Ali Akoglu

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CHRONOLOGY OF EDUCATION

Aug. 1999 – Jul. 2005	**Arizona State University**, Tempe, AZ Ph.D., Computer Science Dissertation: "Application Specific Reconfigurable Architecture Design Methodology", Advisor: Sethuraman Panchanathan
Aug. 1995 – Dec. 1998	**Purdue University**, West Lafayette, IN B.S., Computer Engineering

CHRONOLOGY OF EMPLOYMENT

Aug. 2021 – Present	**Professor** Department of Electrical and Computer Engineering BIO5 Institute University of Arizona, Tucson, AZ
Aug. 2012 – Aug. 2021	**Associate Professor** Department of Electrical and Computer Engineering BIO5 Institute University of Arizona, Tucson, AZ
Aug. 2005 – Aug. 2012	**Assistant Professor** Department of Electrical and Computer Engineering University of Arizona, Tucson, AZ
May 2004 – Jul. 2005	**Research Intern** Embedded Intel Architecture Division Intel Corporation, Chandler, AZ
Aug. 2001 – May 2004	**Research/Teaching Assistant** Department of Computer Science Arizona State University, Tempe, AZ
May 2000 – Aug. 2001	**Research Intern** Luxxon Corporation Tempe, AZ
Aug. 1999 – May 2000	**Research Assistant** Department of Computer Science Arizona State University, Tempe, AZ

HONORS AND AWARDS

- Award for Excellence at the Student Interface, College of Engineering, University of Arizona, May 2022
- 2020 National Defense Industrial Association (NDIA) – Tennessee Valley Chapter (TVC) Innovation Award on "AMAP-based Autonomic Security Operations Center (ASoC)" project funded by Air Force Research Labs, May 2020
- Best Paper Award, Adaptive Power Reallocation for Value-Oriented Schedulers in Power-Constrained HPC, IEEE 20th International Conference on Parallel and Distributed Computing, Applications and Technologies (PDCAT), December 2019
- Best Paper Award, Autonomic Management of 3D Cardiac Simulations, IEEE International Conference on Cloud and Autonomic Computing (ICCAC), May 2017

SERVICE/OUTREACH

Local/State Outreach

Organizations

- Member, BIO5 Institute
  2005 – Present
- Site Director, NSF I/UCRC Cloud and Autonomic Computing Center (Phase II)
  2016 – Present

Outreach (National/International)

Organizations

- Member, Institute of Electrical and Electronics Engineers (IEEE)
- Member, Association for Computing Machinery (ACM)

Editorial

- Cluster Computing, 2015
- Computers and Electrical Engineering, 2012

Conference Organization

- PhD Symposium Co-Chair, 18th ACS/IEEE International Conference on Computer Systems and Applications, AICCSA 2022, 2021, 2019, 2018
- General Co-Chair, 17th ACS/IEEE International Conference on Computer Systems and Applications, AICCSA 2020
- Session Chair, International Conference on Reconfigurable Computing and FPGAs, ReConFig 2019
- Local Chair, International Conference on Cloud and Autonomic Computing, ICCAC 2017
- Tracks Co-Chair, International Conference on Reconfigurable Computing and FPGAs, ReConFig 2012
- Publicity Co-Chair, International Conference on Field Programmable Technology (FPT), Sydney, Australia, 2009

- Session Chair, Session 2: Arithmetic, IEEE International Conference on Field Programmable Technology (FPT), Taipei, Taiwan, 2008
- Program Co-Chair, International Conference on Pervasive Services (ICPS), Istanbul, Turkey, 2007

Technical Program Committee

- International Workshop on Extreme Heterogeneity Solutions (ExHET), 2022, Member
- Hybrid High Performance and Composable Computing System (HHPCCS), 2022 Member
- RSDHA: Redefining Scalability for Diversely Heterogeneous Architectures 2021-23, Member
- STRAPS: Workshop on Smart Data Integration and Processing on Service Based Environments 2020 and 2021, Member
- IEEE Cloud Summit 2020, Member
- VLSI Circuits and SoC Design (VLSI-SoC 2020), Member
- International Conference on Compilers, Architecture, and Synthesis for Embedded Systems (CASES 2020), Member
- International Conference on Reconfigurable Computing (ReConFig 2018, 2019), Member
- IEEE High Performance Computing and Simulation Conference (HPCS 2018,2019,2020), Member
- IEEE International Conference on High Performance Computing and Communications (HPCC 2017) Member
- IEEE International Conference on Field Programmable Technology (FPT 2012, 2013, 2014), Member
- IEEE NASA/ESA Conference on Adaptive Hardware and Systems (AHS 2012, 2013), Member
- IEEE Southern Programmable Logic Conference (SPL 2012-Present), Member
- IEEE Reconfigurable Architectures Workshop (RAW 2012, 2013, 2014), Member
- International Workshop on Highly Efficient Accelerators and Reconfigurable Technologies (HEART 2012-2014), Member

Referee

- ACM Transactions on Embedded Computing Systems
- IEEE Transactions on Emerging Topics in Computing
- IEEE Internet of Things Journal
- ACM Transactions on Reconfigurable Technology and Systems
- IEEE/ACM Transactions on Computational Biology and Bioinformatics
- IEEE Transactions on VLSI
- IEEE Transactions on Computers
- IEEE Transactions on Circuits and Systems for Video Technology
- IEEE Transactions on Circuits and Systems
- IEEE Transactions on Parallel and Distributed Systems

- IEEE Design & Test of Computers
- IEEE Software
- IEEE Computer Architecture Letters
- ACM Transactions on Design Automation of Electronic Systems
- Cluster Computing
- Journal of Supercomputing
- International Journal of Embedded Systems
- International Journal of Reconfigurable Computing
- Computers & Electrical Engineering
- Parallel Computing
- International Journal of Computers and Applications
- Journal of Circuits, Systems, and Computers

Mentor

- University of Arizona, Undergraduate Research Opportunities Consortium (UROC), 2022
- BIO5 Institute's KEYS (Keep Engaging Youth in Science) Research Internship Program, 2020, 2021
- Oakland University -PI Academy (August 2017 – Current)
  Mentor for Assistant Prof. Daniel Liamocca
- Faculty Mentor
  Latin America Summer Research Program, Rodrigo Savage, 2013

Evaluation for Promotion to Associate Professor with Tenure

- University of Kansas (EECS)
- Virginia Commonwealth University (ECE)
- Ozyegin University (ECE)

Departmental Committees

Electrical and Computer Engineering

- Computer Science Engineering Ad Hoc Committee, AY 2022-2023
- Instructional Equipment and Planning Committee, AY 2022-2023
- Committee on Committees, AY 2020-2025
- Computer Science Engineering Ad Hoc Committee, 2022
- Peer Review Committee, AY2020-2021 (Chair), AY2018-2019 (Chair) and AY2017-2018
- Faculty Search Committee, AY 2017-2018 and AY 2015-2016
- Graduate Studies Committee, AY 2016-2017 and 2015-2016
- Undergraduate Studies Committee, AY 2014-2015
- CE Lecturer Search Committee, AY 2013-2014
- Graduate Studies Committee, AY 2011-2013
- Undergraduate Studies Committee, AY 2009-2010
- Undergraduate Recruiting and Awards Committee, AY 2007-2009
- Computer Engineering Curriculum Sub-Committee, AY 2008-2009

- Undergraduate Portfolio Assessment Committee, AY 2006-2008
- Graduate Studies Committee, AY 2006-2007
- Teaching Evaluation for Promotion to Tenure, Fall 2017
- Committees other than as advisor (2013-2022)
  - Ph.D. Dissertation Defense = 24
  - M.S. Thesis Defense = 17
  - Ph.D. Written Comprehensive Exams = 39
  - Ph.D. Oral Comprehensive Exams = 32
  - Ph.D. Qualifying Exams = 17

University Committees

- University Advisory Committee on Promotion and Tenure (UACPT) AY 2022-2025
- Accelerate for Success Program Proposal Review Committee, 2018
- Faculty Seed Grant Program Proposal Review Committee, 2018
- UA Research Computing Governance Policies subcommittee, 2013-2020
- Technical Advisory Panel for new GPU-enabled Cluster, 2012-2013
- High Performance Computing (HPC) Policy and Allocation Advisory Committee, AY 2008-2010
- Faculty Small Grants Program Proposal Review Committee, AY 2008-2009
- Replacement of University Supercomputer Proposal Evaluation Committee, AY 2006-2007

PUBLICATIONS/CREATIVE ACTIVITY (Published or Accepted)

Refereed Journal Publications

[J1] Ali Akoglu, Jose L. Zechinelli-Martini, Hamamache Kheddouci, and Genoveva Vargas-Solar, "Graph Analytics Workflows Enactment on Just in Time Data Centres Position Paper," Service-Oriented Computing – ICSOC 2021 Workshops. ICSOC 2021. Lecture Notes in Computer Science, Springer, Cham. vol 13236, pp. 236-243, August 2022. https://doi.org/10.1007/978-3-031-14135-5_19

[J2] Joshua Mack, Sahil Hassan, Nirmal Kumbhare, Miguel Castro Gonzales and Ali Akoglu, "CEDR - A Compiler-integrated, Extensible DSSoC Runtime", ACM Transactions on Embedded Computing Systems (TECS), April 2022, (34 pages) https://doi.org/10.1145/3529257

[J3] Joshua Mack, Samet Arda, Umit Ogras and Ali Akoglu, "Performant, Multi-objective Scheduling of Highly Interleaved Task Graphs on Heterogeneous System on Chip Devices," IEEE Transactions on Parallel and Distributed Systems, *vol. 33, no. 9, pp. 2148 – 2162,* September 2022 Early Access: https://doi.org/10.1109/TPDS.2021.3135876

[J4] Genoveva Vargas-Solar, Sahil Hassan and Ali Akoglu, "Disaggregated Execution of Data Science Pipelines between the Edge and the Data Centre," Journal of Web Engineering, Rinton Press, November 2021, (23 pages) Early Access: https://doi.org/10.13052/jwe1540-9589.2111

[J5] Joshua Mack, Ruben Purdy, Kris Rockowitz, Michael Inouye, Edward Richter, Spencer Valancius, Nirmal Kumbhare, Md Sahil Hassan, Kaitlin Fair, John Mixter and Ali Akoglu, "RANC: Reconfigurable Architecture for Neuromorphic Computing," *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, vol. 40, no. 11, pp. 2265 – 2278,* November 2021. https://doi.org/10.1109/TCAD.2020.3038151

[J6] Alper Goksoy, Anish Krishnakumar, Sahil Hassan, Allen Farcas, Ali Akoglu, Radu Marculescu,and Umit Ogras, "DAS: Dynamic Adaptive Scheduling for Energy-Efficient Heterogeneous SoCs," *Embedded Systems Letters, vol 14, no 1, pp. 51-54,* March 2022. https://doi.org/10.1109/LES.2021.3110426

[J7] Nirmal Kumbhare, Ali Akoglu, Aniruddha Marathe, Salim Hariri and Ghaleb Abdulla, "Dynamic Power Management for Value-Oriented Schedulers in Power-Constrained HPC System," Journal of Parallel Computing, vol. 99, no 102686, November 2020, (12 pages). https://doi.org/10.1016/j.parco.2020.102686

[J8] John Mixter, Ali Akoglu, "Growing Artificial Neural Networks," *Springer Nature Transactions on Computational Science and Computational Intelligence*, Advances in Artificial Intelligence and Applied Cognitive Computing, pp 409 – 423, October 2021. https://doi.org/10.1007/978-3-030-70296-0_31

[J9] Samet Arda, Anish NK, Alper Goksoy, Nirmal Kumbhare, Joshua Mack, Anderson Sartor, Ali Akoglu, Radu Marculescu and Umit Ogras, "DS3: A System-Level Domain-Specific System-on-Chip Simulation Framework," *IEEE Transactions on Computers,* vol. 69, no 8, pp. 1248 - 1262, August 2020. https://doi.org/10.1109/TC.2020.2986963

[J10] Nirmal Kumbhare, Aniruddha Marathe, Ali Akoglu, Howard J. Siegel, Ghaleb Abdulla, Salim Hariri "Value-Oriented Job Scheduling Approach for Power-Constrained and Oversubscribed HPC System," *IEEE Transactions on Parallel and Distributed Systems (TPDS),* vol 31, no. 6, pp. 1419 – 1433 June 2020. https://doi.org/10.1109/TPDS.2020.2967373

[J11] Scott Marshall, Garrett Vanhoy, Ali Akoglu, Tamal Bose and Bo Ryu, "GPGPU based Parallel Implementation of Spectral Correlation Density Function," *Journal of Signal Processing Systems,* vol. 92, pp.71-93, April 2019. DOI doi.org/10.1007/s11265-019-01448-7

[J12] Dylan Machovec, Bhavesh Khemka, Nirmal Kumbhare, Sudeep Pasricha, Anthony A. Maciejewski, Howard Jay Siegel, Ali Akoglu, Gregory A. Koenig, Salim Hariri, Cihan Tunc, Michael Wright, Marcia Hilton, Rajendra Rambharos, Christopher Blandin, Farah Fargo, Ahmed Louri, and Neena Imam, "Utility-Based Resource Management in an Oversubscribed Energy-Constrained Heterogeneous Environment Executing Parallel Applications," *Parallel Computing*, vol. 83, pp. 48-72, April 2019.

[J13] Ehsan Esmaili, Ali Akoglu, and Salim Hariri, "Implementation of Scalable Bidomain Based 3D Cardiac Simulations on a Graphics Processing Unit Cluster," *Journal of Supercomputing*, pp. 1-32, March 2019. DOI doi.org/10.1007/s11227-019-02796-8

[J14] Burak Unal, Ali Akoglu, Fakhreddine Ghaffari, and Bane Vasic, "Hardware Implementation and Performance Analysis of Resource Efficient Stochastic Hard Decision LDPC Decoders," *IEEE Transactions on Circuits and Systems I: Regular Papers*, vol. 65, no. 9, pp. 3074-3084, September 2018. DOI: 10.1109/TCSI.2018.2815008

[J15] Edward Richter, Spencer Valancius, Joey McClanahan, John Mixter, and Ali Akoglu, "Balancing the Learning Ability and Memory Demand of a Perceptron-based Dynamically Trainable Neural Network," *Journal of Supercomputing*, vol. 74, no. 7, pp. 3211-3235, July 2018. DOI doi.org/10.1007/s11227-018-2374-x

[J16] Cihan Tunc, Dylan Machovec, Nirmal Kumbhare, Ali Akoglu, Salim Hariri, Bhavesh Khemka, and Howard J. Siegel, "Value of Service Based Resource Management for Large-Scale Computing Systems," *Cluster Computing*, pp. 1-18, May 2017. DOI 10.1007/s10586-017-0901-9

[J17] Benjamin Vincent, Adam Buntzman, Benjamin Hopson, Chris McEwen, Lindsay Cowell, Ali Akoglu, Helen Zhang, and Jeffrey Frelinger, "iWAS – A novel approach to analyzing Next Generation Sequence data for immunology," *Cellular Immunology*, vol. 299, January 2016, pp. 6-13, ISSN 0008-8749. http://dx. doi.org/10.1016/j.cellimm.2015.10.012

[J18] Yoon Kah Leow, Ali Akoglu, and Susan Lysecky, "FPGA Static Power Model for Low-Duty Cycle Embedded Applications," *ACM Transactions on Reconfigurable Technology and Systems (TRETS)*, vol. 6, no. 4, article 18, pp. 18:1-18:23, 2013. http://doi.acm.org/10.1145/2535935

[J19] Yang Song and Ali Akoglu, "An adaptive motion estimation architecture for H.264/AVC," *Journal of Signal Processing Systems*, vol. 73, pp. 161-179, 2013. DOI: 10.1007/s11265-013-0740-8

[J20] Hanyu Liu, Senthilkumar T. Rajavel, and Ali Akoglu, "Integration of Net Length Factor with Timing and Routability Driven Clustering Algorithms," *ACM Transactions on Reconfigurable Technology and Systems (TRETS)*, vol. 6, no. 3, article 12 pp. 12:1-12:21, 2013. http://doi.acm.org/10.1145/2517324

[J21] Yang Song and Ali Akoglu, "Bit-by-Bit pipelined and hybrid-grained 2D architecture for motion estimation of H.264/AVC," *Journal of Signal Processing Systems*, vol. 68, no. 1, pp. 49-62, 2012. http://dx. doi.org/10.1007/s11265-010-0575-5

[J22] Venkata Krishna Nimmagadda, Ali Akoglu, Salim Hariri, and Talal Moukabary, "Cardiac simulation on multi-GPU platform," *Journal of Supercomputing*, vol 59, no. 3, pp. 1360-1378, 2012. http://dx. doi.org/10.1007/s11227-010-0540-x

[J23] Khaled Benkrid, Ali Akoglu, Cheng Ling, Yang Song, Ying Liu, and Xiang Tian, "High performance biological pairwise sequence alignment: FPGA vs. GPU vs. Cell BE vs. GPP," *International Journal of Reconfigurable Computing* vol. 2012, Article ID 752910, 15 pages, 2012. doi:10.1155/2012/752910

[J24] Gregory Striemer, David Story, Ali Akoglu, and Murat Kacira, "A node and network level self-recovering distributed wireless sensor architecture for real-time crop monitoring in greenhouses," *Transactions of the American Society of Agricultural and Biological Engineers (ASABE)*, vol. 54, no. 4, pp. 1521-1577, 2011.

[J25] Lakshmi Easwaran and Ali Akoglu, "Net length based routability driven power aware clustering," *ACM Transactions on Reconfigurable Technology and Systems (TRETS)*, vol. 4, no. 4, article 38, pp. 38:1-38:16, 2011. http://doi.acm.org/10.1145/2068716.2068724

[J26] Stephen A Goff, Matthew Vaughn, Sheldon McKay, Eric Lyons, Ann Stapleton, Damian Gessler, Naim Matasci, Liya Wang, Matthew Hanlon, Andrew Lenards, Andy Muir, Nirav

Merchant, Sonya Lowry, Stephen Mock, Matthew Helmke, Adam Kubach, Martha Narro, Nicole Hopkns, David Micklos, Uwe Hilgert, Michael Gonzales, Chris Jordan, Edwin Skidmore, Rion Dooley, John Cazes, Robert McLay, Zhenyuan Lu, Shiran Pasternak, Lars Koesterke, William H. Piel, Ruth Grene, Christos Noutsos, Karla Gendler, Xin Feng, Chunlao Tang, Monica Lent, Seung-Jin Kim, Kristian Kvilekval, B. S. Manjunath, Val Tannen, Alexandros Stamatakis, Michael Sanderson, Stephen W. Welch, Karen A. Cranston, Pamela Soltis, James Leebens-Mack, Michael J. Donoghue, Edgar P. Spalding, Todd J. Vision, Christopher R. Myers, David Lowenthal, Brian J. Enquist, Brad Boyle, Ali Akoglu, Greg Andrews, Sudha Ram, Doreen Ware, Lincoln Stein, and David Stanzione, "The iPlant collaborative: cyberinfrastructure for plant biology," *Frontiers in Plant Science,* vol. 2, no.34, pp. 1-16, 2011.

[J27] Xuanxing Xiong, Yang Song, and Ali Akoglu, "Architecture design of variable block size motion estimation for full and fast search algorithms in H.264/AVC," *Computers and Electrical Engineering*, vol. 37, no. 3, pp. 285-299, 2011.

[J28] Yang Song and Ali Akoglu, "Parallel implementation of the irregular terrain model (ITM) for radio transmission loss prediction using GPU and Cell BE processors," *IEEE Transactions on Parallel and Distributed Systems, (TPDS)*, vol. 22, no. 8, pp. 1276-1283, 2011.

[J29] David Story, Murat Kacira, Chieri Kubota, Ali Akoglu, and Lingling An, "Lettuce calcium deficiency detection with machine vision computed plant features in controlled environments," *Computers and Electronics in Agriculture*, vol. 74, no. 2, pp. 238-243, 2010.

[J30] Hanyu Liu and Ali Akoglu, "Timing-driven non-uniform depopulation based clustering," *International Journal of Reconfigurable Computing*, vol. 2010, no. 158602, 2010. http://dx. doi.org/10.1155/2010/158602 (11 pages).

[J31] Ali Akoglu and Gregory M. Striemer, "Scalable and highly parallel implementation of Smith-Waterman on graphics processing unit using CUDA," *Cluster Computing*, vol. 12, no. 3, pp. 341-352, 2009.

[J32] Ali Akoglu, Adarsha Sreeramareddy, and Jeff G. Josiah, "FPGA based distributed self healing architecture for reusable systems," *Cluster Computing,* vol. 12, no. 3, pp. 269-284, 2009.

Peer Reviewed Conference Publications

[C1] Liangliang Chang, Joshua Mack, Benjamin Willis, Xing Chen, John Brunhaver, Ali Akoglu, Chaitali Chakrabarti, "Profile-Guided Parallel Task Extraction and Execution for Domain Specific Heterogeneous SoC," 20th IEEE International Symposium on Parallel and Distributed Processing with Applications, December 17-19, 2022, Melbourne, Australia

[C2] Serhan Gener, Parker Dattilo, Dhruv Gajaria, Alex Fusco, Ali Akoglu "GPGPU-based High Throughput Image Pre-processing Towards Large-Scale Optical Character Recognition," *19th ACS/IEEE International Conference on Computer Systems and Applications (AICCSA 2022)*, Abu Dhabi, United Arab Emirates, December 3-7, 2022, pp. 1-7.

[C3] Joshua Mack, Serhan Gener, Jacob Holtom, Alex Chiriyath, Anish Nandakumar, Ali Akoglu, Umit Ogras, Chaitali Chakrabarti and Daniel Bliss, "GNURadio and CEDR:

Runtime Scheduling to Heterogeneous Accelerators," GNU Radio Conference, Washington, Sep 26 – 30, 2022

[C4] Alex Fusco, Sahil Hassan, Joshua Mack, and Ali Akoglu, "A Hardware-based HEFT Scheduler Implementation for Dynamic Workloads on Heterogeneous SoCs," 30th IFIP/IEEE International Conference on Very Large-Scale Integration, Patras, Greece, October 3-5, 2022

[C5] Daniel Bliss, Tutu Ajayi, Ali Akoglu, Ilkin Aliyev, Toygun Basaklar, Leul Belayneh, David Blaauw, John Brunhaver, "Enabling Software-Defined RF Convergence with a Novel Coarse-Scale Heterogeneous Processor," IEEE International Symposium on Circuits and Systems (ISCAS 2022), Austin, TX, May 28-June 1, 2022, pp. 443-447.

[C6] Ali Akoglu, Jose-Luis Zechinelli-Martini, Hamamache Kheddouci, and Genoveva Vargas-Solar, "Graph analytics workflows enactment on just in time data centers," Third Workshop on Smart Data Integration and Processing on Service based environments (STRAPS'21) in conjunction with International Conference on Service-Oriented Computing Conference, November 22-25, 2021

[C7] Ilkin Aliyev, Joshua Mack, Nirmal Kumbhare, Ali Akoglu, Fatih Ugurdag, "FPGA-based Minimal Latency HEFT Scheduler for Heterogeneous Computing," IEEE 6th International Conference on Computer Science and Engineering UBMK 2021, Ankara, Turkey, September 14-18, 2021, pp.1-6.

[C8] Ali Akoglu, Genoveva Vargas-Solar, "Putting Data Science Pipelines on the Edge," International Workshop on Big data driven Edge Cloud Services (BECS 2021) in conjunction with the 21st International Conference on Web Engineering (ICWE 2021), Biarritz, France, May 18-21, 2021, pp. 1-12.

[C9] Spencer Valancius, Edward Richter, Ruben Purdy, Kris Rockowitz, Michael Inouye, Joshua Mack, Nirmal Kumbhare, Kaitlin Fair, John Mixter and Ali Akoglu "Implementation of IBM's TrueNorth Chip on a Field Programmable Gate Array," *IEEE International Parallel and Distributed Processing Symposium (IPDPS'20),* Reconfigurable Architectures Workshop (RAW), New Orleans, May 18-22, 2020, pp. 1-8.

[C10] Nirmal Kumbhare, Anish NK, Samet Arda, Joshua Mack, Umit Ogras and Ali Akoglu, "User-Space Emulation Framework for Domain-Specific SoC Design," *IEEE International Parallel and Distributed Processing Symposium (IPDPS'20),* Heterogeneity in Computing Workshop (HCW), New Orleans, May 18-22, 2020, pp. 1-10.

[C11] Nirmal Kumbhare, Aniruddha Marathe, Ali Akoglu, Salim Hariri, Ghaleb Abdulla, "Adaptive Power Reallocation for Value-Oriented Schedulers in Power-Constrained HPC," *20th International Conference on Parallel and Distributed Computing, Applications and Technologies (PDCAT'19),* Gold Coast, Australia, December 5-7, 2019, pp. 133-139, doi: 10.1109/PDCAT46702.2019.00035. **(Best Paper)**

[C12] Elnaz T. Yazdi, Ankur Limaye, Adam Buntzman, Tosiron Adegbija and Ali Akoglu, "Bit-wise and Multi-GPU Implementations of the DNA Recombination Algorithm," *IEEE International Conference on High Performance Computing, Data, and Analysis (HiPC'19*), Hyderabad, India, 2019, pp. 131-140, doi: 10.1109/HiPC.2019.00026.

[C13] Burak Unal, Sahil Hassan,Joshua Mack, Nirmal Kumbhare and Ali Akoglu, "Design of High throughput FPGA Based Testbed for Accelerating Error Characterization of LDPC Codes," *IEEE International Conference on Reconfigurable Computing and FPGAs,* Cancun, Mexico, December 9-11, 2019, pp.1-8.

[C14] Samet Egemen Arda, Anish Krishnakumar, Alper Goksoy, Joshua Mack, Nirmal Kumbhare, Anderson Sartor, Ali Akoglu, Radu Marculescu and Umit Ogras, "DS3: A System-Level Domain-Specific System-on-Chip Simulation Framework," *International Conference on Hardware/Software Codesign and System Synthesis (CODES+ISSS 2019),* New York, October 13-18, 2019, pp. 1-2.

[C15] Edward Richter, Ryan Raettig, Joshua Mack, Spencer Valancius, Burak Unal, and Ali Akoglu "Accelerated Shadow Detection and Removal," *16th ACS/IEEE International Conference on Computer Systems and Applications (AICCSA 2019)*, Abu Dhabi, United Arab Emirates, November 3-7, 2019, pp. 1-8.

[C16] Arpit Soni, Yoon Kah Leow and Ali Akoglu, "Post-Routing Analytical Wirelength Model for Homogeneous FPGA Architectures," *IEEE International Conference on Reconfigurable Computing and FPGAs,* Cancun, Mexico, December 3-5, 2018, pp.1-8.

[C17] Nilangshu Bidyanta and Ali Akoglu, "Real-Time GPU Based Video Segmentation with Depth Information," *15th ACS/IEEE International Conference on Computer Systems and Applications (AICCSA)*, Aqaba, Jordan, October 28 -November 1, 2018, pp. 1-8.

[C18] Scott Marshall, Garrett Vanhoy, Ali Akoglu, Tamal Bose and Bo Ryu, "GPU based Quarter Spectral Correlation Density Function," *Conference on Design and Architectures for Signal and Image Processing (DASIP)*, Porto, Portugal, October 10-12, 2018, pp. 88-93.

[C19] Jeno Szep, Ali Akoglu, Salim Hariri and Talal Moukabary, "Two-level Autonomous Optimizations Based on ML for Cardiac FEM Simulations," *15th IEEE International Conference on Autonomic Computing (ICAC)*, Trento, Italy, September 3-7, 2018, pp. 101-110.

[C20] Fakhreddine Ghaffari, Burak Unal, Ali Akoglu, Khoa Le, David Declercq and Bane Vasic, "Efficient FPGA Implementation of Probabilistic Gallager B LDPC Decoder," *24th IEEE International Conference on Electronics, Circuits and Systems (ICECS)*, Batumi, Georgia, December 5-8 2017, pp. 1-4.

[C21] Mingwei Yang, Ivan B. Djordjevic, Cihan Tunc, Salim Hariri and Ali Akoglu, "Integrated Optical Network-On-Chips for Dynamically Composable Data Center," *IEEE International Conference on High Performance Computing and Communications (HPCC*), Bangkok, Thailand, December 18-20, 2017, pp. 1-8.

[C22] Ehsan Esmaili, Ali Akoglu, Gregory Ditzler, Salim Hariri, Jeno Szep and Talal Moukabary, "Autonomic Management of 3D Cardiac Simulations," *IEEE International Conference on Cloud and Autonomic Computing (ICCAC)*, Tucson, USA, September 18-22, 2017, pp.1-9. **(Best Paper)**

[C23] Nirmal Kumbhare, Cihan Tunc, Dylan Machovec, Ali Akoglu, Salim Hariri and Howard Jay Siegel, "Value-Based Scheduling for Oversubscribed Power-Constrained Homogeneous HPC Systems," *IEEE International Conference on Cloud and Autonomic Computing (ICCAC)*, Tucson, USA, September 18-22, 2017, pp.120-130.

[C24] Sam Gianelli, Edward Richter, Diego Jimenez, Hugo Valdez, Tosiron Adegbija and Ali Akoglu, "Application-Specific Autonomic Cache Tuning for General Purpose GPUs," *IEEE International Conference on Cloud and Autonomic Computing (ICCAC)*, Tucson, USA, September 18-22, 2017, pp.104-113.

[C25] Gregory Ditzler, Salim Hariri and Ali Akoglu, "High Performance Machine Learning (HPML) Framework to Support DDDAS Decision Support Systems: Design Overview," *2017 IEEE 2nd International Workshops on Foundations and Applications of Self* Systems (FAS*W),* Tucson, AZ, USA, 2017, pp. 360-362.

[C26] Fakhreddine Ghaffari, Ali Akoglu and Bane Vasic, "Multi-mode Low-latency Software-defined Error Correction for Data Centers," *IEEE 26th International Conference on Computer Communications and Networks (ICCCN 2017),* Vancouver, Canada, July 31 - August 3, 2017, pp. 1-8. **(Invited Paper)**

[C27] Burak Unal, Fakhreddine Ghaffari, Ali Akoglu and Bane Vasic, "Analysis and Implementation of Resource Efficient Probabilistic Gallager B LDPC Decoder," 2017 *15th IEEE International New Circuits and Systems Conference (NEWCAS)*, Strasbourg, 2017, pp. 333-336. **(Best Paper Nominee)**

[C28] Burak Unal and Ali Akoglu, "Resource Efficient Real-Time Processing of Contrast Limited Adaptive Histogram Equalization," *26th International Conference on Field-Programmable Logic and Applications (FPL)*, Lausanne, Switzerland, August 29 – September 2, 2016, pp. 1-8.

[C29] Cihan Tunc, Nirmal Kumbhare, Ali Akoglu, Salim Hariri, Dylan Machovec and Howard Jay Siegel, "Value of Service Based Task Scheduling for Cloud Computing Systems," *IEEE International Conference on Cloud and Autonomic Computing (ICCAC)*, Augsburg, Germany, September 12-16, 2016, pp. 1-11.

[C30] Shuqing Gu, Likai Yao, Cihan Tunc, Ali Akoglu, Salim Hariri and Elizabeth Ritchie, "An Autonomic Workflow Performance Manager for Weather Research and Forecast Workflows," *IEEE International Conference on Cloud and Autonomic Computing (ICCAC)*, Augsburg, Germany, September 12-16, 2016, 111-114.

[C31] Nirmal Kumbhare,Cihan Tunc, Salim Hariri, Ivan Djordjevic, Ali Akoglu and Howard Jay Siegel, "Just In Time Architecture (JITA) for Dynamically Composable Data Centers," *Proc. 13th ACS/IEEE International Conference on Computer Systems and Applications AICCSA 2016*, Agadir, Morocco, November 29 – December 2, 2016.

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[D2] Umit Ogras, Radu Marculescu, Ali Akoglu, Chaitali Chakrabarti, Daniel Bliss, Samet Arda, Anderson Sartor, Nirmal Kumbhare, Anish Krishnakumar, Joshua Mack, Ahmet Goksoy,

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[W2] Daniel Bliss et al. "Implementation Examples on a Course-Scale Heterogeneous Processor," GOMACTech Conference, San Diego CA, March 20-23, 2023

[W3] Joshua Mack, Nirmal Kumbhare, Richard Uhrie, Anish NK, Samet Arda, Liangliang Chang, Aporva Amarnath, Ron Dreslinski, Chakrabarti, Umit Ogras, Ali Akoglu, "Automating Programming and Development of Heterogeneous SoCs with LLVM Tools" Free and Open source Software Developers' European Meeting, LLVM Devroom, February 1-2, 2020 https://archive.fosdem.org/2020/schedule/event/llvm_aut_prog_het_soc/

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[W7] Joshua Mack, Ali Akoglu, "FPGA Based High-Throughput Real-Time Feature Extraction for Modulation Classification," IEEE Symposium on Field-Programmable Custom Computing Machines (FCCM), May 3-6, 2020 (poster)

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[W9] Nirmal Kumbhare, Anish NK, Joshua Mack, Umit Ogras, Ali Akoglu, "Emulation Framework for Hardware-Software Co-Design of Heterogeneous SoCs," Arm Research Summit, Austin, TX September 15-18, 2019 (Poster and Demonstration)

[W10] Pratik Satam, Ali Akoglu, Gregoroy Ditzler, Salim Hariri "Parallel Machine Learning Models for Securing IoT Infrastructure," NSF Center for Autonomic Computing Semiannual Meeting, San Marcos, TX, October 2-4, 2019.

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[W14] Ali Akoglu, "Heterogeneous Computing for Signal Processing," Electrical and Computer Engineering Department, Oakland University, April 5, 2018. **(Invited)**

[W15] Ali Akoglu, "Parallel Computing with Machine Learning Assisted Smart Programming Strategies" University of Arizona, HKN Lecture Series March 30, 2018. **(Invited)**

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[W17] Ali Akoglu, "A Dynamically Composable Just In Time Architecture and Security Challenges," Franco-American Workshop on Cybersecurity, Lyon, France, December 11-13, 2017.

[W18] Ali Akoglu, "High Performance Machine Learning Based Data Analytics," NSF I/UCRC on Cloud and Autonomic Computing, Semiannual Industry Advisory Board Meeting Lubbock, Texas October 23-24, 2017.

[W19] Ali Akoglu, "Physics Aware Programming for 3D Heart Simulations," NSF I/UCRC on Cloud and Autonomic Computing, Semiannual Industry Advisory Board Meeting Tucson, AZ April 23-25, 2017.

[W20] Ali Akoglu, "Image Enhancement Using FPGA and GPU" (Invited Lecture), Photometrics Inc., Tucson AZ, May 2017.

[W21] Ali Akoglu, "GPU Programming Strategies" (Invited) University of Arizona, HKN Lecture Series, March 2017.

[W22] Ali Akoglu, "Modeling for FPGA Architectures, and Parallelizing Applications for FPGA and GPU based Computing," ETIS Laboratory -ASTRE Team, University of Cergy-Pontoise, Cergy Cedex, France, November 17, 2016. (Invited Video Conference)

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[W29] Ali Akoglu, "Wirelength Prediction and Modeling," Lattice Semiconductors, San Jose, CA, May 16, 2012.

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[W31] Salim Hariri, Youssif Al-Nashif, Ali Akoglu, Zhitao Li, Farah Alfay, and Shafiul Islam, "Autonomic scale provisioning in large scale data centers," NSF Center for Autonomic Computing Semiannual Meeting, Dallas, TX, April 5-6, 2011.

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[NP9] Gregory M. Striemer, Ali Akoglu, and Murat Kacira, "A Node and network level self-healing distributed wireless sensor architecture for greenhouse based plant monitoring systems," *Annual International Meeting of American Society for Agricultural and Biological Engineers (ASABE)*, Pittsburgh, PA, June 20-23, 2010.

[NP10] David Story, Murat Kacira, Chieri Kubota, and Ali Akoglu, "Autonomous plant health/growth monitoring with machine vision in controlled environments," *Annual International Meeting of American Society of Agricultural and Biological Engineers (ASABE)*, Reno, NV, June 21-24, 2009.

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GRANTS AND CONTRACTS

Federal Grants Funded		
[G1]	Project/Proposal Title:	CCRI: Planning-C: Federated Cloud Platform for Networked Cyber Physical Systems Research
	Source of Support:	NSF
	Total Award Amount:	$99,999
	Period Covered:	6/15/2022 – 6/14/2023
	Role:	CoPI
	PI:	Pratik Satam
	Award Credit:	50%
[G2]	Project/Proposal Title:	COCHON: Configurable Optical Communications via Heterogeneous-processing Optimized Node
	Source of Support:	DARPA Space-Based Adaptive Communications Node (Space-BACN) Program – Subcontract Arizona State University
	Total Award Amount:	$876,250
	Period Covered:	6/15/2022 – 6/14/2025
	Role:	PI
	Award Credit:	100%
[G3]	Project/Proposal Title:	NSC-20-2090 - 5G Prototype Applications
	Source of Support:	NSC
	Total Award Amount:	$1,353,271
	Period Covered:	10/1/2020 – 12/31/2023
	Role:	CoPI
	CoPI:	Ravi Tandon, Tamal Bose, Hao Xin
	Award Credit:	25%
[G4]	Project/Proposal Title:	AMAP-based Autonomic Security Operations Center(ASoC)
	Source of Support:	Air Force Research Labs
	Total Award Amount:	$200,000
	Period Covered:	9/2/2019 – 9/1/2022
	Role:	PI
	CoPI:	Gregory Ditzler
	Award Credit:	50%
[G5]	Project/Proposal Title:	Domain-Focused Advanced Software-Reconfigurable Heterogeneous System on Chip (DASH-SoC)
	Source of Support:	DARPA – Subcontract Arizona State University
	Total Award Amount:	$1,372,742
	Period Covered:	8/15/2018 – 07/31/2023
	Role:	PI
	Award Credit:	100%

[G6]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: CoPI: Award Credit:	NSF Research Experience for Undergraduate Students NSF $16,000 7/1/2020 – 6/30/2021 PI Salim Hariri 50%
[G7]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: PI: Award Credit	I/UCRC: Industry/University Cooperative Research Center for Cloud and Autonomic Computing(International Site Supplement at University of Sonora, Mexico NSF $25,000 9/1/2020 – 8/31/2021 CoPI Salim Hariri 50%
[G8]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: CoPI: Award Credit:	I/UCRC: Industry/University Cooperative Research Center for Cloud and Autonomic Computing (REU SUPP) NSF $16,000 7/1/2019 – 6/30/2020 PI Salim Hariri 50%
[G9]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: CoPI: Award Credit:	I/UCRC: Industry/University Cooperative Research Center for Cloud and Autonomic Computing Veterans Research Supplement (VRS) NSF $10,000 7/1/2019 – 6/30/2020 PI Salim Hariri 50%
[G10]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: CoPI: Award Credit:	NSF Student Travel Grant 2018 ACS/IEEE International Conference on Computer Systems and Applications (AICCSA) NSF $15,000 8/15/2018 – 8/14/2019 PI Salim Hariri 50%

[G11]	Project/Proposal Title:	I/UCRC: Industry/University Cooperative Research Center for Cloud and Autonomic Computing (REU SUPP)
	Source of Support:	NSF
	Total Award Amount:	$24,000
	Period Covered:	7/1/2018 – 6/30/2019
	Role:	PI
	CoPI:	Salim Hariri
	Award Credit:	50%
[G12]	Project/Proposal Title:	I/UCRC: Industry/University Cooperative Research Center for Cloud and Autonomic Computing(International Site at University of Sonora, Mexico – SUPP
	Source of Support:	NSF
	Total Award Amount:	$15,000
	Period Covered:	8/1/2017 – 7/31/2018
	Role:	CoPI
	CoPI:	Salim Hariri
	Award Credit:	50%
[G13]	Project/Proposal Title:	NSF Industry/University Cooperative Research Center for Cloud and Autonomic Computing – Phase II in collaboration with Texas Tech University
	Source of Support:	NSF
	Total Award Amount:	$840,331 (University of Arizona)
	Period Covered:	8/1/2016 – 7/31/2021
	Role:	CoPI
	PI:	Salim Hariri, Jerzy Rozenblit (CoPI)
	Award Credit:	30%
[G14]	Project/Proposal Title:	High-Speed, Reconfigurable SIGINT (HiReS) System for Large Time- Bandwidth Product
	Source of Support:	SBIR, Phase2, Office of Naval Research
	Total Award Amount:	$225,470
	Period Covered:	10/5/2015 – 9/30/2017
	Role:	PI
	Award Credit:	100%
[G15]	Project/Proposal Title:	Impact of CMV Upon T-Cell Aging and Immune Defense
	Source of Support:	NIH, National Institute on Aging
	Total Award Amount:	$2,313,124
	Period Covered:	7/15/2014 – 4/30/2019
	Role:	CoPI
	PI:	Janko Nikolich, Jeffrey Frelinger(CoPI)
	Award Credit:	1%

[G16]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: Award Credit:	High-Speed, Reconfigurable SIGINT (HiReS) System for Large Time- Bandwidth Product SBIR, Phase1, Office of Naval Research $45,000 5/24/2014-10/14/2015 PI 100%
[G17]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: PI: Award Credit:	Cybersecurity Collaboratory French American Cultural Exchange Program, Partner University Fund (PUF/CP/PB/201336) $108,000 9/1/2012 – 5/31/2017 CoPI Salim Hariri, Jerzy Rozenblit (CoPI) 33%
[G18]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: Award Credit:	Generalized Linear Model - Genotype-to-Phenotype Challenge NSF – Subcontract iPlant Collaborative $239,638 (Total Direct Cost) 1/24/2010 – 5/14/2015 PI 100%
[G19]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: CoPI: Award Credit:	Unified Cloud Computing and Management NSF $50,000 8/15/2011 – 8/14/2012 PI Salim Hariri 50%
[G20]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: Award Credit:	Algorithm Development for GPU-Based Computing Architectures Air Force (STTR Phase-I) $50,000 9/1/2010 – 5/1/2011 PI 100%
[G21]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: Award Credit:	Generalized Linear Model Genotype-to-Phenotype Challenge iPlant Collaborative $60,980 (Total Direct Cost) 12/15/2009 – 12/14/2010 PI 100%

[G22]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: PIs: Award Credit:	Asymmetric Threat Response and Analysis Program US Army Battle Command Battle Lab $1,790,664 9/1/2010 – 8/31/2011 CoPI Jerzy Rozenblit (PI), Sudha Ram, Srinivasan Ramasubramanian, Ferenc Szidarovszky, Jonathan Sprinkle 2%
[G23]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: Award Credit:	Self-Configurable Architecture for Reusable Space Systems NASA, JPL Strategic University Partnership Program $85,000 9/1/2007 – 8/31/2008 PI 100%
[G24]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: Award Credit:	CELL BE Performance Analysis US Army Battle Command Battle Lab-Huachuca (BCBL-H) $384,000 9/1/2007 – 8/31/2008 PI 100%
Industry Grants Funded		
[G25]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: Award Credit:	Machine Learning Enabled High Throughput OCR DoD - Joint Interoperability Test Command $50,000 06/01/2020-05/31/2021 PI 100%
[G26]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: Award Credit:	Architectural Optimizations of TrueNorth Chip Raytheon Missile Systems $100,000 9/1/2018 – 8/31/2019 PI 100%
[G27]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: Award Credit:	Wireless Signal Classification Using Neuromorphic Processing Raytheon Missile Systems $100,000 9/1/2017 – 8/31/2018 PI 100%

[G28]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: Award Credit:	3D Heart Simulation for Chronic Heart Failure Analysis Avirtek Corporation $21,250 (Total Direct Cost) 9/1/2016 – 5/31/2017 PI 100%
[G29]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: Award Credit:	GPU Based Video Encryption and Processing Futurewei Technologies, Inc. $40,000 4/15/2012 – 9/30/2013 PI 100%
Industry Education Grants Funded		
[G30]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: Award Credit:	Xilinx University Program (VCU128 Development Board and Alveo Board) Xilinx $15,490 3/31/2021 PI 100%
[G31]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: Award Credit:	Xilinx University Program (Nexys A7 (18), Vivado Design Suite Licenses) Xilinx $6,695 8/12/2020 PI 100%
[G32]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: Award Credit:	Xilinx University Program (Zynq UltraScale+ MPSoC) Xilinx $2,795 9/12/2018 PI 100%
[G33]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: Award Credit:	Xilinx University Program (Vivado Design Suite 25 Licenses and DIGILAB-ZedBoard-410-248P-KIT 5 FPGAs) Xilinx $3,574 12/11/2017 PI 100%

[G34]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: Award Credit:	Xilinx University Program (Nexys4 DDR-410-292P-KIT) Xilinx $1,600 6/13/2017 PI 100%
[G35]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: Award Credit:	GPU Based TCR Analysis (Tesla K40 and Titan X GPUs) NVIDIA $6,699 5/19/2016 PI 100%
[G36]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: Award Credit:	Xilinx Virtex7 and 10 Nexys4 FPGAs for Digital Logic Class Xilinx $6,695 4/13/2016 PI 100%
[G37]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: Award Credit:	FPGA Boards and Xilinx ISE System Edition (x25 licenses) Xilinx $3,749 11/16/2015 PI 100%
[G38]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: Award Credit:	FPGA Boards and Xilinx ISE System Edition (x25 licenses) Xilinx $6,457 4/15/2014 PI 100%
[G39]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: Award Credit:	CUDA Teaching Center Award NVIDIA $25,485 (Hardware and Cash) 8/1/2011 – 12/30/2014 PI 100%
[G40]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered:	Multicore Training (15 Quad Core Computers + Software Licenses) Intel Corporation, (Education Grant) Intel Multi-core University Program $57,215 8/15/2007 – 8/14/2008

	Role: Award Credit:	PI 100%
[G41]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: Award Credit:	Benchmarking on GPUs NVIDIA $3,999 4/1/2011 PI 100%
[G42]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: Award Credit:	FPGA Boards and Xilinx ISE System Edition (x25 licenses) Xilinx University Program $26,465 2/15/2010 – 2/14/2011 PI 100%
[G43]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: Award Credit:	NVIDIA Faculty Collaboration NVIDIA $3,000 4/2/2009 PI 100%
[G44]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: Award Credit:	FPGA boards and synthesis/verification tools Xilinx University Program $7,758 4/1/2005 – 6/30/2006 PI 100%
[G45]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: Award Credit:	FPGA boards and synthesis/verification tools Xilinx $990 4/1/2005 PI 100%
State Grants Funded		
[G46]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role:	Demonstration of 1T pixel-angle/sec Bandwidth Angular Spatial Light Modulator for Optical Surveillance Awareness University of Arizona, Research Advancement Grants, Category 2: Undergraduate/Graduate Interdisciplinary "LINK" Team Award $34,771 (Total Direct Cost) 1/1/2017 – 5/30/2017 CoPI

	PI: Award Credit:	Yuzuru Takahashima 50%
[G47]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: Award Credit:	Digital Design Curriculum Development University of Arizona Foundation $20,000 5/31/2016 – 5/30/2017 PI 100%
[G48]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: Award Credit:	Markov Chain Based Isolation with Migration simulations on Field Programmable Gate Array Architectures University of Arizona, IT-Bioscience Program $8,000 5/15/2006 – 8/14/2006 PI 100%