

## Biographical sketch

Semih Aslan

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### (a) Professional Preparation

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|---------------------------------------------------|------------------------|---------------|
| • Illinois Institute of Technology, Chicago, IL   | Computer Engineering   | Ph.D. 2010    |
| • Illinois Institute of Technology, Chicago, IL   | Electrical Engineering | M.S.E.E 2003  |
| • Istanbul Technical University, Istanbul, Turkey | Electrical Engineering | B.S.E.E. 1994 |

### (b) Appointments

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|-----------------------------------------------------------------------------------|----------------|
| • Assistant Professor, Texas State University, San Marcos, Texas.                 | 2011 - Present |
| • Post-Doctoral Research Associate, Illinois Institute of Technology, Chicago, IL | 2011 - 2011    |
| • Sr. FPGA Design Engineer, Motorola, Arlington Heights, IL                       | 2010 - 2011    |
| • Research Assistant, Illinois Institute of Technology, Chicago, IL               | 2008 - 2010    |
| • Teaching Assistant, Illinois Institute of Technology, Chicago, IL               | 2007 - 2010    |
| • Instructor - ITT Technical Institute, Burr Ridge, IL                            | 2000 - 2010    |
| • Associate Dean, ITT Technical Institute, Burr Ridge, IL                         | 2004 - 2006    |
| • Instructor, American Academy of Art, Chicago, IL                                | 2008 - 2010    |
| • Electrical Engineer, SA-RA Inc., Ankara, Turkey                                 | 1994 - 1995    |

### (c) Publications

#### (i) Book Chapter

[1] J. Saniie, E. Oruklu, Spenser Gilliland, and S. Aslan, “*Smart Sensors with System-on-Chip Processing Engines for Ultrasonic Imaging and Nondestructive Testing Applications*”, Smart Sensors and Microsystems for Industrial Applications, S. Nihtianov and Antonio L. Estepa (Editors), Woodhead Publishing Limited, November 2013.

#### (ii) Journal Papers

[1] Aslan, S., Mohammad, E., and Salamy H. “*Open Source Synthesis and Verification Tool for Fixed-to-Floating and Floating-to-Fixed Points Conversions*”. Circuits and Systems, Scientific Research Publishing, accepted.

[2] S. Aslan, S. Niu, J. Saniie, “*Hardware and Software Architectures for QR Decomposition using Recursive Least Square Algorithm*”, Journal of Circuits, Systems and Signal Processing, Springer Publishing, accepted.

[3] Aslan, S., “[\*Reconfigurable HDL Library Development Platform for Arithmetic and Matrix Operations\*](#)”, International Journal of Computer Applications, vol. 141, no. 4, pp. 40-50, May, 2016

[4] Aslan, S., “[\*MATLAB Based High Level Synthesis Engine for Area and Power Efficient Arithmetic Operations\*](#)”, International Journal of Computational Engineering Research, vol. 6, no. 4, pp. 1-8, April, 2016

[5] Aslan, S. and Saniie, J. “[\*Matrix Operations Design Tool for FPGA and VLSI Systems\*](#)”. Circuits and Systems, Scientific Research Publishing, vol. 7, no. 2, pp. 43-50, February, 2016

[6] Erdal Oruklu, Semih Aslan, Christophe Desmouliers, Fernando M. Vallina, Jafar Saniie, “[\*Image and Video Processing Platform for FPGAs Using High-Level Synthesis\*](#)”, IET Computers Digital Techniques, vol. 6, no. 6, pp. 414– 425, November 2012

[7] Erdal Oruklu, Richard Hanley, Semih Aslan, Christophe Desmouliers, Fernando M. Vallina, Jafar Saniie, “[\*System-on-Chip Design Using High-Level Synthesis Tools\*](#)”, Circuits and Systems, Scientific Research Publishing, vol. 3, no. 1, pp. 1-9, January 2012

(iii) Conference Papers

- [1] Z. Almusaied, B. Asiabanpour, N. Hawkes, K. Rainosek, S. Aslan, "[Optimization of the Solar Energy Harvesting Using Statistical Optimization](#)", The 14th International Conference on Scientific Computing, Las Vegas, Nevada, 2016, Accepted.
- [2] Almusaied, Z., Asiabanpour, B., Aslan, S. "[An experimental investigation of the environmental and system setting factors affecting the photovoltaic panel energy output efficiency](#)", 7th International Research Conference for Graduate Students, TX, 2015.
- [3] Salamy, H., Aslan, Semih., "[A genetic algorithm based approach to pipelined memory-aware scheduling on an MPSoC](#)", IEEE Circuits and Systems Conference (DCAS), Dallas, TX, 2015.
- [4] Asiabanpour, B., Aslan, S., Salamy, H., Warren, J., Almusaied, Z., "[Web-based Data Management System Design and Development for the Multisite Renewable Energy Research and Education Partnership](#)", Worldcomp 2015: The 11th International Conference on Grid & Cloud Computing and Applications. Las Vegas, NV, 2015.
- [5] Almusaied, Z., Asiabanpour, B., Aslan, S., Jimenez, J., Salamy, H., "[Solar Energy Generation: Roadblocks and Their Economically Viable Remedies](#)", IERC2015, TN, 2015
- [6] Oritz, A., Asiabanpour, B., Aslan, S., Jimenez, J., Salamy, H., Kim, Y., "[Engaging Students in Environmental Learning and Awareness of Green Design Technologies and Careers through a Pre-Engineering Program](#)", ASEE, WA, 2015.
- [7] S. Aslan, B. Asiabanpour, H. Salamy, J. Jimenez and R. Cook "[Constant Power Production and Harvesting Using Roof Ventilation Systems](#)", International Conference on Flexible Automation and Intelligent Manufacturing, 2014.
- [8] Semih Aslan, Hassan Salamy, and Jafar Saniie "[A High-Level Synthesis and Verification Tool for Application Specific Division and kth-Root Processing Engines](#)", IEEE International Midwest Symposium on Circuits and Systems, 2013.
- [9] Sufeng Niu, S. Wang, S. Aslan, J. Saniie, "[Hardware and software design for QR Decomposition Recursive Least Square algorithm](#)", IEEE International Midwest Symposium on Circuits and Systems, 2013.
- [10] Hassan Salamy and Semih Aslan, "[Energy-Aware Schedule Optimization on Multicore Systems](#)", IEEE International Midwest Symposium on Circuits and Systems, 2013.
- [11] Hassan Salamy, Semih Aslan, and Divya Methukumalli, "[Task Scheduling on Multicores under Energy and Power Constraints](#)", IEEE Canadian Conference on Electrical and Computer Engineering, 2013.
- [12] Sufeng Niu, S. Aslan, J. Saniie "[FPGA based Architectures for High Performance Adaptive FIR Filter Systems](#)", 2013 IEEE International Instrumentation and Measurement Technology Conference, May 6, 2013
- [13] Spenser Gilliland, J. Saniie, S. Aslan "[Linux Based Reconfigurable Platform for High Speed Ultrasonic Imaging](#)", IEEE International Midwest Symposium on Circuits and Systems, pages 486-4489, August 2012
- [14] S. Aslan, Sufeng Niu, J. Saniie, "[FPGA Implementation of Fast QR Decomposition Based on Givens Rotation](#)", IEEE International Midwest Symposium on Circuits and Systems, pages 470-473, August 2012
- [15] S. Aslan, E. Oruklu, J. Saniie, "[A High-Level Synthesis and Verification Tool for Fixed to Floating Point Conversion](#)", IEEE International Midwest Symposium on Circuits and Systems, pages 908-911, August 2012
- [16] S. Aslan, E. Oruklu, J. Saniie, "[Architectural Design Tool for Low Area Band Matrix LU Factorization](#)", IEEE Electro/Information Technology Conference, Pages 1-6, May 2011
- [17] S. Aslan, C. Desmouliers, E. Oruklu, J. Saniie, "[An Efficient Hardware Design Tool for Scalable Matrix Multiplication](#)", IEEE International Midwest Symposium on Circuits and Systems, pages 1262-1265, August 2010
- [18] S. Aslan, C. Desmouliers, E. Oruklu, J. Saniie, "[High Performance Reconfigurable Pipelined Matrix Multiplication Module Designer](#)". IEEE Electro/Information Technology Conference, pages 1-6, May 2010
- [19] C. Desmouliers, S. Aslan, F. Martinez, E. Oruklu, J. Saniie, "[HW/SW Co-design Platform for Image and Video Processing Applications on Virtex-5 FPGA using PICO](#)", IEEE Electro/Information Technology Conference, May 2010
- [20] E. Oruklu, S. Aslan, J. Saniie, "[Applications of time-frequency distributions for ultrasonic flaw detection](#)", IEEE International Ultrasonic Symposium, pages 2000-2003 September 2009
- [21] S. Aslan, E. Oruklu, J. Saniie, "[Realization of area efficient QR factorization using unified division, square root, and inverse square root hardware](#)", IEEE Electro/Information Technology Conference, pages 245-250, June 2009

### (iii) Currently in Progress/ Under Review Papers

- [1] S. Aslan, B. Asiabanpour, M. Londa, H. Salamy, J. Jimenez, “A BRIDGE Program to Engage, Sustain and Empower Women and Minorities in STEM”, NACTA Journal Vol. 60, accepted.
- [2] Almusaied, Z., Asiabanpour, B., Aslan, S., Hawkes, N., Rainosek, K., “Optimization of Solar Energy Harvesting: An Empirical Approach”, Journal of Applied Energy, Elsevier, submitted.
- [3] B. Asiabanpour, Z. Almusaied, S. Aslan, M. Mitchell, E. Leake, H. Lee, J. Fuentes, K. Rainosek, N. Hawkes, “Fixed versus Sun Tracking Solar Panels: An Economic Analysis”, Journal of Solar Energy Engineering: Including Wind Energy and Building Energy Conservation, ASME, submitted.
- [4] H. Salamy, S. Aslan, “Pipelined-Scheduling of Multiple Embedded Applications on a Multi-processor-SoC”, Journal of Circuits, Systems, and Computers, Springer Publishing, submitted.
- [5] Aslan, S. and Chandrai, K. R., “Functionality based Coverage Metrics for SoC Post-Silicon Validation”. Circuits and Systems, Scientific Research Publishing, submitted.
- [6] S. Aslan, J. Saniie, “Architectural Design Tools for Low Power, High Speed Band Matrix Operations”, in progress.
- [7] S. Aslan, B. Asiabanpour, M. Londa, “Increase Industry Involvement in Dynamic Engineering Education”, in progress.
- [8] S. Aslan, M. Ekram, “High Level Synthesis Fixed-Float Conversion Block for Dynamic Systems”, in progress.
- [9] S. Aslan, M. Ekram, “OpenCV Based Real Time Face Recognition System”, in progress.
- [10] S. Aslan, K. Ranganathapura, V. Ranganathapura, Jafar Saniie, “Fast Strassen Matrix Multiplication using Multi Core Processing”, in progress.
- [11] S. Aslan, M. Rodriguez, M. Kumar, K. Raghu, “MATLAB Based Multiplier Free FIR Filter Design System”, in progress.
- [12] S. Aslan, M. Kumar, K. Raghu, “Shiny Based Dynamic Learning Environment for Signal and Systems”, in progress.
- [13] S. Aslan, Hassan Salamy, Jafar Saniie, “Dynamic Teaching for Digital Signal Processing”, in progress.
- [14] S. Aslan, K. Ranganathapura, V. Ranganathapura, “Large Matrix QR Factorization for MIMO Systems”, in progress.
- [15] Semih Aslan, “Dynamic and Reproducible research with R Markdown, LaTeX and TikZ”, in progress.

### (d) Funded External Grants and Contracts:

- [1] NEC Corporation of America, “Through-The-Earth Data Transmission Systems to Enable Buried Environmental Sensors”, Budget: \$69,000, PI (Aslan, S.), CoPI (Stern, H). Year: 2016-2017.
- [2] NEC Corporation of America, “Joint Study for a Data-Intensive Analysis of the NEC In-Vehicle Passenger Detection System – Phase II”, Budget: \$44,608, PI (Jimenez, J.), CoPIs (Aslan, S, Perez, E.). Year: 2016.
- [3] NEC Corporation of America, “Joint Study for a Data-Intensive Analysis of the NEC In-Vehicle Passenger Detection System – Phase I”, Budget: \$43,000, PI (Jimenez, J.), CoPIs (Aslan, S, Viswanathan, V, Stapleton, S, McClellan, S). Year: 2015.
- [4] Freescale, “Bringing the Internet of Things to Texas State University”, Budget: \$350,000. (\$100k equipment and \$250k students and faculty support), Type: Donation, Role: One of leading members. Other Personnel: William Stapleton, Hassan Salamy, and Vishu Viswanathan, Year: 2014.
- [5] Department of Education-MSEIP, 2014-17, “REENERGIZE: Recruitment and Retention of Students in STEM Programs through a Renewable Energy Research and Education Partnership with Five Minority Institutions” PI (Asiabanpour, B.) and CoPI (Aslan, S., Jimenez, J., Salamy, H., Kim, Y., Ortiz, A., and Viswanathan, V.), Amount: \$613,822.
- [6] USDA- WAMS, 2014-16, Women and Minorities in Science, Technology, Engineering, and Mathematics Fields Program, “A BRIDGE Program to Engage, Sustain and Empower Women and Minorities in STEM (ESE WAMS)”, PI(Aslan, S.), CoPIs (Asiabanpour, B., Salamy, H., Jimenez, J., Londa, M.). Amount: \$417,017 (\$106,505 USDA + \$310,512 Matching from Intel)
- [7] Halliburton, 2014, “Developing High School Students Curiosity in Science and technology in Capstone Design Days” PI (Jin, T.) and CoPI (Apan, Q., Asiabanpour, B., Aslan, S., Jimenez, J., Francis, M., Romanella, S., Stern, H., Tate, J.), Amount: \$8,600.

- [8] Texas Higher Education Coordinating Board (THECB) ESP- Engineering Summer Program, 2014, “Designing Green-Engineering Summer Camp” PI. (Asiabanpour, B.), CoPIs (Aslan, S., Ortiz, A., Jimenez, J., Kim, Y., Salamy, H.), Amount: \$12,500.
- [9] “Renewable Energy Teaching and Research in the SMART Lab (System Modeling and Renewable Technology”, Innovation Energy Demonstration Grant Program, State Energy Conversation Office (SECO), Texas. Budget: \$100,764. (PI: Semih Aslan; Co-PIs: Hassan Salamy, Bahram Asiabanpour and Jesus Jimenez). 2013.
- [10] “Performance Testing for Virtualized Environments”, ZNYX Networks, INC, Budget: \$122,000. (PI: Stan McClellan; Co-PIs: Wuxu Peng, Hassan Salamy and Semih Aslan). 2012- 2014.
- [11] “Electronics Testing System”, Thermon Inc., San Marcos, TX, Amount: Budget: \$2000. (PI :Aslan, S. , CoPI :Asiabanpour, B.), Thermon, 2012.
- [12] “Xilinx FPGA Software and Hardware for Classroom and Research Lab”, Xilinx Inc., San Jose, CA, Amount: \$81,806 (non-cash), (PI: Semih Aslan), 2012-2015
- [13] “ImpulseC HLS Software for Classroom and Research Lab”, Impulse Accelerated Technologies, Bellevue, Washington, Amount: \$16,000 (non-cash), (PI: Semih Aslan), 2012.

### **(e) Synergistic Activities**

- [1] Editorial Board: Parallel & Cloud Computing Journal, MAYFEB Journal of Electrical and Electronic Engineering.
- [2] Journal Reviewer: Circuits and Systems, Scientific Research, Sustainable Computing, Informatics and Systems, Elsevier, The IEEE Signal Processing Letters, Parallel & Cloud Computing Journal, The IEEE Transactions Instrumentations and Measurements, Journal of Sensor Technology, Scientific Research Publishing, American Journal of Engineering Education (AJEE).
- [3] Session Chair: Open Server Summit (2013), IEEE Midwest Conference (2013), IEEE International Instrumentation and Measurement Technology Conference (2012).
- [4] Conference Reviewer: ASEE (2015), IEEE Midwest (2013), IEEE International Instrumentation and Measurement Technology Conference (2012).
- [5] NSF grant proposal project advisory committee member, working with Illinois Institute of Technology, 2014.
- [6] NSF grant proposal project advisory committee member, working with Southeast Missouri State University, 2014.
- [7] Cyber security advisory committee member, Southeast Missouri State University, 2014 - current.
- [8] Panelist: Department of Defense (DoD) SMART Scholarship Evaluation Panel, 2016.
- [9] Award of Distinction, World Embedded Software Contest, Seoul, South Korea, 2009
- [10] Second Place, Illinois Institute of Technology University-wide Poster Competition, 2009
- [11] First Place, IIT Computer Engineering Doctoral Student Poster Competition, 2008
- [12] Founding member of the SMART (System Modeling and Renewable Technology) lab to teach and research green and renewable energy.
- [13] IEEE Senior Member
- [14] ASEE Member