

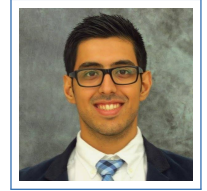
# Soheil Salehi

## Curriculum Vitae

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📄 [Personal Web Page](#)

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### Education

2014 – Present **Ph.D. Candidate**, *Computer Engineering*, ECE Department, University of Central Florida, Orlando, FL. GPA: 3.932/4.0 - Academic Advisor: Professor Ronald F. DeMara.

2014 – 2016 **M.S.**, *Computer Engineering*, EECS Department, University of Central Florida, Orlando, FL.

2011 – 2014 **B.S. (Visiting Student)**, *Computer Engineering*, ECE Department, University of Tehran, Iran.

2009 – 2014 **B.S.**, *Computer Engineering*, ECE Department, Isfahan University of Technology, Iran.

#### M.S. Thesis

2016 **Thesis Title:** "*Towards Energy-Efficient and Reliable Computing: From Highly-Scaled CMOS Devices to Resistive Memories*".

#### B.S. Project

2014 **Project Title:** "*Design and implementation of an Autonomous Embedded System for Vehicles utilizing Wireless Sensor Networks*".

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### Research Experiences

2014 - Present **Computer Architecture Lab.**, *Electrical Engineering and Computer Science Department, University of Central Florida*, Orlando, Florida.

- Technical Research Interests: Reconfigurable and Adaptive Computer Architectures, Spintronic-Based Circuits and Architectures, Low Power and Reliability-Aware VLSI circuits, Deep Sub-micron Technology Challenges, Evolvable Hardware, Intelligent Systems, Neuromorphic Computing Architectures.
- STEM Education Research Interests: Digitization and Personalization of STEM Curricula.

2013-2014 **Advanced Robotics and Intelligent Systems Lab.**, *Electrical and Computer Engineering Department, University of Tehran*, Tehran.

- Conducted Research on Rehabilitation Robotics: Hardware Design and implementation of Intelligent Robots for Early Detection and Treatment of Autism in Autistic Children.

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### Journal Publications

#### Technical Manuscripts

- (7) **S. Salehi**, R. Zand, and R. F. DeMara, "CLOCKLESS SPIN-BASED LOOK-UP TABLES WITH WIDE READ MARGIN," Submitted to *IEEE Transactions on Circuits and Systems II: Express Briefs (TCAS-II)*, 2019. (Impact Factor: 2.45)
- (6) **S. Salehi**, and R. F. DeMara, "SLIM-ADC: SPIN-BASED LOGIC-IN-MEMORY ANALOG TO DIGITAL CONVERTER LEVERAGING SHE-ENABLED DOMAIN WALL MOTION DEVICES," Accepted for Publication in *Microelectronics Journal, Special Issue on "Spintronic Integrated Circuits and New Architectures for Low Power Electronics"*, vol. 81, pp. 137-143, October 2018. (Impact Factor: 1.322)
- (5) **S. Salehi**, M. Boloursaz Mashhadi, A. Zaeemzadeh, N. Rahnavard, and R. F. DeMara, "ENERGY-AWARE ADAPTIVE RATE AND RESOLUTION SAMPLING OF SPECTRALLY SPARSE SIGNALS LEVERAGING VCMA-MTJ DEVICES," in *IEEE Journal on Emerging and Selected Topics in Circuits and Systems (JETCAS), Special Issue on "Energy-Quality Scalable Circuits and Systems"*, 2018. (Impact Factor: 3.218)
- (4) **S. Salehi**, N. Khoshavi, R. Zand, and R. F. DeMara, "SELF-ORGANIZED SUB-BANK SHE-MRAM-BASED LLC: AN ENERGY-EFFICIENT AND VARIATION-IMMUNE READ AND WRITE ARCHITECTURE," in *Integration, The VLSI Journal, Special Issue on "International Symposium on Quality Electronic Design (ISQED) 2017"*, 2018. (Impact Factor: 0.906)

- (3) **S. Salehi**, N. Khoshavi, and R. F. DeMara, "MITIGATING PROCESS VARIABILITY FOR NON-VOLATILE CACHE RESILIENCE AND YIELD," in *IEEE Transactions on Emerging Topics in Computing (TETC), Special Issue on "Reliability-aware Design and Analysis Methods for Digital Systems: from Gate to System Level"*, 2018. (Impact Factor: 3.626)
- (2) **S. Salehi**, D. Fan, and R. F. DeMara, "SURVEY OF STT-MRAM CELL DESIGN STRATEGIES: TAXONOMY AND SENSE AMPLIFIER TRADEOFFS FOR RESILIENCY," in *ACM Journal on Emerging Technologies in Computing Systems (JETC)*, vol. 13, no. 3, pp. 1-16, May 2017. (Impact Factor: 0.705)
- (1) R. Zand, A. Roohi, **S. Salehi**, and R. F. DeMara, "SCALABLE ADAPTIVE SPINTRONIC RECONFIGURABLE LOGIC USING AREA-MATCHED MTJ DESIGN," in *IEEE Transactions on Circuits and Systems II: Express Briefs (TCAS-II)*, vol. 63, no. 7, pp. 678-682, July 2016. (Impact Factor: 2.45)

### STEM Educational Manuscripts

- (1) B. Chen, R. F. DeMara, **S. Salehi**, and R. Hartshorne, "ELEVATING LEARNER ENGAGEMENT AND OUTCOMES USING IN-SITU ONLINE FORMATIVE ASSESSMENT IN THE ENGINEERING LABORATORY: A VIABLE ALTERNATIVE TO WEEKLY LAB REPORTS," in *IEEE Transactions on Education*, vol. 61, no. 1, pp. 1-10, February 2018. (Impact Factor: 1.6)

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## Conference Publications

### Technical Manuscripts

- (6) **S. Salehi**, and R. F. DeMara, "BGIM: BIT-GRAINED INSTANT-ON MEMORY CELL FOR SLEEP POWER CRITICAL MOBILE APPLICATIONS," in Proceedings of *IEEE International Conference on Computer Design (ICCD'18)*, Orlando, Florida, USA, October 7-10, 2018.
- (5) **S. Salehi**, and R. F. DeMara, "PROCESS VARIATION IMMUNE AND ENERGY AWARE SENSE AMPLIFIERS FOR RESISTIVE NON-VOLATILE MEMORIES," in Proceedings of *IEEE International Symposium on Circuits and Systems (ISCAS'17)*, Baltimore, Maryland, May 28-31, 2017.
- (4) N. Khoshavi, **S. Salehi**, and R. F. DeMara, "VARIATION-IMMUNE RESISTIVE NON-VOLATILE MEMORY USING SELF-ORGANIZED SUB-BANK CIRCUIT DESIGNS," in Proceedings of *International Symposium on Quality Electronic Design (ISQED'17)*, Santa Clara, California, March 13-15, 2017. (Best Paper of the Session and Best Paper of The Conference Award Nominee - top 10%)
- (3) **S. Salehi**, and R. F. DeMara, "ENERGY AND AREA ANALYSIS OF A FLOATING-POINT UNIT IN 15NM CMOS PROCESS TECHNOLOGY," in Proceedings of *IEEE SoutheastCon (SECon'15)*, Fort Lauderdale, FL, USA, April 9-12, 2015.
- (2) R. A. Ashraf, A. Al-Zahrani, N. Khoshavi, R. Zand, **S. Salehi**, A. Roohi, M. Lin, and R. F. DeMara, "REACTIVE REJUVENATION OF CMOS LOGIC PATHS USING SELF-ACTIVATING VOLTAGE DOMAINS," in Proceedings of *IEEE International Symposium on Circuits and Systems (ISCAS'15)*, Lisbon, Portugal, May 24-27, 2015.
- (1) P. Soleiman, **S. Salehi**, M. Mahmoudi, M. Ghavami, H. Moradi, and H. Pouretamad, "ROBOPARROT: A ROBOTIC PLATFORM FOR HUMAN ROBOT INTERACTION, CASE OF AUTISTIC CHILDREN," in Proceedings of *Second RSI/ISM International Conference on Robotics and Mechatronics (ICRoM'14)*, Tehran, Iran, October 15-17, 2014.

### STEM Educational Manuscripts

- (3) R. F. DeMara, **S. Salehi**, B. Chen, and R. Hartshorne, "GLASS: GROUP LEARNING AT SIGNIFICANT SCALE VIA WIFI-ENABLED LEARNER DESIGN TEAMS IN AN ECE FLIPPED CLASSROOM," in Proceedings of *American Society for Engineering Education National Annual Conference (ASEE'17)*, Columbus, Ohio, June 25-28, 2017.
- (2) R. F. DeMara, **S. Salehi**, and S. Muttineni "EXAM PREPARATION THROUGH DIRECTED VIDEO BLOGGING AND ELECTRONICALLY-MEDIATED REALTIME CLASSROOM INTERACTION," in Proceedings of *American Society for Engineering Education Southeast Section Conference (ASEE-SE'16)*, Tuscaloosa, AL, USA, March 13-15, 2016.
- (1) R. F. DeMara, **S. Salehi**, N. Khoshavi, R. Hartshorne, and B. Chen, "STRENGTHENING STEM LABORATORY ASSESSMENT USING STUDENT-NARRATIVE PORTFOLIOS INTERWOVEN WITH ONLINE EVALUATION," in Proceedings of *American Society for Engineering Education Southeast Section Conference (ASEE-SE'16)*, Tuscaloosa, AL, USA, March 13-15, 2016.

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## Presentation/Participation in Conferences/Workshops/Seminars

- Presentation at IEEE ICCD, Orlando, FL, October 7-10, 2018.
- Participation in ASEE National, Salt Lake City, UT, June 24-27, 2018.
- Presentation at ASEE National, Columbus, OH, June 25-28, 2017.
- Presentation at IEEE ISCAS, Baltimore, MD, May 28-31, 2017.
- Presentation at ASEE Southeastern, Tuscaloosa, AL, March 13-15, 2016.
- Presentation at IEEE SoutheastCon, Fort Lauderdale, FL, April 9-12, 2015.
- Participation in IEEE ISSCI, Orlando, FL, December 9-12, 2014.
- Invited as a Panelist on the subject of Digitizing and Remediating STEM Assessments, University of Central Florida, Orlando, 2016, 2017, and 2018.
- Invited Seminar Talk on the subject of Distributed Computing in the Models of Computation and Computational Models Seminar held by ACM Student Chapter, University of Tehran, Iran, 2012.

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## Teaching Experiences

- Teaching Assistant & Lab Instructor **Computer Organization and Design**, *Fall 2014 through Fall 2018*, University of Central Florida.
- Teaching weekly labs to about 100 students per semester; including grading of assignments
  - Designing and Preparing Projects, Lab Assignments and Lab Assessments
  - Using Mars Assembler and Xilinx ISE software and C/C++ and Verilog/VHDL Languages
  - Preparing Demos of different part of a Processor's RTL and Schematic design using Synopsys: Design Compiler
- Teaching Assistant **Electronics I**, *Spring and Fall 2013, Spring 2014*, University of Tehran.
- Tutoring about 100 students per semester and solving their problems and answering to their questions during weekly sessions; including Designing and Preparing Projects and Assignments, and Grading of Assignments
- Teaching Assistant **Theory of Formal Languages and Automata**, *Fall 2013, Spring 2014*, University of Tehran.
- Tutoring about 75 students per semester and solving their problems and answering to their questions during weekly sessions; including Designing and Preparing Projects and Assignments, and Grading of Assignments
- Teaching Assistant **Micro-Processors Interfacing Circuit Design**, *Spring 2013, Spring 2014*, University of Tehran.
- Tutoring about 75 students per semester and solving their problems and answering to their questions during weekly sessions; including Designing and Preparing Projects and Assignments, and Grading of Assignments
  - Using AVR Studio and CodeVision AVR softwares and C and AVR assembly Languages
- Teaching Assistant **Micro-Processors**, *Fall 2013*, University of Tehran.
- Tutoring about 75 students and solving their problems and answering to their questions during weekly sessions; including Designing and Preparing Projects and Assignments, and Grading of Assignments
  - Using AVR Studio and CodeVision AVR softwares and C and AVR assembly Languages
- Teaching Assistant & Lab Instructor **Advanced Programming and Laboratory**, *Spring 2011*, Isfahan University of Technology.
- Teaching Course Materials and Weekly Labs to about 100 students; including grading of assignments
  - Designing and Preparing Projects, Lab Assignments and Lab Assessments
  - Using Visual Studio and Qt Softwares and C/C++ Languages

## Professional Training

- Course Content Development **Computer Organization and Design**, *Fall 2014 through Fall 2018*, University of Central Florida.
- Worked closely with two faculty members in order to develop Syllabus, Projects, Lab assignments, Quizzes, Exams, and Course Contents in an innovative electronically-delivered format for about 100 students per semester
  - Developing a new method for lab assignments and lab assessments using Xilinx Basys2 FPGA boards
  - Designing and Preparing the course web page and online evaluation
  - Authoring a 14-Week Lab Manual for the required laboratory component.
- Training Course (Trainee) **Preparing Tomorrow's Faculty**, *May 2015-August 2015*, University of Central Florida.
- Creating and organizing course content and related documents
  - Writing a teaching philosophy statement
  - Identifying and discuss relevant issues in teaching and learning
  - Managing students' behavior through effective policies and expectations
  - Evaluating students' strengths related to teaching and learning
  - Constructing a teaching portfolio

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## Honors and Awards

- National Science Foundation (NSF) Student Travel Grant to attend the IEEE International Conference on Computer Design, 2018, for a total amount of \$750.
- David T. and Jane M. Donaldson Memorial Graduate Scholarship for the 2018-2019 academic year, for a total amount of \$5,000.
- Daniel D. Hammond Engineering Graduate Scholarship for the 2017-2018 academic year, for a total amount of \$1,000.
- University of Central Florida College of Graduate Studies Conference Presentation Fellowship, 2015, 2016, 2017, and 2018, for a total amount of \$1,600.
- University of Central Florida Student Government Association Individual Conference Presentation Fellowship, 2015, 2016, 2017, and 2018, for a total amount of \$1,150.
- University of Central Florida Student Government Association Registered Student Organization Conference Participation Fellowship, 2017 and 2018, for a total amount of \$6,000.
- University Award for Excellence by a Graduate Teaching Assistant at the University of Central Florida, Spring 2016, for a total amount of \$1,500.
- Award for Excellence by a Graduate Teaching Assistant at the College of Engineering and Computer Science of the University of Central Florida, Spring 2016.
- Award for Excellence by a Graduate Teaching Assistant at the Department of Electrical and Computer Engineering of the University of Central Florida, Spring 2016.

## Professional Services and Activities

- Worked closely with my advisor in order to prepare technical and educational proposals since Fall 2014.
- Refereed Paper for the IEEE Access, 2018.
- Refereed Paper for the IEEE Transactions on Circuits and Systems II: Express Briefs (TCAS-II), 2016.
- Refereed Paper for the IEEE Transactions on Nanotechnology (TNANO), 2016.
- Refereed Paper for the IEEE Computer Society Annual International Symposium on VLSI (ISVLSI), 2015, 2016, 2017, and 2018.
- Refereed Paper for the IEEE Transactions on Computers (TC), 2015 and 2018.
- Refereed Paper for the IEEE Transactions on Very Large Integrated Systems (TVLSI), 2018.
- Refereed Paper for the International Journal of Electrical Engineering Education (IJEEE), 2018.
- Refereed Paper for the American Society of Engineering Education (ASEE), 2016 and 2017.
- Refereed Paper for the IEEE SoutheastCon, 2018.
- Institute of Electrical and Electronics Engineers (IEEE) Student Member, Since Spring 2015.
- American Society of Engineering Education (ASEE) Student Member, Since Spring 2018.
- Volunteering for IEEE International Symposium Series on Computational Intelligence, Orlando, FL, Fall 2014.
- Invited to serve as the Graduate Student at Large to the Activity and Service Fee (A&SF) Budget Committee of the University of Central Florida, Fall 2016.
- President of STUDENTS LAUREATES OF STEM TEACHING AND LEARNING (SLSTL) Registered Student Organization at the University of Central Florida, Summer 2016-Present.
- Established STUDENTS LAUREATES OF STEM TEACHING AND LEARNING (SLSTL) as a Registered Student Organization at the University of Central Florida, Summer 2016.
- Invited to serve as the Student Representative to the Teaching Incentive Program (TIP) Faculty Award Committee of the College of Engineering and Computer Science (CECS), Spring 2016.
- Elected to be the Chairman of Conference Registration and Travel (CRT) Committee at the Student Government Association Senate of the University of Central Florida, Spring 2016-Fall 2016.
- Elected to be a Member of Conference Registration and Travel (CRT) Committee at the Student Government Association Senate of the University of Central Florida, Fall 2015-Fall 2016.
- Elected to be a Senator at Student Government Association Senate of the University of Central Florida, Fall 2015-Fall 2016.

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## Technical and Language Skills

### Application Programs

- 6 Years "L-Edit", "S-Edit", "H-SPICE".
- 4 Years "Visual Studio", "Altium Designer", "P-SPICE", "MultiSim", "ATMEL Studio", "CodeVision AVR", "Proteus", "Xilinx: ISE", "Quartus", "ModelSim".
- 1 Year "Virtouso", "SoC Encounter", "Design Compiler", "Qt Creator", "MATLAB", "SST Simulator", "PyCharm".

### Programming Languages

- 4 Years C, C++, Verilog, VHDL, Assembly.
- 1 Year "Python", "MATLAB", "Verilog-A".

### Languages

English (Fluent), Farsi/Persian (Native).

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## Internships and Industry Experiences

2012 **Summer Intern**, Tehran, Iran.

- Study of TEXAS INSTRUMENTS WIRELESS SENSOR NETWORKS
- Design and implementation of an Application Specific Wireless Sensor Network using TEXAS INSTRUMENTS CC2431 SoC
  - Design and implementation of a Graphical User Interface (GUI) for the designed device
- Design and implementation of an interfacing board for XILINX VIRTEX5 FPGA board
- Design and implementation of an interfacing board for XILINX SPARTAN3 FPGA board
- Design and implementation of an Educational General Purpose Board (GPB) for the University of Tehran's Computer Workshop
  - Design and implementation of a Graphical User Interface (GUI) for the designed board

2010 – 2013 **Technician**, PERSIAN TRONIX CO., Tehran.

Advanced Laptop Repairing and Troubleshooting (Both Hardware and Software)

2010 – 2014 **PCB Designer**.

Designing different types of Printed Circuit Boards (PCB) for different functionality and uses as a part-time job at the University of Tehran

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## Graduate Courses

- EEE5353: Semiconductor Device Modeling and Simulation
- CAP5610: Machine Learning
- EEL6762: Performance Analysis of Computer and Communication Systems
- EEL5722: FPGA Design
- EEE5378: CMOS Analog and Digital Circuit Design
- ECM6308: Current Topics in Parallel Processing
- EEE6338: Advanced Topics in Microelectronics
- EEE5356: Fabrication of Solid State Devices
- EEL6938: Special Topics: Emerging Device Architecture
- EEE5390: Full-Custom VLSI Design
- EEL6364: Neuromorphic Computing Circuits
- EEL6938: Special Topics: Modeling and Analysis of Networked Cyber-Physical Systems