, Norman, OK

1999 – Present Professor of Computer Science, University of Oklahoma, Norman, OK

2019 – 2020 Interim Dean of Gallogly College of Engineering, Howard and Suzanne Kauffmann Chair, University of Oklahoma, Norman, OK

2014 – 2016 Associate Dean of Gallogly College of Engineering, Howard and Suzanne Kauffmann Chair, University of Oklahoma, Norman, OK

2011 – 2013 Executive Director of Application Development, MSCI, Inc., Lead of Platform Performance and Infrastructure Optimization (Leave of Absence from OU)

1999 – 2006 Director and David W. Franke Professor, School of Computer Science, University of Oklahoma, Norman, OK

1998 – 1999 Acting Chair, Department of Computer Science, Texas Tech University, Lubbock, TX

1995 – 1999 Associate Professor, Department of Computer Science, Texas Tech University, Lubbock, TX

1989 – 1995 Assistant Professor, School of Electrical and Computer Engineering, Purdue University, West Lafayette, IN

1986 – 1989 Lecturer, Department of Electrical Engineering, Texas A&M University, College Station, TX

Education

<i>Degree</i>	<i>Date</i>	<i>School</i>
BSEE	May 1984	Texas A&M University, College Station, TX
MSEE	May 1986	Texas A&M University, College Station, TX
PhD	May 1989	Texas A&M University, College Station, TX

Dissertation: “Fast Distributed and Parallel Algorithms for Data Network Control Problems”

Honorary Society Memberships

Tau Beta Pi engineering honor society
Eta Kappa Nu electrical engineering honor society
Upsilon Pi Epsilon computing sciences honor society
Phi Kappa Phi honor society
Phi Eta Sigma honor society

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Research Activities

Research Grants and Contracts (Total Awards: \$20,525,142; JKA Credit: \$3,470,536)

[24] Principal Investigator: Boeing Defense and Space Group, Lead Principal Investigator – Sridhar Radhakrishnan, “HYDRA: Implementation of Multi-Threaded Software for Reconnaissance,” Sep. 11, 2020 to Dec. 19, 2020, Total Award: \$161,705, JKA Credit: \$24,256.

[23] Principal Investigator: Boeing Defense and Space Group, Lead Principal Investigator – Sridhar Radhakrishnan, “SKYNET: Artificial Intelligence and Machine Learning Improvements for Reconnaissance,” Sep. 11, 2020 to Dec. 19, 2020, Total Award: \$83,576, JKA Credit: \$12,536.

[22] Principal Investigator: Boeing Defense and Space Group, Lead Principal Investigator – Lacey Denman, “Migration of B-1 Fleet Management Software to PC,” Nov. 25, 2019 to March 16, 2020, Total Award: \$46,948, JKA Credit: \$23,474.

[21] Principal Investigator: Boeing Defense and Space Group, Lead Principal Investigator – Lacey Denman, “Migration of B-1 Crack Growth Software to PC,” Nov. 25, 2019 to March 16, 2020, Total Award: \$44,733, JKA Credit: \$22,367.

[20] Principal Investigator: U. S. Department of Defense; Defense Intelligence Agency; Lead Principal Investigator – Larry Regens, “Oklahoma Consortium IC Center for Academic Excellence,” July 3, 2019 to July 2, 2024, Total Award: \$1,500,000, JKA Credit: \$500,000.

[19] Lead Principal Investigator: Boeing Defense and Space Group, “Reverse Proxy Project, Phase 1,” Feb. 19, 2019 to May 31, 2019, Total Award: \$71,497, JKA Credit: \$71,497.

[18] Principal Investigator: U. S. Department of Defense; Defense Intelligence Agency; Lead Principal Investigator – Larry Regens, “Center for Intelligence and National Security IC CAE,” Sep. 8, 2014 to Sep. 7, 2019, Total Award: \$1,029,047, JKA Credit: \$138,030.

[17] Principle Investigator: State of Oklahoma, Department of Education; Lead Principle Investigator – Linda Atkinson, plus numerous other PIs, “Central Oklahoma Rural Partnership for Science (CORPS),” Feb. 23, 2016 to Aug. 31, 2018, Total Award: \$655,000, JKA Credit: \$65,500.

[16] Principle Investigator: State of Oklahoma, Economic Development Generating Excellence (EDGE); Lead Principle Investigator – Shivakumar Raman, plus numerous other PIs, “Shape Engineering for Advanced Manufacturing (SEAM)” Jan. 1, 2009 to Dec. 31, 2011, Total Award: \$3,000,000, JKA Credit: \$90,000.

[15] Lead Principle Investigator: RiskMetrics Group, “Performance Analysis of Distributed Service-Oriented Architectures,” Aug. 11, 2008 to Dec. 31, 2010, Total Award: \$395,589, JKA Credit: \$395,589.

[14] Lead Principle Investigator: Oklahoma State University, “CASI Collaboration Sustainment Initiative,” July 14, 2006 to July 13, 2007, Total Award: \$50,000, JKA Credit: \$25,000.

[13] Principal Investigator: Federal Highway Administration, Lead Principal Investigators – S. Radhakrishnan and T. Landers, plus numerous other PIs, “Intermodal Containerized Freight Security,” Grant Numbers: 105-029500, 105-029700, 105-029700, 105-029800, 105-029900,

105-0230000, 105-030100; June 12, 2006 to Aug. 15, 2014, Total Award: \$10,858,030, JKA Credit: \$549,901.

[12] Lead Principle Investigator: U.S. Department of Transportation, Research and Innovative Technology Administration, Subaward from Oklahoma State University, “University Transportation Center Strategic Plan Development,” Subaward No. AA-5-14856-01, Aug. 10, 2005 to Sep. 30, 2010, Total Award: \$37,353, JKA Credit: \$18,677.

[11] Principal Investigator: U.S. Department of Defense, Lead Principal Investigator – Randall L. Kolar, “A Parallel, 3D Baroclinic Shallow Water Model,” Contract No. N00014-02-1-0651, Apr. 15, 2002 to Mar. 31, 2005, Total Award: \$389,945, JKA Credit: \$19,498.

[10] Lead Principal Investigator: Prime Agency DOD-ARO, Subcontract through Texas Tech University, Lubbock, TX, “Predictions of Atmospheric Dispersion of Chemical and Biological Contaminants in the Urban Canopy,” Subcontract No. 1334/0974-01, Sep. 29, 2000 to Nov. 3, 2001, Total Award: \$75,000, JKA Credit: \$25,000.

[9] Lead Principal Investigator: Defense Advanced Research Projects Agency (DARPA), Arlington, VA, “[Configuring Embeddable Adaptive Computing Systems for Multiple Application Domains with Minimal Size, Weight, and Power](#),” Contract No. F30602-97-2-0297, July 1, 1997 to Dec. 31, 2001, Total Award: \$909,262, JKA Credit: \$909,262.

[8] Lead Principal Investigator: ORINCON Corporation, through the U. S. Department of Defense Small Business Technology Transfer (STTR) Program, “Application of High-Performance Computing for Air Tasking,” Subcontract No. SO6648 Under Rome Laboratory Prime Contract No. F30602-96-C-0326, Aug. 13, 1996 to Feb. 13, 1997, Total Award: \$30,000, JKA Credit: \$30,000.

[7] Lead Principal Investigator: Rome Laboratory, Griffiss Air Force Base, “[Advanced Support for Multilevel Heterogeneous Embedded High Performance Computing](#),” Grant No. F30602-96-1-0098, Apr. 1, 1996 to Sep. 30, 1997, Total Award: \$196,692, JKA Credit: \$196,692.

[6] Lead Principal Investigator: Rome Laboratory, Griffiss Air Force Base, “[OMARS Extensions: Multiple Architectures and Real-Time Constraints](#),” Contract No. F30602-95-C-0079, Apr. 1, 1995 to Dec. 31, 1995, Total Award: \$70,000, JKA Credit: \$70,000.

[5] Principal Investigator: NRaD Naval Laboratory, subcontracted through SAIC (Science Application International Corporation), Lead Principal Investigator – H. J. Siegel, “Supercomputer Computer Support for the FPC - Mixed Mode Algorithm Analysis,” Contract No. N68786-91-D-1799, Feb. 22, 1994 to Feb. 28, 1995, Total Award: \$34,960, JKA Credit: \$17,480.

[4] Lead Principal Investigator: Rome Laboratory, Griffiss Air Force Base, “[Methodologies for Mapping Tasks onto Heterogeneous Processing Systems](#),” Contract No. F30602-94-C-0022, Jan. 27, 1994 to Jan. 26, 1995, Total Award: \$99,000, JKA Credit: \$49,500.

[3] Principal Investigator: National Science Foundation, Engineering Research Center for Intelligent Manufacturing, Lead Principal Investigator – D. W. Senser, “Basic Studies on Spray Coating Atomization, Drop Transport, Process Control and Surface Appearance,” Grant No. 8803017-ECD, Sep. 1, 1992 to Dec. 31, 1994, Total Award: \$540,660, JKA Credit: \$108,132.

[2] Lead Principal Investigator: Rome Laboratory, Griffiss Air Force Base, “[Software Techniques for Balancing Computation and Communication in Parallel Systems](#),” Contract No. F30602-92-C-0108, Sep. 1, 1992 to Aug. 31, 1993, Total Award: \$95,478, JKA Credit: \$95,478.

[1] Principal Investigator: National Science Foundation, CISE Instrumentation Program, Lead Principal Investigator – A. Ghafoor, “A High-Speed Optical Network Testbed for Research in Telecommunication and Massive Parallel Computation,” Grant No. CDA-9121771, Apr. 1, 1992 to Mar. 31, 1994, Total Award: \$150,667, JKA Credit: \$37,667.

Patents

[2] John K. Antonio, Mark B. Yeary, and Thomas D. Hosman, “Ultrasonic Communication System for Communication through RF-Impervious Enclosures and Abutted Structures,” [Patent No. US 9,361,877](#); Date of Patent: June 7, 2016.

[1] Brian F. Veale, John K. Antonio, and Monte P. Tull, “Configuration Steering for a Reconfigurable Superscalar Processor,” [Patent No. US 7,757,069](#); Date of Patent: July 13, 2010.

Peer-Reviewed Articles (J: Journal; C: Conference Proceedings)

[83C] Lacey Schley, Randa L. Shehab, and John K. Antonio, “[Incorporating Agile Methodologies into DoD Software Sustainment Operations](#),” *Proceedings of the 39th Digital Avionics Systems Conference (DASC 2020)*, co-sponsors: IEEE and AIAA, Virtual Conference, Oct. 2020.

[82C] Nicolas G. Grounds and John K. Antonio, “[Enhancing Scheduling Robustness with Task Completion Feedback and Resource Requirement Biasing](#),” *Proceedings of the International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA ‘19)*, sponsor: World Academy of Science and Computer Science Research, Education, and Applications (CSREA), Las Vegas, NV, July 2019.

[81C] Nicolas G. Grounds and John K. Antonio, “[A Model-Based Scheduling Framework for Enhancing Robustness](#),” *Proceedings of the International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA ‘18)*, sponsor: World Academy of Science and Computer Science Research, Education, and Applications (CSREA), Las Vegas, NV, July 2018.

[80C] Khondker S. Hasan, John K. Antonio, and Sridhar Radhakrishnan, “[A New Multi-core CPU Resource Availability Prediction Model for Concurrent Processes](#),” *Proceedings of the IANG International MultiConference of Engineers and Computer Scientists 2017*, Hong Kong, March 2017.

[79J] Khondker S. Hasan, John K. Antonio, and Sridhar Radhakrishnan, “[A Model-driven Approach for Predicting and Analysing the Execution Efficiency of Multi-core Processing](#),” *International Journal of Computational Science and Engineering (IJCSE)*, Vol. 14, no. 2, 2017, pp. 105-125.

[78C] Jackie L. Foos, Randa L. Shehab, John K. Antonio, “[Experiences Moving from Residential Camps to Nonresidential Day Camps](#),” *Proceedings of the 123rd ASEE Annual Conference and Exposition*, New Orleans, LA, June 2016.

[77C] Khondker S. Hasan, Amlan Chatterjee, Sridhar Radhakrishnan, and John K. Antonio, “[Performance Prediction Model and Analysis for Compute-intensive Tasks on GPUs](#),” *The 11th*

IFIP International Conference on Network and Parallel Computing (NPC 2014), Published by: *Lecture Notes Computer Science (LNCS)*, Springer, Vol. 8707, Ilan, Taiwan, pp. 612-617, Sep. 2014.

[76C] Khondker S. Hasan, John K. Antonio, and Sridhar Radhakrishnan, “[A New Composite CPU/Memory Model for Predicting Efficiency of Multi-core Processing](#),” *The 20th IEEE International Symposium on High Performance Computer Architecture (HPCA-2014) Workshop*, Sponsored by: IEEE Computer Society, Orlando, FL, Feb. 2014.

[75C] Khondker S. Hasan, Sridhar Radhakrishnan, and John K. Antonio, “[Composite Prediction Model and Task Distribution on a Cloud of Multi-core Processors](#),” *The 20th IEEE International Conference on High Performance Computing (HiPC-2013) Workshop*, Sponsored by: IEEE Computer Society, Bengaluru, India, Dec. 2013.

[74J] Amlan Chatterjee, Sridhar Radhakrishnan, and John K. Antonio, “[Data Structures and Algorithms for Counting Problems on Graphs using GPU](#),” *International Journal of Networking and Computing (IJNC)*, Vol. 3, No. 2, July 2013, pp. 264-288.

[73C] Amlan Chatterjee, Sridhar Radhakrishnan, and John K. Antonio, “[On Analyzing Large Graphs using GPUs](#),” 15th Workshop on Advances in Parallel and Distributed Computational Models (APDCM 2013) in *Proceedings of the 27th IEEE International Parallel and Distributed Processing Symposium (IPDPS 2013)*, sponsor: IEEE Computer Society, Boston, MA, May 2013, pp. 751-760.

[72C] Amlan Chatterjee, Sridhar Radhakrishnan, and John K. Antonio, “[Counting Problems on Graphs: GPU Storage and Parallel Computing Techniques](#),” *Proceedings of the 26th IEEE International Parallel and Distributed Processing Symposium (IPDPS 2012)*, sponsor: IEEE Computer Society, Shanghai, China, May 2012, pp. 804-812.

[71C] Matthew Long, Sridhar Radhakrishnan, Suleyman Karabuk, and John K. Antonio, “[On Zap Time Minimization in IPTV Networks](#),” *Proceedings of the 2012 International Conference on Computing, Networking and Communications (ICNC)*, Honolulu, HI, Feb. 2012, pp. 713-718.

[70J] Thomas Hosman, Mark Yearly, and John K. Antonio, “[Design and Characterization of an MFSK-Based Transmitter/Receiver for Ultrasonic Communication Through Metallic Structures](#),” *IEEE Transactions on Instrumentation and Measurement*, Vol. 60, No. 12, Dec. 2011, pp. 3767-3774.

[69C] Khondker Shajadul Hasan, Nicolas G. Grounds, and John K. Antonio, “[Predicting CPU Availability of a Multi-core Processor Executing Concurrent Java Threads](#),” *Proceedings of the International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA '11)*, sponsor: World Academy of Science and Computer Science Research, Education, and Applications (CSREA), Las Vegas, NV, July 2011.

[68C] Matthew Martin, Nicolas G. Grounds, John K. Antonio, Kelly Crawford, and Jason Madden, “[Banker's Deadlock Avoidance Algorithm for Distributed Service-Oriented Architectures](#),” *Proceedings of the International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA '10)*, sponsor: World Academy of Science and Computer Science Research, Education, and Applications (CSREA), Las Vegas, NV, July 2010.

[67C] Thomas Hosman, Mark Yeary, John K. Antonio, and Brent Hobbs, “[Multi-Tone FSK for Ultrasonic Communication](#),” in *Proceedings of the International Instrumentation and Measurement Technology Conference (I2MTC 2010)*, sponsor: IEEE Instrumentation and Measurement Society, Austin, Texas, May 2010.

[66C] Jason Madden, Nicolas G. Grounds, Jay Sachs, and John K. Antonio, “[The Gozer Workflow System](#),” 15th International Workshop on High-Level Parallel Programming Models and Supportive Environments (HIPS 2010), cosponsors: IEEE Computer Society and ACM, in, *Proceedings of the 24th International Parallel and Distributed Processing Symposium (IPDPS 2010)*, Atlanta, Georgia, Apr. 2010.

[65C] Nicolas G. Grounds, John K. Antonio, and Jeff Muehring, “[Cost-Minimizing Scheduling of Workflows on a Cloud of Memory Managed Multicore Machines](#),” *Proceedings of the 1st International Conference on Cloud Computing (CloudCom 2009)*, in *Lecture Notes in Computer Science 5931*, edited by M.G. Jaatun, G. Zhao, and C. Rong, co-organizer: IEEE Computer Society, Beijing, China, Dec. 2009, pp. 435-450.

[64C] Hira K. Shrestha, Nicolas Grounds, Jason Madden, Matthew Martin, John K. Antonio, Jay Sachs, Josh Zuech, and Carlos Sanchez, “[Scheduling Workflows on a Cluster of Memory Managed Multicore Machines](#),” *Proceedings of the International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA '09)*, sponsor: World Academy of Science and Computer Science Research, Education, and Applications (CSREA), Las Vegas, NV, July 2009.

[63C] Nick A. Mould, Brian F. Veale, John K. Antonio, Monte P. Tull, John R. Junger, “[Design of Steering Vectors for Dynamically Reconfigurable Architectures](#),” 15th Reconfigurable Architectures Workshop (RAW 2008), cosponsors: IEEE Computer Society and ACM, in *Proceedings of the 22nd International Parallel and Distributed Processing Symposium (IPDPS 2008)*, Miami, Florida, Apr. 2008.

[62C] Nick A. Mould, Brian F. Veale, Monte P. Tull, and John K. Antonio, “[Dynamic Configuration Steering for a Reconfigurable Superscalar Processor](#),” 13th Reconfigurable Architectures Workshop (RAW 2006), cosponsors: IEEE Computer Society and ACM, in *Proceedings of the 20th International Parallel and Distributed Processing Symposium (IPDPS 2006)*, Rhodes Island, Greece, Apr. 2006.

[61C] Brian F. Veale, John K. Antonio, Monte P. Tull, and Sean A. Jones, “[Selection of Instruction Set Extensions for an FPGA Embedded Processor Core](#),” 13th Reconfigurable Architectures Workshop (RAW 2006), cosponsors: IEEE Computer Society and ACM, in *Proceedings of the 20th International Parallel and Distributed Processing Symposium (IPDPS 2006)*, Rhodes Island, Greece, Apr. 2006.

[60C] Brian F. Veale, John K. Antonio, and Monte P. Tull, “[Configuration Steering for a Reconfigurable Superscalar Processor](#),” 12th Reconfigurable Architectures Workshop (RAW 2005), cosponsors: IEEE Computer Society and ACM SIGARCH, in *Proceedings of the 19th International Parallel and Distributed Processing Symposium (IPDPS 2005)*, Denver, CO, Apr. 2005.

[59J] S. Vanichayobon, Sudarshan K. Dhall, S. Lakshmiarahan, and John K. Antonio, “[Power-Speed Trade-Off in Parallel Prefix Circuits](#),” *Journal of Circuits, Systems, and Computers*, Vol. 14, No. 1, Feb. 2005, pp. 65-98.

- [58C] Brian F. Veale, John K. Antonio, and Monte P. Tull, "[Architectural Approaches for Dynamic Translation and Reconfiguration](#)," *Proceedings of the 2004 IEEE Region 5 Technical Conference*, Oklahoma City, OK, Apr. 2004, pp. 49-58.
- [57C] Hongping Li, John K. Antonio, and Sudarshan K. Dhall, "[Fast and Precise Power Prediction for Combinational Circuits](#)," *Proceedings of the IEEE Symposium on VLSI*, sponsor: IEEE, Tampa, FL, Feb. 2003, pp. 254-259.
- [56J] Jack M. West and John K. Antonio, "[A Genetic-Algorithm Approach to Scheduling Communications for Embedded Parallel Space-Time Adaptive Processing Algorithms](#)," *Journal of Parallel and Distributed Computing*, Vol. 62, No. 9, Sept. 2002, pp. 1386-1406.
- [55C] S. Vanichayobon, Sudarshan K. Dhall, S. Lakshminarayanan, and John K. Antonio, "[Power-speed Trade-off in Parallel Prefix Circuits](#)," *Proceedings of ITComm 2002, High-Performance Pervasive Computing Conference*, sponsor: SPIE, Boston, MA, July/Aug. 2002, pp. 109-120.
- [54C] Jack M. West and John K. Antonio, "[A Genetic Algorithm Approach to Scheduling Communications for a Class of Parallel Space-Time Adaptive Processing Algorithms](#)," *Proceedings of the 5th International Workshop on Embedded/Distributed HPC Systems and Applications (EHPC 2000)*, in *Lecture Notes in Computer Science, IPDPS 2000 Workshops*, sponsor: IEEE Computer Society, Cancun, Mexico, May 2000, pp. 855-861.
- [53C] Timothy Osmulski, Jeffrey T. Muehring, Brian Veale, Jack M. West, Hongping Li, Sirirut Vanichayobon, Seok-Hyun Ko, John K. Antonio, and Sudarshan K. Dhall, "[A Probabilistic Power Prediction Tool for the Xilinx 4000-Series FPGA](#)," *Proceedings of the 5th International Workshop on Embedded/Distributed HPC Systems and Applications (EHPC 2000)*, in *Lecture Notes in Computer Science, IPDPS 2000 Workshops*, sponsor: IEEE Computer Society, Cancun, Mexico, May 2000, pp. 776-783.
- [52C] Marshall Duvall, Per Andersen, Jeremy Leggoe, Alan Graham, Daniel Cooke, and John K. Antonio "[A Case Study on the Importance of Compiler and other Optimizations for Improving Super-Scalar Processor Performance](#)," *Proceedings of the Sixth International Conference on Applications of High-Performance Computing in Engineering*, (WIT Press, Southampton-Boston, M. Ingber, H. Power, and C. A. Brebbia, Eds.), Maui, Hawaii, Jan. 2000, pp. 281-291.
- [51J] Wei K. Tsai, John K. Antonio, and Garng M. Huang, "[Complexity of Gradient Projection Method for Optimal Routing in Data Networks](#)," *IEEE/ACM Transactions on Networking*, Vol. 7, No. 4, Dec. 1999, pp. 897-905.
- [50C] Per H. Andersen, Joseph Pizzi, Runlin Zhu, Youling Cao, Donald J. Bagert, John K. Antonio, Fred Lott, and John C. Grieger "[Evaluation of a Methodology for the Reverse Engineering and Parallelization of Sequential Code](#)," *Proceedings of the International Symposium on Software Engineering for Parallel and Distributed Systems (PDSE'99)*, co-sponsors: ACM and IEEE Computer Society, Los Angeles, CA, USA, May 1999.
- [49C] Per H. Andersen and John K. Antonio, "[Implementation and Utilization of a Heterogeneous Multicomputer Cluster for the Study of Load Balancing Strategies](#)," *Proceedings of the Seventh IEEE International Symposium on High Performance Distributed Computings (HPDC-7)*, sponsor: IEEE Computer Society, Chicago, IL, USA, July 1998, pp. 362-363.
- [48J] Yan Alexander Li, John K. Antonio, Howard Jay Siegel, Min Tan, and Daniel W. Watson, "[Determining the Execution Time Distribution for a Data Parallel Program in a Heterogeneous](#)

[Computing Environment](#),” *Journal of Parallel and Distributed Computing*, Vol. 44, No. 1, July 1997, pp. 35-52.

[47J] Min Tan, Howard Jay Siegel, John K. Antonio, and Yan Alexander Li, “[Minimizing the Application Execution Time Through Scheduling of Subtasks and Communication Traffic in a Heterogeneous Computing System](#),” *IEEE Transactions on Parallel and Distributed Systems*, Vol. 8, No. 8, Aug. 1997, pp. 857-871.

[46J] Ramanujam Ramabhadran and John K. Antonio, “[Fast Solution Techniques for a Class of Optimal Trajectory Planning Problems with Applications to Automated Spray Coating](#),” *IEEE Transactions on Robotics and Automation*, Vol. 13, No. 4, Aug. 1997, pp. 519-530.

[45C] Nikhil D. Gupta, John K. Antonio, and Jack M. West, “[Reconfigurable Computing for Space-Time Adaptive Processing](#),” *Proceedings of the Sixth Annual IEEE Symposium on Field Programmable Custom Computing Machines (FCCM)*, Napa, CA, USA, Apr. 1998, pp. 335-336.

[44C] Jack M. West and John K. Antonio, “[Simulation of the Communication Time for a Space-Time Adaptive Processing Algorithm on a Parallel Embedded System](#),” *Proceedings of the International Workshop on Embedded HPC Systems and Applications (EHPC '98)*, in *Lecture Notes in Computer Science 1388: Parallel and Distributed Processing*, edited by Jose Rolim, sponsor: IEEE Computer Society, Orlando, FL, USA, Apr. 1998, pp. 979-986.

[43C] Jeffrey T. Muehring and John K. Antonio, “[Optimal Configuration of Compute Nodes for Synthetic Aperture Radar Processing](#),” *Proceedings of the International Workshop on Embedded HPC Systems and Applications (EHPC '98)*, in *Lecture Notes in Computer Science 1388: Parallel and Distributed Processing*, edited by Jose Rolim, sponsor: IEEE Computer Society, Orlando, FL, USA, Apr. 1998, pp. 987-993.

[42J] Kathy J. Liszka, John K. Antonio, and Howard Jay Siegel, “[Problems with Comparing Interconnection Networks: Is an Alligator Better than an Armadillo?](#),” *IEEE Concurrency*, Vol. 5, No. 4, Oct.-Dec. 1997, pp. 18-28.

[41J] John K. Antonio, Ramanujam Ramabhadran, and Ting-Li Ling, “[A Framework for Optimal Trajectory Planning for Automated Spray Coating](#),” *International Journal of Robotics and Automation*, Vol. 12, No. 4, 1997, pp. 124-134.

[40C] Yan Alexander Li and John K. Antonio, “[Estimating the Execution Time Distribution for a Task Graph in a Heterogeneous Computing System](#),” *Proceedings of the Sixth Heterogeneous Computing Workshop (HCW '97)*, sponsor: IEEE Computer Society, Geneva, Switzerland, Apr. 1997, pp. 172-184.

[39C] Jeffrey T. Muehring and John K. Antonio, “[Optimal Configuration of an Embedded Parallel System for Synthetic Aperture Radar Processing](#),” *Proceedings of the International Conference on Signal Processing Applications & Technology*, Boston, MA, Oct. 1996, pp. 1489-1494.

[38J] Howard Jay Siegel, Daniel W. Watson, and John K. Antonio, “[What Will it Take to Sell a Massive Number of Massively Parallel Machines?](#)” *IEEE Parallel & Distributed Technology*, Vol. 4, No. 3, Fall 1996, pp. 63-69.

[37C] Daniel W. Watson, John K. Antonio, Howard Jay Siegel, Rohit Gupta, and Mikhail J. Atallah, “Static Matching of Ordered Program Segments to Dedicated Machines in a

Heterogeneous Computing Environment,” *Proceedings of the Fifth Heterogeneous Computing Workshop (HCW '96)*, sponsor: IEEE Computer Society, Honolulu, HI, Apr. 1996, pp. 24-37.

[36C] Ramanujam Ramabhadran and John K. Antonio, “[Planning Spatial Paths for Automated Spray Coating Applications](#),” *Proceedings of the 1996 IEEE International Conference on Robotics and Automation*, sponsor: IEEE Robotics and Automation Society, Minneapolis, MN, Apr. 1996, pp. 1255-1260.

[35J] Howard Jay Siegel, Henry G. Dietz, and John K. Antonio, “[Software Support for Heterogeneous Computing](#),” *ACM Computing Surveys*, Vol. 28, No. 1, Mar. 1996, pp. 237-239.

[34C] Ramanujam Ramabhadran and John K. Antonio, “[Fast Solutions for a Class of Optimal Trajectory Planning Problems with Applications to Automated Spray Coating](#),” *Proceedings of the 34th IEEE Conference on Decision and Control (CDC)*, sponsor: IEEE Control Systems Society, New Orleans, LA, Dec. 1995, pp. 1612-1617.

[33C] Howard Jay Siegel, John K. Antonio, Muthucumar Maheswaran, and Min Tan, “High-Performance Heterogeneous Computing: Goals and Open Problems,” *Proceedings of the 2nd Australasian Conference on Parallel and Real-Time Systems (PART '95)*, sponsor: Curtin University of Technology, Fremantle, Western Australia, Australia, Sep. 1995 pp. 3-10.

[32C] Min Tan, John K. Antonio, Howard Jay Siegel, and Yan Alexander Li, “Scheduling and Data Relocation for Sequentially Executed Subtasks in a Heterogeneous Computing System,” *Proceedings of the Fourth Heterogeneous Computing Workshop (HCW '95)*, sponsor: IEEE Computer Society, Santa Barbara, CA, Apr. 1995, pp. 109-120.

[31C] Yan Alexander Li, John K. Antonio, Howard Jay Siegel, Min Tan, and Daniel W. Watson, “Estimating the Distribution of Execution Times for SIMD/SPMD Mixed-Mode Programs,” *Proceedings of the Fourth Heterogeneous Computing Workshop (HCW '95)*, sponsor: IEEE Computer Society, Santa Barbara, CA, Apr. 1995, pp. 35-46.

[30C] Wei K. Tsai, John K. Antonio, and Garng M. Huang, “[Complexity of Gradient Projection Method for Optimal Routing in Data Networks](#),” *Proceedings of the IEEE INFOCOM '95, The Conference on Computer Communications*, co-sponsors: IEEE Computer Society and IEEE Communications Society, Boston, MA, Apr. 1995, pp. 269-277.

[29C] Howard Jay Siegel, John K. Antonio, Min Tan, Richard C. Metzger, Richard F. Freund, and Yan Alexander Li, “Heterogeneous Computing: One Approach to Sustained Petaflops Performance,” *Proceedings of the Petaflops Frontier Workshop at the 5th Symposium on the Frontiers of Massively Parallel Computation*, sponsor: IEEE Computer Society, Washington, DC, Feb. 1995, pp. 27-39.

[28C] Robert G. Palmer, Jr., Howard Jay Siegel, Janet M. Siegel, and John K. Antonio, “[Implementation of a Tree-Structured Vector Quantizer for Image Compression on the MasPar MP-1 Parallel Machine](#),” *Proceedings of the 1994 International Conference on Parallel and Distributed Systems*, sponsor: National Chiao Tung University, in cooperation with IEEE Computer Society, Hsinchu, Taiwan, ROC, Dec. 1994, pp. 242-247.

[27C] Howard Jay Siegel and John K. Antonio, “[Views of Mixed-Mode Computing and Network Evaluation](#),” *Proceedings of the International Symposium on Parallel Architectures, Algorithms, and Networks*, sponsor: Japan Advanced Institute of Science and Technology, in cooperation with IEEE Computer Society, Kanazawa, Japan, Dec. 1994, pp. 1-8.

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Non Peer-Reviewed Articles and Abstracts

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[3] John K. Antonio and Longsong Lin, "Asynchronous Parallel Fixed-Point Algorithms," *Final Program of the Third SIAM Conference on Linear Algebra in Signals, Systems, and Control*, Minisymposium on Parallel and Distributed Computations for Control Problems, sponsor: SIAM, Seattle, Washington, Aug. 1993, abstract, pp. A31-A32 (Invited Presentation, Abstract Only).

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- [13] Howard Jay Siegel and John K. Antonio, "[Methodologies for Mapping Tasks onto Heterogeneous Processing Systems](#)," Rome Laboratory, Air Force Materiel Command, Griffiss Air Force Base, NY, Technical Report No. RL-TR-95-132, July 1995, 194 pp.
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- [10] Howard Jay Siegel, John K. Antonio, Richard C. Metzger, Min Tan, and Yan Alexander Li, "Heterogeneous Computing," Purdue University, School of Electrical Engineering, Technical Report No. TR-EE 94-37, Dec. 1994, 80 pp.
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- [5] John K. Antonio, "Optimal Trajectory Planning for Spray Coating," Purdue University, School of Electrical Engineering, Technical Report No. TR-EE 93-29, Sep. 1993, 43 pp.
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[1] John K. Antonio, James G. Wendelberger, Greg P. Matthews, William G. Trabold, and Mark H. Costin, "Optiscan: The Use of Reflectometry for Detecting Quality Attributes of Basecoat Paint," General Motors Research Laboratories, Warren, MI, Research Report No. ET-426/MA-357, Dec. 1986, 31 pp.

Invited Lectures

[15] "Reconfigurable Versus Fixed Versus Hybrid Architectures," Oklahoma Supercomputing Symposium 2008, Norman, OK, October 7, 2008.

[14] "A System Model for Combined Workflow- and UI-Based Requests," RiskMetrics 2008 Platform Development and Friends Offsite, Norman, OK, September 23-25, 2008.

[13] "Investing in Aerospace: A Perspective from Higher Education," Plenary Presentation at the 6th Annual Aerospace Summit & Expo, sponsored by The Federal Aviation Administration, The State Chamber, and The Oklahoma City Air Logistics Center, Held at the Cox Convention Center, Oklahoma City, OK, May 22, 2007.

[12] "Combining DSP and FPGA Technologies to Minimize Power Consumption for Radar Processing," Texas A&M University, College Station, TX, Computer Engineering Seminar, September 11, 1998.

[11] "Configuring Combined DSP/FPGA Systems for Minimal SWAP," DARPA Seminar Series for BAA 97-06, Washington, DC, October 9, 1997.

[10] "Developing Applications for Heterogeneous Systems: Some Research Issues," DARPA Legacy Systems Workshop, San Diego, CA, June 24, 1996.

[9] John K. Antonio, "Mapping and Routing for Improved Real-Time Performance," High-Performance Computing for Embedded Applications Sixth Annual Symposium, co-sponsors: Honeywell Space Systems and ARPA, Clearwater, FL, Jan. 1996.

[8] "Enhancing SmartNet Performance with Optimal Network Routing," NRaD Naval Laboratory, San Diego, CA, 2nd Semi-Annual SmartNet PI Meeting, Aug. 2, 1995.

[7] "Estimating the Distribution of Execution Times for SIMD/SPMD Mixed-Mode Programs," University of Cincinnati, Cincinnati, OH, Department of Computer Science Seminar, Nov. 8, 1994.

[6] "Mapping Periodic Tasks onto Hypercube Architectures," Rome Laboratory, Griffiss Air Force Base, NY, July 28, 1993.

[5] "Multinode Broadcast Algorithms on Hypercube Systems," Rome Laboratory, Griffiss Air Force Base, NY, June 18, 1992.

[4] "Fast Parallel and Distributed Computation for Optimization and Control," General Electric Corporate Research & Development, Schenectady, NY, Jan. 22, 1991.

[3] "Routing Techniques in Large Data Networks," Purdue University, West Lafayette, IN, School of Electrical Engineering, Student Chapter of the IEEE Computer Society, Feb. 15, 1990.

[2] “Fast Distributed and Parallel Algorithms for Data Network Control Problems,” Texas A&M University, College Station, TX, Department of Electrical Engineering Seminar Series in Automatic Control, Jan. 1989.

[1] “Optimal Control Locations for a Class of Large Interconnected Dynamic Systems,” Texas A&M University, College Station, TX, Department of Electrical Engineering Seminar Series in Automatic Control, Mar. 1986.

Graduate Student Advising

PhD Dissertation Supervision Completed

[8] Nicolas G. Grounds, “[The Roles of Feedback and Model Error Biasing for Enhancing Robustness of Scheduling Algorithms for Distributed System Processing](#),” Dec. 2018 (University of Oklahoma).

[7] Khondker S. Hasan, “[Prediction Models for Estimating the Efficiency of Distributed Multi-core Systems](#),” Aug. 2014 (University of Oklahoma).

[6] Brian F. Veale, “[Reconfigurable Microprocessors: Instruction Set Selection, Code Optimization, and Configuration Control](#),” Dec. 2005 (University of Oklahoma).

[5] Hongping Li, “[Fast and Precise Power Prediction for Combinational Circuits Considering Glitching Effects](#),” Dec. 2003 (University of Oklahoma).

[4] Jack M. West, “[Processor Allocation, Message Scheduling, and Algorithm Selection for Space-Time Adaptive Processing](#),” Aug. 2000 (Texas Tech University).

[3] Ramanujam Ramabhadran, “[Performance Enhancement of Manufacturing Processes through Model-Based Methods and Observational Inference of Process Physics](#),” May 1997 (Purdue University).

[2] Yan Alexander Li, “[A Probabilistic Framework for Estimation of Execution Time in Heterogeneous Computing Systems](#),” Aug. 1996 (Purdue University).

[1] Longsong Lin, “Asynchronous Parallel and Distributed Computing: Theoretical Modeling and Experimental Evaluation,” Dec. 1992 (Purdue University).

MS Thesis Supervision Completed

[11] Jason Madden, “[The Gozer Workflow System](#),” Dec. 2010 (University of Oklahoma).

[10] Matthew Martin, “[Deadlock Avoidance in Distributed Service Oriented Architectures](#),” May 2010 (University of Oklahoma).

[9] Hira K. Shrestha, “[Scheduling Workflows on a Cluster of Memory Managed Multicore Machines](#),” Dec. 2009 (University of Oklahoma).

[8] Brian F. Veale, “[Study of Power Consumption For High-Performance Reconfigurable Computing Architectures](#),” August 1999 (Texas Tech University).

[7] Nikhil D. Gupta, “[Reconfigurable Computing for Space-Time Adaptive Processing](#),” August 1998 (Texas Tech University).

[6] Jack M. West, “[Simulation of Communication Time for a Space-Time Adaptive Processing Algorithm on a Parallel Embedded System](#),” August 1998 (Texas Tech University).

- [5] Timothy A. Osmulski, "[Implementation and Evaluation of a Power Prediction Model for a Field Programmable Gate Array](#)," May 1998 (Texas Tech University).
- [4] Jeffrey T. Muehring, "[Optimal Configuration of a Parallel Embedded System for Synthetic Aperture Radar Processing](#)," Dec. 1997 (Texas Tech University).
- [3] Per H. Andersen, "[Implementation and Utilization of a Heterogeneous Multicomputer Cluster for the Study of Load Balancing Strategies](#)," Aug. 1997 (Texas Tech University).
- [2] Parameswaran Bharathan Pillai, "Evaluation of Iterative Methods on a Massively Parallel Computer," Dec. 1992 (Purdue University).
- [1] Nelson Ge, "A Simple Routing Control Scheme for Mesh Connected Parallel Computers," Dec. 1990 (Purdue University).

Professional Service and Activities

Journal Editorial Position

- Associate Editor and Member of Editorial Board: *IEEE Transactions on Computers*, from 2006 to 2011.

Professional Society Memberships

- Senior Member, IEEE (Institute of Electrical and Electronics Engineers)
- Member ACM (Association of Computing Machinery)
- Elected Member to the European Academy of Sciences with the citation "*For an outstanding and lasting contribution to computer science and computer science education*," awarded Aug. 2002.

Conference Leadership Activities

- [27] General Chair: The 29th Heterogeneity in Computing Workshop (HCW), sponsor: IEEE Computer Society, May 2020.
- [26] Technical Program Chair: The 28th Heterogeneity in Computing Workshop (HCW), sponsor: IEEE Computer Society, May 2019.
- [25] Vice Program Chair, The 9th ACS/IEEE International Conference on Computer Systems and Applications, Dec. 2011.
- [24] Member of Steering Committee, Heterogeneous Computing Workshop (HCW), cosponsors: IEEE Computer Society and Office of Naval research, 2006 to present.
- [23] Commercial Presentations and Exhibits Co-Chair, The 20th International Parallel and Distributed Processing Symposium (IPDPS), sponsor: IEEE Computer Society, Apr. 2006.
- [22] Commercial Presentations and Exhibits Chair and Organizer, The 19th International Parallel and Distributed Processing Symposium (IPDPS), sponsor: IEEE Computer Society, Apr. 2005.
- [21] Program Committee Member, SPIE International Symposium on the Convergence of Information Technologies and Communications, Commercial Applications of High-Performance Computing, Aug. 2001.
- [20] Program Committee Member, The 9th Heterogeneous Computing Workshop (HCW), sponsor: IEEE Computer Society, May 2000.

- [19] General Chair: The 8th Heterogeneous Computing Workshop (HCW), sponsor: IEEE Computer Society, Apr. 1999.
- [18] Vice-General Chair: The 13th International Parallel Processing Symposium (IPPS), sponsor: IEEE Computer Society, Apr. 1999.
- [17] Program Chair: The 7th Heterogeneous Computing Workshop (HCW), sponsor: IEEE Computer Society, Apr. 1998.
- [16] Commercial Exhibits Chair and Organizer, The 12th International Parallel Processing Symposium (IPPS), sponsor: IEEE Computer Society, Apr. 1998.
- [15] Industrial Track Chair and Organizer, The 12th International Parallel Processing Symposium (IPPS), sponsor: IEEE Computer Society, Apr. 1998.
- [14] Publicity Co-Chair, The 1997 International Conference on Parallel and Distributed Systems (ICPADS), sponsored by Korea Information Science Society (Seoul), Dec. 1997.
- [13] Case Studies Co-Chair, The 6th Heterogeneous Computing Workshop (HCW), sponsor: IEEE Computer Society, Apr. 1997.
- [12] Commercial Exhibits Chair and Organizer, The 11th International Parallel Processing Symposium (IPPS), sponsor: IEEE Computer Society, Apr. 1997.
- [11] Industrial Track Chair and Organizer, The 11th International Parallel Processing Symposium (IPPS), sponsor: IEEE Computer Society, Apr. 1997.
- [10] Proceedings Chair: The 3rd International Conference on High Performance Computing (HiPC), in cooperation with IEEE Computer Society and ACM SIGARCH, Dec. 1996.
- [9] Commercial Exhibits Chair and Organizer, The 10th International Parallel Processing Symposium (IPPS), sponsor: IEEE Computer Society, Apr. 1996.
- [8] Industrial Track Chair and Organizer, The 10th International Parallel Processing Symposium (IPPS), sponsor: IEEE Computer Society, Apr. 1996.
- [7] Program Committee Member, The 4th Heterogeneous Computing Workshop (HCW), sponsor: IEEE Computer Society, Apr. 1995.
- [6] Commercial Exhibits Chair and Organizer, The 9th International Parallel Processing Symposium (IPPS), sponsor: IEEE Computer Society, Apr. 1995.
- [5] Industrial Track Chair and Organizer, The 9th International Parallel Processing Symposium (IPPS), sponsor: IEEE Computer Society, Apr. 1995.
- [4] Publicity Co-Chair, The 1994 International Conference on Parallel and Distributed Systems (ICPADS), sponsored by National Chiao Tung University (Taiwan), Dec. 1994.
- [3] Industrial Track Chair and Organizer, The 8th International Parallel Processing Symposium (IPPS), sponsor: IEEE Computer Society, Apr. 1994.
- [2] Member of Program Committee, The 8th International Parallel Processing Symposium (IPPS), sponsor: IEEE Computer Society, Apr. 1994.
- [1] Member of Program Committee, The 26th International Symposium on Automotive Technology and Automation, Dedicated Conference on Supercomputer Applications for the

Automotive Industries, sponsor: Ente Per Le Nuove Tecnologie, L'Energia E L'Ambiente (Germany), Sep. 1993.

Other Conference Contributions

[9] Session Chair: "Parallel Architectures: Implementation, Programming, and Performance," *10th International Parallel Processing Symposium (IPPS '96)*, sponsor: IEEE Computer Society, Honolulu, HI, Apr. 1996.

[8] Track Chair: "Industrial Track: Invited Vendor Presentations," *10th International Parallel Processing Symposium (IPPS '96)*, sponsor: IEEE Computer Society, Honolulu, HI, Apr. 1996.

[7] Session Chair: "System Design Issues and Applications," *9th International Parallel Processing Symposium (IPPS '95)*, sponsor: IEEE Computer Society, Santa Barbara, CA, Apr. 1995.

[6] Track Chair: "Industrial Track: Invited Vendor Presentations," *9th International Parallel Processing Symposium (IPPS '95)*, sponsor: IEEE Computer Society, Santa Barbara, CA, Apr. 1995.

[5] Session Co-Chair: "Robot Applications," *1994 IEEE International Conference on Robotics and Automation*, sponsor: IEEE Robotics and Automation Society, San Diego, CA, May 1994.

[4] Session Chair: "Parallel Processing Systems," *8th International Parallel Processing Symposium (IPPS '94)*, sponsor: IEEE Computer Society, Cancun, Mexico, Apr. 1994.

[3] Track Chair: "Industrial Track: Invited Vendor Presentations," *8th International Parallel Processing Symposium (IPPS '94)*, sponsor: IEEE Computer Society, Cancun, Mexico, Apr. 1994.

[2] Session Chair and Organizer: "Making Massive Parallelism a Reality: The Industrial Viewpoint," *Frontiers '92: The 4th Symposium on the Frontiers of Massively Parallel Computation*, sponsor: IEEE Computer Society and the McLean, VA, Oct. 1992.

[1] Session Co-Chair: "Numerical and Computational Issues," *29th IEEE Conference on Decision and Control (CDC)*, sponsor: IEEE Control Systems Society, Honolulu, HI, Dec. 1990.

Activities as a Referee

Journals:

- *IEEE Transactions on Automatic Control*
- *IEEE Transactions on Computers*
- *IEEE Transactions on Parallel and Distributed Systems*
- *IEEE Transactions On Neural Networks*
- *Journal of Robotic Systems*
- *Journal of Parallel and Distributed Systems*
- *Parallel Computing*

Conferences:

- IEEE Conference on Decision and Control
- IEEE INFOCOM
- American Control Conference
- International Conference on Parallel Processing

- International Parallel Processing Symposium
- International Conference on Supercomputing
- Frontiers of Massively Parallel Computation
- Workshop of Heterogeneous Computing

Funding Agencies:

- National Science Foundation
- Idaho Board of Education

Recognitions and Awards

[10] Plaque awarded by the Advisory Board of the School of Computer Science at the University of Oklahoma, "For the seven years of dedicated service of Dr. John K. Antonio for his outstanding contributions and future building vision as he grew and turned the school into a major presence in college programs," awarded Nov. 2006.

[9] Plaque awarded by the 19th International Parallel & Distributed Processing Symposium (IPDPS 2005), sponsored by IEEE Computer Society, "With Appreciation for Your Contributions, John K. Antonio, Commercial Presentations & Exhibits Chair," awarded Apr. 2005.

[8] Certificate awarded by the Department of Computer Science, Texas Tech University, "In Appreciation of Dr. John K. Antonio for Unfailing Support to the Students of Computer Science, Texas Tech University, 1998-1999," awarded Apr. 99.

[7] Plaque awarded by the International Parallel Processing Symposium/Symposium on Parallel and Distributed Processing, sponsored by IEEE Computer Society, in appreciation of "John K. Antonio, General Vice-Chair IPPS/SPDP 1999," awarded Apr. 1999.

[6] Awarded the "Lockheed Martin Tactical Aircraft Systems Award for Excellence in Engineering Teaching," Department of Computer Science, College of Engineering, Texas Tech University, 1998.

[5] Plaque awarded by the 7th Heterogeneous Computing Workshop, co-sponsored by IEEE Computer Society and Office of Naval Research, "For His Contributions to The Heterogeneous Computing Workshop '98 as Program Committee Chair," awarded Apr. 1998.

[4] Awarded the "Halliburton Award for Excellence," Department of Computer Science, College of Engineering, Texas Tech University, 1997.

[3] Plaque awarded by the 10th International Parallel Processing Symposium, sponsored by IEEE Computer Society, "In Appreciation of John K. Antonio for Service as Industrial-Commercial Chair at IPPS 1996," awarded Apr. 1996.

[2] Awarded the "Outstanding Referee Award," by the IEEE Computer Society Press - Advances in Computer Science and Engineering, 1993.

[1] Awarded the "1989 Ruth and Joel Spira Outstanding Teacher Award," School of Electrical Engineering, Purdue University, 1989.