

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. 2012 – Present **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

- 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)

Editorial

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

Conference Organization

- General Co-Chair, 17th ACS/IEEE International Conference on Computer Systems and Applications, AICCSA 2020
- PhD Symposium Chair, 16th ACS/IEEE International Conference on Computer Systems and Applications, AICCSA 2019
- Session Chair, International Conference on Reconfigurable Computing and FPGAs, ReConFig 2019
- PhD Symposium Co-chair, 15th ACS/IEEE International Conference on Computer Systems and Applications, AICCSA 2018
- 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

- 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), 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

- 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

Panel Functions

- Panelist, National Science Foundation, 2015

Mentor

- BIO5 Institute's KEYS (Keep Engaging Youth in Science) Research Internship Program, 2020
- 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)

Departmental Committees

Electrical and Computer Engineering

- Committee on Committees, AY 2020-2022
- Peer Review Committee, AY 2018-2019 (Chair) and AY 2017-2018
- 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 (2013-2020)
 - Ph.D. Dissertation Defense = 18
 - M.S. Thesis Defense = 17
 - Ph.D. Written Comprehensive Exams = 32
 - Ph.D. Oral Comprehensive Exams = 23
 - Ph.D. Qualifying Exams = 12

University Committees

- 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] John Mixer, Ali Akoglu, "Growing Artificial Neural Networks," Springer Nature Transactions on Computational Science and Computational Intelligence, Advances in Artificial Intelligence and Applied Cognitive Computing, 2020, (14 pages).
- [J2] 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. 31, no 6, pp. 1419- 1433, June 2020. DOI: 10.1109/TC.2020.2986963
- [J3] 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)*, 2020, (14 pages) DOI:10.1109/TPDS.2020.2967373
- [J4] 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
- [J5] 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.
- [J6] 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
- [J7] 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

- [J8] 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
- [J9] 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
- [J10] 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](http://dx.doi.org/10.1016/j.cellimm.2015.10.012)
- [J11] 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>
- [J12] 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
- [J13] 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>
- [J14] 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](http://dx.doi.org/10.1007/s11265-010-0575-5)
- [J15] 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](http://dx.doi.org/10.1007/s11227-010-0540-x)
- [J16] 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
- [J17] 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.
- [J18] 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>
- [J19] 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.

- [J20] 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.
- [J21] 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.
- [J22] 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.
- [J23] 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).
- [J24] 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.
- [J25] 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] 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.
- [C2] 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.
- [C3] Nirmal Kumbhare and Ali Akoglu, "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)**
- [C4] Elnaz T. Yazdi, Ankur Limaye, Adam Buntzman, Tosiron Adegbiya 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.
- [C5] 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.
- [C6] Samet Egemen, 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.
- [C7] 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.
- [C8] 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.
- [C9] 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.
- [C10] 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.
- [C11] Jenő 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.
- [C12] 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.
- [C13] 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.
- [C14] Ehsan Esmaili, Ali Akoglu, Gregory Ditzler, Salim Hariri, Jenő 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)

- [C15] 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.
- [C16] Sam Gianelli, Edward Richter, Diego Jimenez, Hugo Valdez, Tosiron Adegbiya 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.
- [C17] 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.
- [C18] 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)**
- [C19] 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)**
- [C20] 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.
- [C21] 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.
- [C22] 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.
- [C23] 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.
- [C24] Dylan Machovec, Cihan Tunc, Nirmal Kumbhare, Bhavesh Khemka, Ali Akoglu, Salim Hariri and Howard Jay Siegel, "Value-Based Resource Management in High-Performance Computing Systems," 7th Workshop on Scientific Cloud Computing (ScienceCloud 2016), cosponsors: ACM SIGARCH (Special Interest Group on Computer Architecture) and The

- University of Arizona, *Proc. 25th International Symposium on High Performance Parallel and Distributed Computing (HPDC '16)*, pp. 19-26, Kyoto, Japan, May/June 2016.
- [C25] Nilangshu Bidyanta, Garrett Vanhoy, Mohammed Hirzallah, Ali Akoglu and Bo Ryu, "GPU and FPGA Based Architecture Design for Real-time Signal Classification," *Proc. 2015 Wireless Innovation Forum Conference on Wireless Communications Technologies and Software Defined Radio (WInnComm'15)*, March 24-26, 2015, San Diego, CA, pp. 70-79.
- [C26] Farah Fargo, Cihan Tunc, Youssif Al-Nashif, Ali Akoglu and Salim Hariri, "Autonomic Workload and Resources Management of Cloud Computing Resources," *IEEE International Conference on Cloud and Autonomic Computing (ICCAC'14)*, London, September 8-12, 2014, pp. 101-110.
- [C27] Peter Gadfort, Aravind Dasu, Ali Akoglu, Yoon Leow and Michael Fritze, "A Power Efficient Reconfigurable System-in-Stack: 3D integration of accelerators, FPGAs, and DRAM," *IEEE 27th International System-on-Chip Conference (SOCC'14)*, Las Vegas, NV, September 2-5, 2014, pp. 11-16.
- [C28] Gregory Striemer, Harsha Krovi, Ali Akoglu, Benjamin Vincent, Ben Hopson, Jeffrey Frelinger and Adam Buntzman, "Overcoming the Limitations Posed by TCR-beta Repertoire Modeling through a GPU-Based In-Silico DNA Recombination Algorithm," *Proc. 2014 IEEE 28th International Parallel and Distributed Processing Symposium (IPDPS '14)*, May 19-23, 2014, Phoenix, AZ, pp. 231-240.
- [C29] Yoon Kah Leow and Ali Akoglu, "A Hybrid FPGA Model to Estimate On-Chip Crossbar Logic Utilizations In SoC Platforms," *20th Reconfigurable Architectures Workshop (RAW 2013), Proc. 2013 IEEE 26th International Parallel and Distributed Processing Symposium Workshops, IPDPSW'13*, Boston, USA in May 2013, pp. 239-246.
- [C30] Priyank Gupta, Ali Akoglu, Kathleen Melde and Janet Roveda, "FPGA Based Single Cycle, Reconfigurable Router for NoC Applications," *IEEE International Symposium on Circuits and Systems, ISCAS'13*, Beijing, China, May 19-23, 2013.
- [C31] Peter Bailey, Tapasya Patki, Gregory M. Striemer, Ali Akoglu, David Lowenthal, Peter Bradbury, Matthew Vaughn, Liya Wang and Stephen Goff, "Quantitative Trait Locus Analysis Using a Partitioned Linear Model on a GPU Cluster," *IEEE International Workshop on High Performance Computational Biology, HiCOMB'12, Proc. 2012 IEEE 26th International Parallel and Distributed Processing Symposium Workshops, IPDPSW'12*, May 2012, Shanghai, China, pp. 752-760.
- [C32] Rodrigo Savage, Senthilkumar T. Rajavel and Ali Akoglu, "WL-Emap: Wirelength prediction based technology mapping for FPGAs," *IEEE Southern Conference on Programmable Logic, SPL 2012*, Bento Gonçalves, Brazil, March 20-23, 2012, pp. 1-6.
- [C33] Senthilkumar T. Rajavel and Ali Akoglu, "An analytical energy model to accelerate FPGA logic architecture investigation," *IEEE Int. Conference on Field-Programmable Technology, FPT 2011*, New Delhi, India, December 12-14, 2011, pp. 1-8.
- [C34] Yoon Kah Leow, Ali Akoglu, Ibrahim Guven and Erdogan Madenci, "High performance linear equation solver using NVIDIA graphical processing units," *IEEE NASA/ESA Conference on Adaptive Hardware and Systems (AHS)*, San Diego, CA, June 6-9, 2011, pp. 367-374.

- [C35] Travis Hoffman, Jerzy Rozenblit, Ali Akoglu and Liana Suantak, "Queral networks: toward an approach for engineering large artificial neural networks," *IEEE Int. Conference and Workshops on Engineering of Computer-Based Systems (ECBS)*, Las Vegas, NV, April 27-29, 2011, pp. 81-88.
- [C36] Senthilkumar T. Rajavel and Ali Akoglu, "MO-Pack: Many-objective clustering for FPGA CAD," *Proc. ACM/EDAC/IEEE Design Automation Conference (DAC)*, San Diego, CA, June 5-10, 2011, pp. 818-823.
- [C37] Adarsha Sreeramareddy, Ramachandra Kallam, Aravind R. Dasu and Ali Akoglu, "Self-configurable architecture for reusable systems with accelerated relocation circuit (SCARS-ARC)," *Proc. IEEE International Symposium on Parallel and Distributed Processing (IPDPS) Workshops, Reconfigurable Architectures Workshop (RAW)*, Atlanta, GA, April 19-20, 2010, pp. 1-4.
- [C38] David Story, Murat Kacira, Chieri Kubota and Ali Akoglu, "Morphological and textural plant feature detection using machine vision for intelligent plant health, growth and quality monitoring," *Proc. International Society for Horticultural Science, Acta Hort. (ISHS)*, 2011, vol. 893, pp. 299-306.
- [C39] Arjun Hary, Ali Akoglu, Youssif Al-Nashif, Salim Hariri and Darrel Jenerette, "Design and evaluation of a self-healing Kepler for scientific workflows," *Proc. ACM International Symposium on High Performance Distributed Computing (HPDC)*, Chicago, IL, June 20-25, 2010, pp. 340-343.
- [C40] Gregory M. Striemer and Ali Akoglu, "An adaptable low density parity check (LDPC) engine for space based communication systems," *Proc. IEEE NASA/ESA Conference on Adaptive Hardware and Systems (AHS)*, Anaheim, CA, June 15-18, 2010, pp. 105-112. doi: 10.1109/AHS.2010.5546275
- [C41] Yang Song, Gregory M. Striemer and Ali Akoglu, "Performance analysis of IBM cell broadband engine on sequence alignment," *Proc. IEEE NASA/ESA Conference on Adaptive Hardware and Systems (AHS)*, San Francisco, CA, July 29-August 1, 2009, pp. 439-446. doi: 10.1109/AHS.2009
- [C42] Chad Rossmeissl, Adarsha Sreeramareddy and Ali Akoglu, "Partial bitstream 2-D core relocation for reconfigurable architectures," *Proc. IEEE NASA/ESA Conference on Adaptive Hardware and Systems (AHS)*, San Francisco, CA, July 29-August 1, 2009, pp. 98-105, 2009. doi: 10.1109/AHS.2009.41
- [C43] Gregory M. Streimer and Ali Akoglu, "Sequence alignment with GPU: performance and design challenges," *Proc. 23rd IEEE International Parallel and Distributed Processing Symposium (IPDPS)*, Rome, Italy, May 25-29, 2009, pp. 1-10. doi: 10.1109/IPDPS.2009.5161066
- [C44] Yang Song, Jeffrey A. Rudin and Ali Akoglu, "Parallel implementation of irregular terrain model on IBM cell broadband engine," *Proc. IEEE International Parallel and Distributed Processing Symposium (IPDPS)*, Rome, Italy, May 25-29, 2009, pp. 1-7. doi: 10.1109/IPDPS.2009.5161051
- [C45] Yaser Jararweh, Arjun Hary, Youssif B. Al-Nashif, Salim Hariri, Ali Akoglu and Darrel Jenerette, "Accelerated discovery through integration of Kepler with data turbine for ecosystem research," *Proc. 7th ACS/IEEE International Conference on Computer Systems*

- and Applications (AICCSA)*, Rabat, Morocco, May 10-13, 2009, pp. 1005-1012. doi: 10.1109/AICCSA.2009.5069454
- [C46] Hanyu Liu and Ali Akoglu, "T-NDPack: timing-driven non-uniform depopulation based clustering," *Proc. 2009 5th IEEE Southern Conference on Programmable Logic (SPL)*, São Carlos, Brazil, April 1-3, 2009, pp. 9-14. doi: <http://dx.doi.org/10.1109/AICCSA.2009.5069454>
- [C47] Audip Pandit, Lakshmi Easwaran and Ali Akoglu, "Concurrent timing based and routability driven depopulation technique for FPGA packing," *IEEE International Conference on Field Programmable Technology (FPT)*, Taipei, Taiwan, December 7-10, 2008, pp. 325-328.
- [C48] David Story, Murat Kacira, Ali Akoglu and Chieri Kubota, "A machine vision guided system for plant health and growth monitoring in controlled environment agriculture production," presented at the *ISHS International Workshop on Greenhouse Environmental Control and Crop Production in Semi-Grid Regions*, Tucson, AZ, October 20-24, 2008.
- [C49] Sandeep Venishetti and Ali Akoglu, "Highly parallel FPGA based IEEE-754 compliant double-precision floating-point division," *Proc. 2008 International Conference on Engineering of Reconfigurable Systems & Algorithms (ERSA)*, July 14-17, 2008, Las Vegas, NV, CSREA Press, pp. 159-165.
- [C50] Adarsha Sreeramareddy, Jeff G. Josiah, Ali Akoglu and Adrian Stoica, "SCARS: Scalable self-configurable architecture for reusable space systems," *Proc. IEEE NASA/ESA Conference on Adaptive Hardware and Systems (AHS)*, June 22-25, 2008, Noordwijk, Netherlands, pp. 204-210.
- [C51] Deepak Sreedharan and Ali Akoglu, "A hybrid processing element based reconfigurable architecture for hashing algorithms," *Proc. 22nd IEEE International Symposium on Parallel and Distributed Processing (IPDPS) Workshops, Reconfigurable Architectures Workshop (RAW)*, Miami, FL, April 14-18, 2008, 8 pages. doi: 10.1109/IPDPS.2008.4536527
- [C52] Ruchika Verma and Ali Akoglu, "A coarse grained and hybrid reconfigurable architecture with flexible noc router for variable block size motion estimation," *Proc. 22nd IEEE International Symposium on Parallel and Distributed Processing (IPDPS) Workshops, Reconfigurable Architectures Workshop (RAW)*, Miami, FL, April 14-18, 2008, 8 pages. doi: 10.1109/IPDPS.2008.4536528
- [C53] Sandeep Venishetti and Ali Akoglu, "A highly parallel FPGA based IEEE-754 compliant double-precision binary floating-point multiplication algorithm," *Proc. IEEE International Conference on Field Programmable Technology (FPT)*, Kitakyushu, Japan, December 12-14, 2007, pp. 145-152.
- [C54] Audip Pandit and Ali Akoglu, "Net length based routability driven packing," *Proc. IEEE International Conference on Field-Programmable Technology (FPT)*, Kitakyushu, Japan, December 12-14, 2007, pp. 225-232, 2007.
- [C55] Ruchika Verma and Ali Akoglu, "A coarse grained reconfigurable architecture for variable size block motion estimation," *Proc. IEEE International Conference on Field-Programmable Technology (FPT)*, Kitakyushu, Japan, December 12-14, 2007, pp. 81-88, 2007.

- [C56] Audip Pandit and Ali Akoglu, “Wirelength prediction for FPGAs,” *Proc. 17th International Conference on Field Programmable Logic and Applications (FPL)*, Amsterdam, Netherlands, August 27-29, 2007, pp. 749-752.
- [C57] Sandeep Venishetti, Ali Akoglu and Rahul Kalra, “Hierarchical built-in self-testing and FPGA based healing methodology for system-on-a-chip,” *Proc. IEEE NASA/ESA Conference on Adaptive Hardware and Systems (AHS 2007)*, August 5-8, 2007, University of Edinburgh, Scotland, United Kingdom, pp. 717-724.
- [C58] David Montgomery and Ali Akoglu, “Methodology and toolset for ASIP design and development targeting cryptography-based applications,” *Proc. IEEE International Conference on Application-Specific Systems, Architectures and Processors (ASAP)*, Montréal, Québec, Canada, July 8-11, 2007, pp. 365-370.
- [C59] *Ali Akoglu and Sethuraman Panchanathan, “Application specific reconfigurable architecture design methodology,” *Proc. 2005 International Conference on Engineering of Reconfigurable Systems and Algorithms (ERSA)*, Las Vegas, NV, June 27-30, 2005, pp. 247-250.
- [C60] *Ali Akoglu, Bhagat Janarthanan, Karthik Vaithianathan and Atul Kwatra, “Platform performance analysis on networking applications,” Intel Design, Test, and Technology Conference (DTTC), DTTC Online Journal, August 2005, 8 pages.
- [C61] *Ali Akoglu, Aravind Dasu and Sethuraman Panchanathan, “Application specific hybrid-FPGA design,” *Proc. SPIE IS&T/SPIE17th Symposium, Electronic Imaging Science and Technology*, San Jose, CA, January 16-20, 2005, vol. 5683, pp. 21-31, 2005.
- [C62] *Aravind Dasu, Ali Akoglu and Sethuraman Panchanathan, “Cluster extraction for hybrid FPGA architecture in computation intensive applications,” *Proc. International Conference on Engineering of Reconfigurable Systems and Algorithms (ERSA)*, Las Vegas, NV, June 2004.
- [C63] *Ali Akoglu, Aravind Dasu and Sethuraman Panchanathan, “A framework for design of heterogeneous hierarchical routing architecture of a dynamically reconfigurable application specific media processor,” *Workshop on Embedded Systems for Media Processing, International Conference High Performance Computing (HiPC)*, Hyderabad, India, December 17, 2003.
- [C64] *Aravind Dasu, Ali Akoglu and Sethuraman Panchanathan, “Analysis tool set for reconfigurable media processing,” *Proc. International Conference on Engineering of Reconfigurable Systems and Algorithms (ERSA)*, Las Vegas, NV, June 2003.
- [C65] *Ali Akoglu, Aravind Dasu, Aravind Sudarsanam, Mayur Srinivasan and Sethuraman Panchanathan, “Pattern recognition tool to detect reconfigurable patterns in MPEG4 video processing,” *Proc. 16th International Symposium on Parallel and Distributed Processing (IPDPS)*, Ft. Lauderdale, FL, April 15-19, 2002, pp.131-135.

Disclosures/Patents

- [D1] Ali Akoglu, Joshua Mack, Bo Ryu, “Apparatus and method of a scalable and reconfigurable fast fourier transform”, Invention of Authorship Disclosure and provisional patent application filed November 27, 2019, U.S. application number:16/697399

- [D2] Ali Akoglu, Scott Marshall, “High Speed Multiple Communication Signal Classification Algorithm and Model,” Invention of Authorship Disclosure filed to Office of Technology Transfer, UA17-106, 2016.
- [D3] Aravind Dasu Ali Akoglu, Aravind Sudarsanam, and Sethuraman Panchanathan, “Reconfigurable processing” U.S. patent number US 8,281,297 B2, Date: October 2, 2012.

Workshops / Seminars/Lectures

- [W1] Joshua Mack, Nirmal Kumbhare, Ali Akoglu, “Domain-Focused Advanced Software-Reconfigurable Heterogeneous SoC Emulation Framework,” GNU Radio 4.0 Hackfest, June 8, 2020
- [W2] Ali Akoglu, “Automated Machine Learning Guided Optical Character Recognition Framework,” NSF I/UCRC on Cloud and Autonomic Computing, Semiannual Industry Advisory Board Meeting, June 1, 2020 (Online).
- [W3] 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)
- [W4] Ali Akoglu, “GPU-Accelerated Computing for Data Intensive Applications: Real-time Classification to Petascale Synthesis Problems” 20th International Engineering Symposium, University of Sonora, Hermosillo Mexico, March 12, 2020. **(Invited)**
- [W5] Joshua Mack, Nirmal Kumbhare, Ali Akoglu, “Automating Programming and Development of Heterogeneous SoCs with LLVM Tools,” Free Open Software Developers European Meeting (FOSDEM), Brussels Belgium, February 1-2, 2020. https://fosdem.org/2020/schedule/event/llvm_aut_prog_het_soc/
- [W6] 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)
- [W7] 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.
- [W8] Ali Akoglu, “GPU based 3D Heart Simulations,” ECE 311 invited guest lecture, March 2019.
- [W9] Ruben Purdy, Joey McClanahan, Edward Richter, Spencer Valancius, John Mixter, Brandon Black, Kaitlyn Oura, Muneeb Ahmed, Ali Akoglu, “Architectures and Applications of Neuromorphic Computing,” NSF Center for Autonomic Computing Semiannual Meeting, Denton, TX, October 22-23, 2018.
- [W10] Ali Akoglu, “GPU based Parallel Computing with Case Studies,” ECE 311 invited guest lecture, November 2018.
- [W11] Ali Akoglu, “Heterogeneous Computing for Signal Processing,” Electrical and Computer Engineering Department, Oakland University, April 5, 2018. **(Invited)**

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- [W12] Ali Akoglu, “Parallel Computing with Machine Learning Assisted Smart Programming Strategies” University of Arizona, HKN Lecture Series March 30, 2018. **(Invited)**
- [W13] Ali Akoglu, “Accelerating 3D Heart Simulations for Chronic Heart Failure Studies,” 18th International Engineering Symposium, University of Sonora, Hermosillo Mexico, February 27, 2018. **(Invited)**
- [W14] Ali Akoglu, “A Dynamically Composable Just In Time Architecture and Security Challenges,” Franco-American Workshop on Cybersecurity, Lyon, France, December 11-13, 2017.
- [W15] 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.
- [W16] 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.
- [W17] Ali Akoglu, “Image Enhancement Using FPGA and GPU” (Invited Lecture), Photometrics Inc., Tucson AZ, May 2017.
- [W18] Ali Akoglu, “GPU Programming Strategies” (Invited) University of Arizona, HKN Lecture Series, March 2017.
- [W19] 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)
- [W20] Ali Akoglu, “GPU:Under the Hood,” Guest Lecture, University of Arizona, ECE677-Distributed Computing, October 24, 2016.
- [W21] Ali Akoglu, “HeartCyPert: Cloud based Autonomic Heart Cyber Expert Systems for Chronic Heart Failure Forecasting and Treatment,” Cloud and Autonomic Computing Center, Semi-Annual IAB Meeting, October 5-6, 2016 Dallas TX.
- [W22] Nilangshu Bidyanta, Ali Akoglu, “RealTime GPU Based Video Segmentation with Depth Information,” NVIDIA GPU Technology Conference, San Jose, CA, March 17-20, 2015.
- [W23] Under the Hood FPGAs and GPUs, Invited Speaker, UNAM, Mexico City, Mexico, September 2013.
- [W24] Cihan Tunc, Farah Farjo, Salim Hariri, Ali Akoglu, “Autonomic Cloud Management Services (ACMS),” NSF Center for Autonomic Computing Semiannual Meeting, Mississippi State University, MS, December 10-11, 2012.
- [W25] Venkata Krishna N, Shafiul Islam, Salim Hariri, Ali Akoglu, Steve Delong, “Cyber-Physical System for Biosphere 2 Landscape Evolution Observatory Testbed,” NSF Center for Autonomic Computing Semiannual Meeting, Gainesville, FL, April 5-6, 2012.
- [W26] Ali Akoglu, “Wirelength Prediction and Modeling,” Lattice Semiconductors, San Jose, CA, May 16, 2012.

- [W27] Ali Akoglu, “Self-configurable architecture for reusable systems (SCARS),” Honeywell Aerospace Visit, College of Engineering, University of Arizona, Tucson, AZ, April 19, 2011.
- [W28] 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.
- [W29] Venkata Krishna Nimmagadda, Shafiul Islam, Salim Hariri, Ali Akoglu, and Steve Delong, “Autonomic cyber physical system,” NSF Center for Autonomic Computing Semiannual Meeting, Dallas, TX, April 5-6, 2011.
- [W30] Arjun Hary, Ali Akoglu, Youssif Al-Nashif, Salim Hariri, and Darrel Jenerette, “Design and evaluation of a self-healing Kepler for scientific workflows,” NSF Center for Autonomic Computing Semiannual Meeting, University of Florida, Gainesville, FL, October 4, 2010.
- [W31] Gregory M. Striemer, Ali Akoglu, David Lowenthal, Peter Bradbury, Liya Wang, Matthew Vaughn, and Stephen Goff, “Relating genotypes to phenotypes in complex environments: generalized linear model (GLM) based quantitative trait locus (QTL) analysis,” NVIDIA GPU Technology Conference, San Jose, CA, October 20-23, 2010.
- [W32] iPlant Collaborative inaugural conference "Bringing Plant and Computing Scientists Together to Solve Grand Challenges," 2010.
- [W33] David Story, Murat Kacira, Chieri Kubota, and Ali Akoglu, “Morphological and textural plant feature detection using machine vision for intelligent plant health, growth and quality monitoring,” International Symposium on High Technology for Greenhouse System (GreenSys), Quebec, Canada, June 13-18, 2009.

Non peer-Reviewed Publications -Media

- [NP1] Industrial Equipment News (IEN), November 16, 2018, Researchers Designing Chip with Five Nanosecond Decision-Making
<https://www.ien.com/product-development/news/21032678/researchers-designing-chip-with-five-nanosecond-decisionmaking>
- [NP2] Arizona Engineering News, Five nanosecond decision making, October 2018
<https://news.engineering.arizona.edu/news/five-nanosecond-decision-making-new-chip-design-make-speedy-calculations-researchers>
- [NP3] AZ PBS, Mapping the Human Immune System, October 25, 2016
<http://www.azpbs.org/arizonahorizon/play.php?vidId=9639>
- [NP4] The Daily Wildcat, 2016, Six scientific successes that stole the show this year.
<http://www.wildcat.arizona.edu/article/2016/10/in-case-you-missed-them-six-scientific-successes-that-stole-the-show-this-year>
- [NP5] AZ PBS, October 25, 2016, Mapping the Human Immune System.
<http://www.azpbs.org/arizonahorizon/play.php?vidId=9639>
- [NP6] The Daily Wildcat, October 20, 2016, UA collaboration leads to immune system mapping.
<http://www.wildcat.arizona.edu/article/2016/10/ua-collaboration-leads-to-immune-system-mapping>

- [NP7] UA News, September 28, 2016 “Grand Challenge: Mapping the Human Immune System.”
<https://uanews.arizona.edu/story/grand-challenge-mapping-human-immune-system>
- CYVERSE News, September 28, 2016 “Mapping The Human Immune System”
<http://www.cyverse.org/news/mapping-human-immune-system>
 - <https://www.technology.org/2016/10/14/supercomputers-improve-cancer-diagnostics/>
 - <https://vimeo.com/185043525>
 - <http://deptmedicine.arizona.edu/news/2016/cyverse-explores-complexities-mapping-human-immune-system>
 - <http://www.cyverse.org/news/supercomputers-could-improve-cancer-diagnostics>
 - <http://medicine.arizona.edu/news/2016/grand-challenge-mapping-human-immune-system>
 - <https://uanews.arizona.edu/story/grand-challenge-mapping-human-immune-system?>
 - <http://uahs.arizona.edu/news/grand-challenge-mapping-human-immune-system>
 - <http://opa.ahsc.arizona.edu/newsroom/news/2016/grand-challenge-mapping-human-immune-system>
 - <https://www.technologynetworks.com/tn/news/mapping-the-human-immune-system-200216>
 - <https://www.technologynetworks.com/genomics/news/supercomputers-could-improve-cancer-diagnostics-210788>
 - <https://www.technologynetworks.com/proteomics/news/mapping-the-human-immune-system-200216>
 - <https://www.laboratoryequipment.com/news/2016/10/grand-challenge-mapping-human-immune-system>
 - <http://www.microbeworld.org/component/jlibrary/?view=article&id=15456>
 - <https://uanews.arizona.edu/story/supercomputers-could-improve-cancer-diagnostics?>
 - <http://insidehpc.com/2016/10/supercomputers-could-improve-cancer-diagnostics/>
 - <http://www.futurity.org/genetic-map-immune-system-1262192-2/>
 - <http://latesttechnology.space/supercomputers-could-improve-cancer-diagnostics/>
 - <http://www.wildcat.arizona.edu/article/2016/10/ua-collaboration-leads-to-immune-system-mapping>
 - <http://www.azpbs.org/arizonahorizon/play.php?vidId=9639>
 - <https://twitter.com/arizonapbs/status/791055526562033667>
 - <http://uacc.arizona.edu/news/supercomputers-could-improve-cancer-diagnostics>
 - <http://www.scientificcomputing.com/news/2016/10/supercomputers-could-improve-cancer-diagnostics>
 - <https://exceptionmag.com/28932/software-maps-immune-system-in-17-days-not-106-years/>
 - <http://uacc.arizona.edu/news/supercomputers-could-improve-cancer-diagnostics>
- [NP8] 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.

- [NP9] 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.
- [NP10] David Montgomery and Ali Akoglu, “Cryptographic instruction set processor design,” Information Security and Cryptology Conference, Ankara, Turkey, December 13-14, 2007.
- [NP11] Ali Akoglu, Sonia Vohnout, and Justin Judkins, “FPGA based fault detection, isolation and healing for integrated vehicle health management,” Association for the Advancement of Artificial Intelligence (AAAI) Fall Symposium on Artificial Intelligence for Prognostics, AAAI Press FS-07-02, Arlington, VA, November 8-11, 2007.
- [NP12] *Ali Akoglu, Aravind Dasu, and Sethuraman Panchanathan, “Design of fast and efficient hybrid-FPGAs for numerically intensive applications,” 7th Annual Military and Aerospace Programmable Logic Devices (MAPLD) Conference, Washington, D.C., September 2004.

GRANTS AND CONTRACTS

Federal Grants Funded

- [G1] Project/Proposal Title: NSF Research Experience for Undergraduate Students
Source of Support: NSF
Total Award Amount: \$16,000
Period Covered: 7/1/2020 – 6/30/2021
Role: PI
CoPI: Salim Hariri
Award Credit: 50%
- [G2] 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 – 9/1/2021
Role: PI
CoPI: Gregory Ditzler
Award Credit: 50%
- [G3] 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: \$920,000
Period Covered: 8/15/2018 – 8/14/2022
Role: PI
Award Credit: 100%

CURRICULUM VITAE: ALI AKOGLU

- [G4] Project/Proposal Title: I/UCRC: Industry/University Cooperative Research Center for Cloud and Autonomic Computing(International Site at American University of Malta – SUPP
Source of Support: NSF
Total Award Amount: \$25,000
Period Covered: 8/1/2019 – 7/31/2020
Role: CoPI
PI: Salim Hariri
Award Credit: 50%
- [G5] Project/Proposal Title: I/UCRC: Industry/University Cooperative Research Center for Cloud and Autonomic Computing (REU SUPP)
Source of Support: NSF
Total Award Amount: \$16,000
Period Covered: 7/1/2019 – 6/30/2020
Role: PI
CoPI: Salim Hariri
Award Credit: 50%
- [G6] Project/Proposal Title: I/UCRC: Industry/University Cooperative Research Center for Cloud and Autonomic Computing Veterans Research Supplement (VRS)
Source of Support: NSF
Total Award Amount: \$10,000
Period Covered: 7/1/2019 – 6/30/2020
Role: PI
CoPI: Salim Hariri
Award Credit: 50%
- [G7] Project/Proposal Title: NSF Student Travel Grant 2018 ACS/IEEE International Conference on Computer Systems and Applications (AICCSA)
Source of Support: NSF
Total Award Amount: \$15,000
Period Covered: 8/15/2018 – 8/14/2019
Role: PI
CoPI: Salim Hariri
Award Credit: 50%
- [G8] 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%

CURRICULUM VITAE: ALI AKOGLU

- [G9] 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%
- [G10] Project/Proposal Title: NSF Industry/University Cooperative Research Center for Cloud and Autonomic Computing – Phase II in collaboration with Texas Tech University and affiliate sites University of North Texas and Texas State University
Source of Support: NSF
Total Award Amount: \$500,000 (University of Arizona)
Period Covered: 8/1/2016 – 7/31/2021
Role: CoPI
PI: Salim Hariri, Jerzy Rozenblit (CoPI)
Award Credit: 30%
- [G11] 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%
- [G12] 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), Adam Buntzman(CoPI)
Award Credit: 1%
- [G13] Project/Proposal Title: High-Speed, Reconfigurable SIGINT (HiReS) System for Large Time- Bandwidth Product
Source of Support: SBIR, Phase1, Office of Naval Research
Total Award Amount: \$45,000
Period Covered: 5/24/2014-10/14/2015
Role: PI
Award Credit: 100%

CURRICULUM VITAE: ALI AKOGLU

- [G14] Project/Proposal Title: Cybersecurity Collaboratory
Source of Support: French American Cultural Exchange Program, Partner
University Fund (PUF/CP/PB/201336)
Total Award Amount: \$108,000
Period Covered: 9/1/2012 – 5/31/2017
Role: CoPI
PI: Salim Hariri, Jerzy Rozenblit (CoPI)
Award Credit: 33%
- [G15] Project/Proposal Title: Generalized Linear Model - Genotype-to-Phenotype Challenge
Source of Support: NSF – Subcontract iPlant Collaborative
Total Award Amount: \$239,638 (Total Direct Cost)
Period Covered: 1/24/2010 – 5/14/2015
Role: PI
Award Credit: 100%
- [G16] Project/Proposal Title: Unified Cloud Computing and Management
Source of Support: NSF
Total Award Amount: \$50,000
Period Covered: 8/15/2011 – 8/14/2012
Role: PI
CoPI: Salim Hariri
Award Credit: 50%
- [G17] Project/Proposal Title: Algorithm Development for GPU-Based Computing
Architectures
Source of Support: Air Force (STTR Phase-I)
Total Award Amount: \$50,000
Period Covered: 9/1/2010 – 5/1/2011
Role: PI
Award Credit: 100%
- [G18] Project/Proposal Title: Generalized Linear Model Genotype-to-Phenotype Challenge
Source of Support: iPlant Collaborative
Total Award Amount: \$60,980 (Total Direct Cost)
Period Covered: 12/15/2009 – 12/14/2010
Role: PI
Award Credit: 100%
- [G19] Project/Proposal Title: Asymmetric Threat Response and Analysis Program
Source of Support: US Army Battle Command Battle Lab
Total Award Amount: \$1,790,664
Period Covered: 9/1/2010 – 8/31/2011
Role: CoPI
PIs: Jerzy Rozenblit (PI), Sudha Ram, Srinivasan
Ramasubramanian, Ferenc Szidarovszky, Jonathan Sprinkle
Award Credit: 2%

- [G20] Project/Proposal Title: Self-Configurable Architecture for Reusable Space Systems
Source of Support: NASA, JPL Strategic University Partnership Program
Total Award Amount: \$85,000
Period Covered: 9/1/2007 – 8/31/2008
Role: PI
Award Credit: 100%
- [G21] Project/Proposal Title: CELL BE Performance Analysis
Source of Support: US Army Battle Command Battle Lab-Huachuca (BCBL-H)
Total Award Amount: \$384,000
Period Covered: 9/1/2007 – 8/31/2008
Role: PI
Award Credit: 100%

Industry Grants Funded

- [G22] Project/Proposal Title: Machine Learning Enabled High Throughput OCR
Source of Support: DoD - Joint Interoperability Test Command
Total Award Amount: \$50,000
Period Covered: 06/01/2020-05/31/2021
Role: PI
Award Credit: 100%
- [G23] Project/Proposal Title: Architectural Optimizations of TrueNorth Chip
Source of Support: Raytheon Missile Systems
Total Award Amount: \$100,000
Period Covered: 9/1/2018 – 8/31/2019
Role: PI
Award Credit: 100%
- [G24] Project/Proposal Title: Wireless Signal Classification Using Neuromorphic Processing
Source of Support: Raytheon Missile Systems
Total Award Amount: \$100,000
Period Covered: 9/1/2017 – 8/31/2018
Role: PI
Award Credit: 100%
- [G25] Project/Proposal Title: 3D Heart Simulation for Chronic Heart Failure Analysis
Source of Support: Avirtek Corporation
Total Award Amount: \$21,250 (Total Direct Cost)
Period Covered: 9/1/2016 – 5/31/2017
Role: PI
Award Credit: 100%

[G26] Project/Proposal Title: GPU Based Video Encryption and Processing
Source of Support: Futurewei Technologies, Inc.
Total Award Amount: \$40,000
Period Covered: 4/15/2012 – 9/30/2013
Role: PI
Award Credit: 100%

Industry Education Grants Funded

[G27] Project/Proposal Title: Xilinx University Program (Zynq UltraScale+ MPSoC)
Source of Support: Xilinx
Total Award Amount: \$2,795
Period Covered: 9/12/2018
Role: PI
Award Credit: 100%

[G28] Project/Proposal Title: Xilinx University Program (Vivado Design Suite 25 Licenses and DIGILAB-ZedBoard-410-248P-KIT 5 FPGAs)
Source of Support: Xilinx
Total Award Amount: \$3,574
Period Covered: 12/11/2017
Role: PI
Award Credit: 100%

[G29] Project/Proposal Title: Xilinx University Program (Nexys4 DDR-410-292P-KIT)
Source of Support: Xilinx
Total Award Amount: \$1,600
Period Covered: 6/13/2017
Role: PI
Award Credit: 100%

[G30] Project/Proposal Title: GPU Based TCR Analysis (Tesla K40 and Titan X GPUs)
Source of Support: NVIDIA
Total Award Amount: \$6,699
Period Covered: 5/19/2016
Role: PI
Award Credit: 100%

[G31] Project/Proposal Title: Xilinx Virtex7 and 10 Nexys4 FPGAs for Digital Logic Class
Source of Support: Xilinx
Total Award Amount: \$6,695
Period Covered: 4/13/2016
Role: PI
Award Credit: 100%

CURRICULUM VITAE: ALI AKOGLU

- [G32] Project/Proposal Title: FPGA Boards and Xilinx ISE System Edition (x25 licenses)
Source of Support: Xilinx
Total Award Amount: \$3,749
Period Covered: 11/16/2015
Role: PI
Award Credit: 100%
- [G33] Project/Proposal Title: FPGA Boards and Xilinx ISE System Edition (x25 licenses)
Source of Support: Xilinx
Total Award Amount: \$6,457
Period Covered: 4/15/2014
Role: PI
Award Credit: 100%
- [G34] Project/Proposal Title: CUDA Teaching Center Award
Source of Support: NVIDIA
Total Award Amount: \$25,485 (Hardware and Cash)
Period Covered: 8/1/2011 – 12/30/2014
Role: PI
Award Credit: 100%
- [G35] Project/Proposal Title: Multicore Training (15 Quad Core Computers + Software Licenses)
Source of Support: Intel Corporation, (Education Grant) Intel Multi-core University Program
Total Award Amount: \$57,215
Period Covered: 8/15/2007 – 8/14/2008
Role: PI
Award Credit: 100%
- [G36] Project/Proposal Title: Benchmarking on GPUs
Source of Support: NVIDIA
Total Award Amount: \$3,999
Period Covered: 4/1/2011
Role: PI
Award Credit: 100%
- [G37] Project/Proposal Title: FPGA Boards and Xilinx ISE System Edition (x25 licenses)
Source of Support: Xilinx University Program
Total Award Amount: \$26,465
Period Covered: 2/15/2010 – 2/14/2011
Role: PI
Award Credit: 100%
- [G38] Project/Proposal Title: NVIDIA Faculty Collaboration
Source of Support: NVIDIA
Total Award Amount: \$3,000
Period Covered: 4/2/2009

- Role: PI
Award Credit: 100%
- [G39] Project/Proposal Title: FPGA boards and synthesis/verification tools
Source of Support: Xilinx University Program
Total Award Amount: \$7,758
Period Covered: 4/1/2005 – 6/30/2006
Role: PI
Award Credit: 100%
- [G40] Project/Proposal Title: FPGA boards and synthesis/verification tools
Source of Support: Xilinx
Total Award Amount: \$990
Period Covered: 4/1/2005
Role: PI
Award Credit: 100%

State Grants Funded

- [G41] Project/Proposal Title: Demonstration of 1T pixel-angle/sec Bandwidth Angular Spatial Light Modulator for Optical Surveillance Awareness
Source of Support: University of Arizona, Research Advancement Grants, Category 2: Undergraduate/Graduate Interdisciplinary “LINK” Team Award
Total Award Amount: \$34,771 (Total Direct Cost)
Period Covered: 1/1/2017 – 5/30/2017
Role: CoPI
PI: Yuzuru Takahashima
Award Credit: 50%
- [G42] Project/Proposal Title: Digital Design Curriculum Development
Source of Support: University of Arizona Foundation
Total Award Amount: \$20,000
Period Covered: 5/31/2016 – 5/30/2017
Role: PI
Award Credit: 100%
- [G43] Project/Proposal Title: Markov Chain Based Isolation with Migration simulations on Field Programmable Gate Array Architectures
Source of Support: University of Arizona, IT-Bioscience Program
Total Award Amount: \$8,000
Period Covered: 5/15/2006 – 8/14/2006
Role: PI
Award Credit: 100%