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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, May 2024
- 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 20<sup>th</sup> 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 (ICAC), 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

- General Chair 35<sup>th</sup> IEEE Heterogeneity in Computing Workshop (HCW'26)
- Co-Chair, RSDHA: Redefining Scalability for Diversely Heterogeneous Architectures as part of SCA/HPCAsia 2026
- Program Chair 34<sup>th</sup> IEEE Heterogeneity in Computing Workshop (HCW'25)
- Session Chair, 33<sup>rd</sup> IEEE Heterogeneity in Computing Workshop (HCW'24)
- Co-Chair, RSDHA: Redefining Scalability for Diversely Heterogeneous Architectures as part of SC 2023
- PhD Symposium Co-Chair, ACS/IEEE International Conference on Computer Systems and Applications, AICCSA 2025, 2024, 2023, 2022, 2021, 2019, 2018
- General Co-Chair, 17<sup>th</sup> 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

- ACM/SIGDA International Symposium on Field-Programmable Gate Arrays, 2024, 2025, 2026, Member
- ACM International Symposium on High-Performance Parallel and Distributed Computing (HPDC) 2025, 2026
- IEEE International Conference on Computer Design, 2023, Member
- CASES: International Conference on Compilers, Architectures, and Synthesis for Embedded Systems, 2022-25, Member
- International Workshop on Extreme Heterogeneity Solutions (ExHET), 2022-25, 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

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

- Committee on Committees, AY 2022-2025
- Faculty Search Committee, Co-Chair, AY 2024-2025 and 2023-2024
- Executive Committee, AY 2023-2024

- POP Faculty Search Committee, Member, AY 2022-2023
- Computer Science Engineering Ad Hoc Committee, AY 2022-2023
- Instructional Equipment and Planning Committee, AY 2022-2024
- 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, Fall 2025
- Committees other than as advisor (2013-2025)
  - Ph.D. Dissertation Defense = 26
  - M.S. Thesis Defense = 17
  - Ph.D. Written Comprehensive Exams = 41
  - Ph.D. Oral Comprehensive Exams = 34
  - Ph.D. Qualifying Exams = 23

### **University Committees**

- University Advisory Committee on Promotion and Tenure (UACPT) Co-Chair AY 2023-2025
- University Advisory Committee on Promotion and Tenure (UACPT) AY 2022-2023
- 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] Serhan Gener, H. Umut Suluhan, Liangliang Chang, Sahil Hassan, Tsung-Wei Huang, Chaitali Chakrabarti, Umit Ogras, Ali Akoglu, "A Portable Framework with Generalized Runtime Features for Task Graph Execution and Concurrent Multi-Application Deployment on Heterogeneous Systems ," Future Generation Computer Systems, vol. 176, March 2026, <https://doi.org/10.1016/j.future.2025.108184>

- [J2] Jiahao Lin, H. Umut Suluhan, Chaitali Chakrabarti, Ali Akoglu, Umit Ogras, "CADAS: Communication-Aware Dynamic Scheduler on CGRAs for Large-volume and Real-time Processing" *ACM Transactions on Embedded Computing Systems*, vol. 25, no. 2, pp. 1-27, March 2026. <https://doi.org/10.1145/3793672>
- [J3] Anish Vippera, Narayanan Murugan, Ali Akoglu, Chaitali Chakrabarti, "Compilation Framework for Dynamically Reconfigurable Array Architectures," *IEEE Access*, vol. 13, pp. 196415-196432, 2025, <https://doi.org/10.1109/ACCESS.2025.3633942>
- [J4] Mustafa Ghanim, Serhan Gener, H. Umut Suluhan, Parker Dattilo, Ali Akoglu, "HOPPERFISH: Holistic Profiling with Portable Extensible and Robust Framework Intended for Systems with Heterogeneity," *ACM Transactions on Architecture and Code Optimization*, vol 22, no 4, Article 130, 27 pages, December 2025, <https://doi.org/10.1145/3769087>
- [J5] Serhan Gener, Aditya Ukarande, Shilpa Murthy, Sahil Hassan, Joshua Mack, Chaitali Chakrabarti, Umit Ogras, Ali Akoglu, "RIMMS: Runtime Integrated Memory Management System for Heterogeneous Computing," *ACM Transactions on Embedded Computing Systems*, vol 24, issue 5s, no.91 pp. 1-24, September 2025. <https://doi.org/10.1145/3760257>
- [J6] Jiahao Lin, Hasan Umut Suluhan, Hyun Won, Arindam Dutta, Anish Vipera, Gerard Gubash, Jacob Holtom, Peter Paris, Chaitali Chakrabarti, Daniel Bliss, David Blauw, Hunseok Kim, Ali Akoglu, Umit Ogras, "An Overview of Challenges and Requirements for Real-Time Spectrum Sensing in Modern RF Autonomy Systems," *IEEE Design & Test*, pp. 1-11, July 30, 2025, <https://doi.org/10.1109/MDAT.2025.3594311>
- [J7] Liangliang Chang, Serhan Gener, Joshua Mack, Ali Akoglu, and Chaitali Chakrabarti, "Coarse Grained Task Parallelization by Dynamic Profiling for Heterogeneous SoC Based Embedded System," *ACM Transactions on Embedded Computing Systems (TECS)*, vol 24, no.1 pp. 1-32, December 2024, <https://doi.org/10.1145/370463>
- [J8] Joshua Mack, Anish Krishnakumar, Umit Ogras, Ali Akoglu, "Tutorial: A Novel Runtime Environment for Accelerator-Rich Heterogeneous Architectures," *ACM Transactions on Embedded Computing Systems*, vol 24, no.1 pp. 1-24, December 2024, <https://doi.org/10.1145/3687463>
- [J9] Alper Goksoy, Sahil Hassan, Anish Krishnakumar, Radu Marculescu, Ali Akoglu, Umit Ogras, "Theoretical Validation and Hardware Implementation of Dynamic Adaptive Scheduling for Heterogeneous SoCs," *Journal of Low Power Electronics and Applications*, vol 13, no 4:56 (22 pages), October 2023, <https://doi.org/10.3390/jlpea13040056> (**Featured Paper**)
- [J10] Serhan Gener, Parker Dattilo, Dhruv Gajaria, Alex Fusco, Ali Akoglu, "GPU-based and Streaming-enabled Implementation of Pre-processing Flow towards Enhancing Optical Character Recognition Accuracy and Efficiency," *Cluster Computing*, September 2023 (13 pages), <https://doi.org/10.1007/s10586-023-04137-0>
- [J11] Sahil Hassan, Parker Dattilo, and Ali Akoglu, "A Novel Implementation Methodology for Error Correction Codes on a Neuromorphic Architecture," *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems*, Vol. 42, No. 12, pp. 4706-4720, December 2023, <https://doi.org/10.1109/TCAD.2023.3285410>
- [J12] Anish Krishnakumar, Hanguang Yu, Tutu Ajayi, A. Alper Goksoy, Vishrut Pandey, Joshua Mack, Sahil Hassan, Kuan-Yu Chen, Chaitali Chakrabarti, Daniel W. Bliss, Ali Akoglu,

- Hun-Seok Kim, Ron Dreslinski, David Blaauw and Umit Y. Ogras “FALCON: An FPGA Emulation Platform for Domain-Specific Systems-on-Chip (DSSoCs)”, IEEE Design and Test, July 2023, <https://doi.org/10.1109/MDAT.2023.3291331>
- [J13] 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), *vol 22, no.2 pp. 1-34*, January 2023, <https://doi.org/10.1145/3529257>
- [J14] 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 – ICSC 2021 Workshops. ICSC 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](https://doi.org/10.1007/978-3-031-14135-5_19)
- [J15] 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 <https://doi.org/10.1109/TPDS.2021.3135876>
- [J16] 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>
- [J17] 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>
- [J18] Joshua Mack, Ruben Purdy, Kris Rockowitz, Michael Inouye, Edward Richter, Spencer Valancius, Nirmal Kumbhare, Md Sahil Hassan, Kaitlin Fair, John Mixer 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>
- [J19] 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, pp 409 – 423, October 2021. [https://doi.org/10.1007/978-3-030-70296-0\\_31](https://doi.org/10.1007/978-3-030-70296-0_31)
- [J20] 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>
- [J21] 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> (**Featured Paper**)
- [J22] 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>
- [J23] 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](https://doi.org/10.1007/s11265-019-01448-7)
- [J24] 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. <https://doi.org/10.1016/j.parco.2017.11.005>
- [J25] 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](https://doi.org/10.1007/s11227-019-02796-8)
- [J26] 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](https://doi.org/10.1109/TCSI.2018.2815008)
- [J27] 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](https://doi.org/10.1007/s11227-018-2374-x)
- [J28] 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](https://doi.org/10.1007/s10586-017-0901-9)
- [J29] 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)
- [J30] 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>
- [J31] 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](https://doi.org/10.1007/s11265-013-0740-8)
- [J32] 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>

- [J33] 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)
- [J34] 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)
- [J35] 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
- [J36] 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. DOI:10.13031/2013.39015
- [J37] 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>
- [J38] 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. <https://doi.org/10.3389/fpls.2011.00034>
- [J39] 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. <https://doi.org/10.1016/j.compeleceng.2011.01.003>
- [J40] 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. <https://doi.org/10.1109/TPDS.2011.21>
- [J41] 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. <https://doi.org/10.1016/j.compag.2010.08.010>
- [J42] 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](http://dx.doi.org/10.1155/2010/158602) (11 pages).

- [J43] 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. <https://doi.org/10.1007/s10586-009-0089-8>
- [J44] 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. <https://doi.org/10.1007/s10586-009-0082-2>

### Peer Reviewed Conference Publications

- [C1] Serhan Gener, Sahil Hassan, Ali Akoglu, “CEDR: A Holistic Software and Hardware Design Environment for Hardware Agnostic Application Development and Deployment on FPGA-Integrated Heterogeneous Systems,” CODES+ISSS '25: Proceedings of the International Conference on Hardware/Software Codesign and System Synthesis, Taipei, Taiwan, September 28 – October 3, 2025. <https://doi.org/10.1145/3742873.3758335>
- [C2] Maisha Hafiz, Sahil Hassan, Serhan Gener, Joshua Mack, Ali Akoglu, “Event-based Human Action Recognition: Rehabilitation Monitoring Dataset and Models ,” IEEE International Conference on Future Machine Learning and Data Science (FMLDS 2025), November 2-4, 2025, Los Angeles, CA, pp. 633-640. <https://doi.org/10.1109/FMLDS67896.2025.00103>
- [C3] Umut Suluhan, Umit Ogras, Chaitali Chakrabarti, Ali Akoglu, “K-PACT: Kernel Planning for Adaptive Context Switching - A Framework for Clustering, Placement, and Prefetching in Spectrum Sensing,” 2025 IEEE/ACM International Conference On Computer Aided Design (ICCAD), Munich, Germany, October 25-30, 2025, pp. 1-9, <https://doi.org/10.1109/ICCAD66269.2025.11240855>
- [C4] Arindam Dutta, Jiahao Lin, H. Umut Suluhan, Gerard Gubash, Ali Akoglu, Umit Y. Ogras, Bernd-Peter Paris, Daniel Bliss “Reconfigurable System Design and Trade Studies for Dynamic Spectral Sensing,” 59th Asilomar Conference on Signals, Systems, and Computers, October 26 - 29, 2025, Pacific Grove, CA, USA
- [C5] Serhan Gener, Sahil Hassan, Liangliang Chang, Chaitali Chakrabarti, Tsung-Wei Huang, Umit Ogras and Ali Akoglu, A Unified Portable and Programmable Framework for Task-Based Execution and Dynamic Resource Management on Heterogeneous Systems, 4th International Workshop on Extreme Heterogeneity Solutions (ExHet'25), March 2, 2025, Las Vegas, NV (**Best Paper**)
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- [C82] \*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.
- [C83] \*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.
- [C84] \*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. <https://doi.org/10.1109/IPDPS.2002.1016518>

### **Disclosures/Patents**

- [D1] Ali Akoglu, Mustafa Ghanim, Saul Durazo Martinez, Sahil Hassan, "CLEO-AI: Closed-loop Edge System for Optimized and Adaptive Intelligence," October 2025, UA26-068
- [D2] Ali Akoglu, Narayanan Rangaswamy, Xiaodong, Yan, "Adaptive Heterogeneous Computing for Intelligent Space Systems," November 2025, UA26-108
- [D3] Ali Akoglu, Serhan Gener, Md Sahil Hassan, Joshua Mack, "RIMMS: Runtime Integrated Memory Management System for Heterogeneous Computing," May 2025, UA25-270
- [D4] Ali Akoglu, Serhan Gener, Hasan Umut Suluhan "Architecture Enabling Wide-Band Spectrum Sensing(DR-DASH)," UA24-044, Feb 2024
- [D5] Ali Akoglu, Serhan Gener, Hasan Umut Suluhan, "K-PACT: Kernel Planning for Adaptive Context Switching — A Framework for Clustering, Placement, and Prefetching in Spectrum Sensing," UA25-268, May 2025
- [D6] Chaitali Chakrabarti, Umit Ogras, Alper Goksoy, Anish Krishnakumar, Ali Akoglu, M. Sahil Hassan, Radu Marculescu, A. Farcas, "Dynamic adaptive scheduling for energy-efficient heterogeneous systems-on-chip and related aspects," U.S. Patent 2024/0103908A1, Mar. 28, 2024
- [D7] Ali Akoglu, Daniel Bliss, Chaitali Chakrabarti, Serhan Gener, Mustafa Ghanim, Md Sahil Hassan, Jacob Holtom, Joshua Mack, Umit Ogras, Aditya Ukarande, "A novel

- implementation of runtime resource management system for deployment of dynamic workloads on heterogenous system on chips,” UA23-283, June 2024
- [D8] Ali Akoglu, Joshua Mack, Sahil Hassan, Serhan Gener, Mustafa Ghanim, “Framework for Domain-Specific Embedded Systems,” U.S. Patent Application No. 63/591,341, October 18, 2023
- [D9] Ali Akoglu, Serhan Gener, Mustafa Ghanim, Md Sahil Hassan, Joshua Mack, “CEDR-API: Productive, Performant Programming of Domain-Specific Embedded Systems,” UA23-173, Feb 2023
- [D10] Umit Ogras, Radu Marculescu, Ali Akoglu, Chaitali Chakrabarti, Daniel Bliss, Samet Arda, Anderson Sartor, Nirmal Kumbhare, Anish Krishnakumar, Joshua Mack, Ahmet Goksoy, Sumit Mandal, “Runtime Task Scheduling Using Imitation Learning for Heterogeneous Many-Core Systems”, 2021, Case ID:M21-089P, Published: 08-10-2021
- [D11] Umit Ogras, Radu Marculescu, Ali Akoglu, Chaitali Chakrabarti, Daniel Bliss, Samet Arda, Anderson Sartor, Nirmal Kumbhare, Anish Krishnakumar, Joshua Mack, Ahmet Goksoy, Sumit Mandal, “User-Space Emulation Framework for Domain-Specific SoC Design” Case ID: M21-095P, Published: 08-10-2021
- [D12] Umit Ogras, Radu Marculescu, Ali Akoglu, Chaitali Chakrabarti, Daniel Bliss, Samet Arda, Anderson Sartor, Nirmal Kumbhare, Anish Krishnakumar, Joshua Mack, Ahmet Goksoy, Sumit Mandal, “Hierarchical and Lightweight Imitation Learning for Dynamic Power Management of Embedded SoCs” Case ID: M21-094P, Published: 08-10-2021
- [D13] A. Alper Goksoy, Anish Krishnakumar, Md Sahil Hassan, Allen J Farcas, Chaitali Chakrabarti, Ali Akoglu, Radu Marculescu, Umit Y Ogras. "DAS: Dynamic Adaptive Scheduling for Energy-Efficient Heterogeneous SoCs". Invention disclosure filed, December 2021.
- [D14] Ali Akoglu, Joshua Mack, Bo Ryu, “Apparatus and method of a scalable and reconfigurable fast fourier transform”, Invention of Authorship Disclosure and provisional patent published US2021017602A1 on May 27, 2021
- [D15] 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.
- [D16] 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] Serhan Gener, Sahil Hassan, Ali Akoglu, “CEDR: A Holistic Software and Hardware Design Environment for Hardware Agnostic Application Development and Deployment on FPGA-Integrated Heterogeneous Systems,” International Conference on Parallel Architectures and Compilation Techniques (PACT), November 3-6, 2025, Irvine, CA <https://pact2025.github.io/workshops/>
- [W2] Serhan Gener, Sahil Hassan, Ali Akoglu, “A Holistic Software and Hardware Design Environment for FPGA-Integrated Heterogeneous Systems,” 2025 International Symposium on Field Programmable Gate Arrays, March 1-4, 2025, Monterey, CA, <https://www.isfpga.org/past/fpga2025/workshops-tutorials/#t6>
- [W3] Joshua Mack, Sahil Hassan, Ali Akoglu, “CEDR: A Holistic Software and Hardware Design Environment for FPGA-Integrated Heterogeneous Systems,” 2024 International Symposium

- on Field Programmable Gate Arrays, March 3-5, 2024, Monterey, CA  
<https://www.isfpga.org/past/fpga2024/workshops-tutorials/#t8>
- [W4] Education Class, Embedded Systems Week, Education Track, CEDR: A Novel Runtime Environment for Accelerator-Rich Heterogeneous Architectures, September 14, 2023  
[https://www.youtube.com/watch?v=nMWDFAChcFI&list=PLMohsHZ1Urxvq9ZXYDenPMtbodupJaoZw&index=9&ab\\_channel=EmbeddedSystemsWeek%28ESWEEK%29](https://www.youtube.com/watch?v=nMWDFAChcFI&list=PLMohsHZ1Urxvq9ZXYDenPMtbodupJaoZw&index=9&ab_channel=EmbeddedSystemsWeek%28ESWEEK%29)
- [W5] Daniel Bliss et al. "Implementation Examples on a Course-Scale Heterogeneous Processor," GOMACTech Conference, San Diego CA, March 20-23, 2023
- [W6] Daniel Bliss et al. "Implementation Examples on a Course-Scale Heterogeneous Processor," GOMACTech Conference, Miami, FL March 21-24, 2022
- [W7] Joshua Mack, Nirmal Kumbhare, Richard Uhrig, 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/](https://archive.fosdem.org/2020/schedule/event/llvm_aut_prog_het_soc/)
- [W8] Joshua Mack, Nirmal Kumbhare, Sahil Hassan, Miguel Castro, Samet Arda, Liangliang Chang, John Brunhaver, Chaitali Chakrabarti, Umit Ogras, Ali Akoglu, "Runtime Strategies and Task Scheduling of Software-Defined Radio on Heterogeneous Hardware, Is an accelerator always the best option?" Free and Open source Software Developers' European Meeting, Free Software Radio devroom, Brussels, Belgium, February 6-7, 2021  
[https://archive.fosdem.org/2021/schedule/event/fsr\\_runtime\\_strategies\\_and\\_scheduling\\_of\\_sdr\\_on\\_heterogeneous\\_hw/](https://archive.fosdem.org/2021/schedule/event/fsr_runtime_strategies_and_scheduling_of_sdr_on_heterogeneous_hw/)
- [W9] Joshua Mack, Nirmal Kumbhare, Ali Akoglu, "Domain-Focused Advanced Software-Reconfigurable Heterogeneous SoC Emulation Framework," GNU Radio 4.0 Hackfest, June 8, 2020
- [W10] 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).
- [W11] 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)
- [W12] 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)**
- [W13] 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)
- [W14] 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.
- [W15] Ali Akoglu, "GPU based 3D Heart Simulations," ECE 311 invited guest lecture, March 2019.
- [W16] 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.
- [W17] Ali Akoglu, “GPU based Parallel Computing with Case Studies,” ECE 311 invited guest lecture, November 2018.
- [W18] Ali Akoglu, “Heterogeneous Computing for Signal Processing,” Electrical and Computer Engineering Department, Oakland University, April 5, 2018. **(Invited)**
- [W19] Ali Akoglu, “Parallel Computing with Machine Learning Assisted Smart Programming Strategies” University of Arizona, HKN Lecture Series March 30, 2018. **(Invited)**
- [W20] Ali Akoglu, “Accelerating 3D Heart Simulations for Chronic Heart Failure Studies,” 18<sup>th</sup> International Engineering Symposium, University of Sonora, Hermosillo Mexico, February 27, 2018. **(Invited)**
- [W21] Ali Akoglu, “A Dynamically Composable Just In Time Architecture and Security Challenges,” Franco-American Workshop on Cybersecurity, Lyon, France, December 11-13, 2017.
- [W22] 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.
- [W23] 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.
- [W24] Ali Akoglu, “Image Enhancement Using FPGA and GPU” (Invited Lecture), Photometrics Inc., Tucson AZ, May 2017.
- [W25] Ali Akoglu, “GPU Programming Strategies” (Invited) University of Arizona, HKN Lecture Series, March 2017.
- [W26] 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)
- [W27] Ali Akoglu, “GPU:Under the Hood,” Guest Lecture, University of Arizona, ECE677-Distributed Computing, October 24, 2016.
- [W28] 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.
- [W29] Nilangshu Bidyanta, Ali Akoglu, “RealTime GPU Based Video Segmentation with Depth Information,” NVIDIA GPU Technology Conference, San Jose, CA, March 17-20, 2015.
- [W30] Under the Hood FPGAs and GPUs, Invited Speaker, UNAM, Mexico City, Mexico, September 2013.
- [W31] 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.
- [W32] 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.

- [W33] Ali Akoglu, “Wirelength Prediction and Modeling,” Lattice Semiconductors, San Jose, CA, May 16, 2012.
- [W34] Ali Akoglu, “Self-configurable architecture for reusable systems (SCARS),” Honeywell Aerospace Visit, College of Engineering, University of Arizona, Tucson, AZ, April 19, 2011.
- [W35] 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.
- [W36] 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.
- [W37] 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.
- [W38] 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.
- [W39] iPlant Collaborative inaugural conference "Bringing Plant and Computing Scientists Together to Solve Grand Challenges," 2010.
- [W40] 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] Creating Common Language for Satellites, Featured in Arizona Engineer Winter 2022,  
<https://news.engineering.arizona.edu/news/creating-common-language-satellites>
- [NP2] New Study on a Novel Systems-on-Chip Simulation Framework Chosen as Featured Paper, August 1, 2020  
<https://bio5.org/news/new-study-novel-systems-chip-simulation-framework-chosen-featured-paper>  
<https://www.computer.org/digital-library/journals/tc/tc-multimedia#english>
- [NP3] 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>
- [NP4] 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>
- [NP5] AZ PBS, Mapping the Human Immune System, October 25, 2016  
<http://www.azpbs.org/arizonahorizon/play.php?vidId=9639>

- [NP6] 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>
- [NP7] AZ PBS, October 25, 2016, Mapping the Human Immune System. <http://www.azpbs.org/arizonahorizon/play.php?vidId=9639>
- [NP8] 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>
- [NP9] 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>
- [NP10] 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.
- [NP11] 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.
- [NP12] David Montgomery and Ali Akoglu, “Cryptographic instruction set processor design,” Information Security and Cryptology Conference, Ankara, Turkey, December 13-14, 2007.
- [NP13] 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.
- [NP14] \*Ali Akoglu, Aravind Dasu, and Sethuraman Panchanathan, “Design of fast and efficient hybrid-FPGAs for numerically intensive applications,” 7<sup>th</sup> Annual Military and Aerospace Programmable Logic Devices (MAPLD) Conference, Washington, D.C., September 2004.

**GRANTS AND CONTRACTS**

<b>Federal Grants Funded</b>		
[G1]	Project/Proposal Title:	Dynamic Heterogenous Antenna Array Software-Reconfigurable Receiver (DHAASR)
	Source of Support:	Next Generation Electronic Surveillance Technology DARPA – NGEST
	Total Award Amount:	\$616,000

**CURRICULUM VITAE: ALI AKOGLU**

	Period Covered: Role: Award Credit:	12/09/2024 – 09/08/2027 PI 100%
[G2]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: Award Credit:	Dynamic Runtime Domain-Focused Software-Reconfigurable Heterogeneous (DR-DASH) Processor DARPA -PROWESS \$393,000 9/1/2023 – 4/30/2025 PI 100%
[G3]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: Award Credit:	5G ASIC Integration with 5G SPARC (5GSIC) Department of Defense \$70,000 6/1/2023 – 5/31/2024 PI 100%
[G4]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: PI: Award Credit:	CCRI: Planning-C: Federated Cloud Platform for Networked Cyber Physical Systems Research NSF \$99,999 6/15/2022 – 6/14/2023 CoPI Pratik Satam 50%
[G5]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: Award Credit:	COCHON: Configurable Optical Communications via Heterogeneous-processing Optimized Node DARPA Space-Based Adaptive Communications Node (Space-BACN) Program – Subcontract Arizona State University \$876,250 6/15/2022 – 6/14/2025 PI 100%
[G6]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: CoPI: Award Credit:	NSC-20-2090 - 5G Prototype Applications NSC \$1,353,271 10/1/2020 – 12/31/2023 CoPI Ravi Tandon, Tamal Bose, Hao Xin 25%
[G7]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: CoPI:	AMAP-based Autonomic Security Operations Center(ASoC) Air Force Research Labs \$200,000 9/2/2019 – 9/1/2022 PI Gregory Ditzler

**CURRICULUM VITAE: ALI AKOGLU**

	Award Credit:	50%
[G8]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: Award Credit:	Domain-Focused Advanced Software-Reconfigurable Heterogeneous System on Chip (DASH-SoC) DARPA – Subcontract Arizona State University \$1,422,742.00 8/15/2018 – 05/31/2025 PI 100%
[G9]	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%
[G10]	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%
[G11]	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%
[G12]	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%
[G13]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered:	NSF Student Travel Grant 2018 ACS/IEEE International Conference on Computer Systems and Applications (AICCSA) NSF \$15,000 8/15/2018 – 8/14/2019

**CURRICULUM VITAE: ALI AKOGLU**

	<p>Role: PI CoPI: Salim Hariri Award Credit: 50%</p>
[G14]	<p>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%</p>
[G15]	<p>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%</p>
[G16]	<p>Project/Proposal Title: NSF Industry/University Cooperative Research Center for Cloud and Autonomic Computing – Phase II 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%</p>
[G17]	<p>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%</p>
[G18]	<p>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%</p>
[G19]	<p>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</p>

**CURRICULUM VITAE: ALI AKOGLU**

	Period Covered: 5/24/2014-10/14/2015 Role: PI Award Credit: 100%
[G20]	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%
[G21]	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%
[G22]	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%
[G23]	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%
[G24]	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%
[G25]	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%

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[G26]	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%
[G27]	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%
<b>Industry Grants Funded</b>		
[G28]	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%
[G29]	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%
[G30]	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%
[G31]	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%
[G32]	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%

<b>Industry Education Grants Funded</b>		
[G33]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: Award Credit:	Chiplets and Chip Sets NXP \$7,692,638.52 (CoPI, 12.5%) 8/31/2025 CoPI 12.5%
[G34]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: Award Credit:	AMD University Program (AUP-ZU3 Development Board) AMD \$890 8/31/2025 PI 100%
[G35]	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%
[G36]	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%
[G37]	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%
[G38]	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%
[G39]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role:	Xilinx University Program (Nexys4 DDR-410-292P-KIT) Xilinx \$1,600 6/13/2017 PI

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	Award Credit:	100%
[G40]	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%
[G41]	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%
[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 \$3,749 11/16/2015 PI 100%
[G43]	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%
[G44]	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%
[G45]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: Award Credit:	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 PI 100%
[G46]	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%
[G47]	Project/Proposal Title:	FPGA Boards and Xilinx ISE System Edition (x25 licenses)

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	Source of Support: Total Award Amount: Period Covered: Role: Award Credit:	Xilinx University Program \$26,465 2/15/2010 – 2/14/2011 PI 100%
[G48]	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%
[G49]	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%
[G50]	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%
<b>State Grants Funded</b>		
[G51]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered: Role: PI: Award Credit:	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 Yuzuru Takahashima 50%
[G52]	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%
[G53]	Project/Proposal Title: Source of Support: Total Award Amount: Period Covered:	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

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	Role: PI Award Credit: 100%
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