Curriculum Vitae

Surname	**Akbari**
First name	**Omid**
birthyear	1989

Affiliation Faculty of Electrical and Computer Engineering
Tarbiat Modares University
Director of Computer Architecture and Dependable Systems (CADS) laboratory at Tarbiat Modares University.

Contact

Fifth Floor, Electrical and Computer Engineering Department, Tarbiat Modares University, Jalal AleAhmad, Nasr, Tehran, Iran. Postcode: 14115.
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Google Scholar: https://scholar.google.com/citations?user=_fGFJ_4AAAAJ&hl=en

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Education

- **PhD** in Electrical Engineering - Digital Systems, 2013-2018.

  University of Tehran, Tehran, Iran
  Thesis: Approximate Coarse-Grained Reconfigurable Architecture
  Supervisor: Professor Ali Afzali-Kusha, Advisor: Dr. Mehdi Kamal
  GPA: 18.43/20

- **V**isiting Researcher at Embedded Systems Group, 04/2017-10/2017

  Vienna University of Technology (TUWien), Vienna, Austria
  Supervisor: Professor Muhammad Shafique

- **M.Sc.** in Electrical Engineering - Electronics, 2011-2013

  Iran University of Science and Technology, Tehran, Iran
  Thesis: Design & Implementation Reliable Systems on FPGAs
  Supervisor: Professor Karim Mohammadi
  GPA: 18.30/20

- **B.Sc.** in Electrical Engineering - Electronics, 2007-2011

  University of Guilan, Rasht, Iran
  Thesis: Design and Implementation of All in One Traffic Indicator using AVR microcontrollers
  Supervisor: Dr. Rahebeh Niaraki
  GPA: 17.18/20, **Second** rank graduate

Research Interests

- Low Power Systems
- Approximate Computing
- Fault-Tolerant Systems Design
- Reconfigurable Computing
- Embedded Systems Design
- Machine Learning

Professional Services

Reviewer of [1]

- IEEE Transactions on Circuits and Systems I: Regular Papers
- IEEE Transactions on Circuits and Systems II: Express Brief
- IEEE Transactions on Computers
- IEEE Transactions on Very Large-Scale Integration (VLSI) Systems (sub-reviewer)
- IEEE Transactions on Computer-Aided Design in Circuit and Systems
- IEEE Access
- IET Circuits, Devices and Systems
- Elsevier Microelectronics Journal
- Elsevier Integration, the VLSI Journal
- World Scientific Journal of Circuits, Systems, and Computers (JCSC)
- Iranian Journal of Science and Technology, Transactions of Electrical Engineering

Programming Languages and Engineering Software Skills

- VHDL, Verilog, C/C++, Assembly, HSpice, MATLAB
- Synopsys CAD Tools (Design Compiler, Prime Time),
  Modelsim, Quartus, ISE, Protel Altium Designer.

Teaching Experiences

- **Tarbiat Modares University**, 09/2019 – Present

  Graduate Courses:
  - Reconfigurable Computing Systems and Devices
  - Fault-Tolerant Systems
  - Low Power Systems

- **University of Eyvanekey**, 02/2018 – 07/2019

  Graduate Courses:
  - Advanced VLSI
  - Advanced Microprocessors
  - Fault-Tolerant Systems
  - Seminar

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[1] https://publons.com/researcher/3016060/omid-akbari/peer-review/

- **Islamic Azad University South Tehran Branch**, 09/2014 – 07/2016

  Undergraduate Courses:
  - Microprocessors
  - C Programming
  - Principle of Microcomputers
  - Microprocessors Lab

Supervising Experiences

Supervisor:

- Alireza Senobari, *to be defined*, **Dr. Omid Akbari**, Tarbiat Modares University.

- Fatemeh Hossein-khani, *to be defined*, Supervisor: **Dr. Omid Akbari**, Tarbiat Modares University.

- Mojtaba Afshari, *to be defined*, Supervisor: **Dr. Omid Akbari**, Tarbiat Modares University.

- Ali Akbar Bahoo, *Ongoing*, Supervisor: **Dr. Omid Akbari**, University of Eyvanekey.

Advisor:

- Khadijeh Samiepoor, *Identification of power smart grids vulnerabilities based on combining complex network and nodes features*, Supervisor: Prof. Nasrollah Moghaddam Charkari, Advisor: **Dr. Omid Akbari**, Tarbiat Modares University.

- Maryam Rahmani, *A Reliable Traffic Routing in Network Function Virtualization*, Supervisor: Prof. Behzad Akbari, Advisor: **Dr. Omid Akbari**, Tarbiat Modares University.

- Mehran Rezaie, *Fault Tolerant Resource Allocation in Network Function Virtualization*, Supervisor: Prof. Behzad Akbari, Advisor: **Dr. Omid Akbari**, Tarbiat Modares University.

- Mohammadreza Teymuri, *A lightweight context-aware approach to detect malicious activity in smart homes*, Supervisor: Prof. Mahdi Abadi, Advisor: **Dr. Omid Akbari**, Tarbiat Modares University.

- Afshin Khaksari, *Design and Simulation of Adaptive Accuracy Reconfigurable Approximate Adder in sub65nm Technology*, Supervisor: Prof. Behzad Ebrahimi, Advisor: **Dr. Omid Akbari**, Azad University, Science and Research Branch.

- Mohammad Ghanatabadi, *Design and simulation of low power, compact and high speed approximate arithmetic circuits*, Supervisor: Prof. Behzad Ebrahimi, Advisor: **Dr. Omid Akbari**, Azad University, Science and Research Branch.

Work Experiences

- Head of Hardware Group, in project "Developing Massive MIMO Testbed for 5G in sub- 6GHz", *Iranian Telecommunication Research Center (ITRC)*, 10/2018- 09/2019.

- Member of a start-up team on developing IoT-based energy management systems, 2017- present.

- R&D and Technical Manager, *Smart Health Care Company*, 01/2016-03/2017.

- Working in R&D group, Designing Embedded Systems Based on Microcontrollers and FPGAs. *Pouyesh Saman Company*, 12/2012-05/2015.

- Freelance Working with different Xilinx FPGAs and SoCs, such as Spartan 3, Spartan 6, Virtex 4, ZCU102, and ZC706.

Publications

Journals:

1. **O. Akbari,** M. Kamal, A. Afzali-Kusha, M. Pedram, M. Shafique. "X-CGRA: An Energy-Efficient Approximate Coarse-Grained Reconfigurable Architecture", in *IEEE Transactions on Computer-Aided Design of Integrated Circuit and Systems.* DOI: 10.1109/TCAD.2019.2937738.

2. F. Ebrahimi, **O. Akbari,** M. Kamal, A. Afzali-Kusha and M. Pedram, "Block-Based Carry Speculative Approximate Adder for Energy-Efficient Applications", in *IEEE Transactions on Circuits and Systems II: Express Briefs*, 2019. DOI: 10.1109/TCSII.2019.2901060

3. **O. Akbari,** M. Kamal, A. Afzali-Kusha, M. Pedram, M. Shafique. "Towards Approximate Computing for Coarse-Grained Reconfigurable Architectures", in *IEEE Micro*, vol. 38, no. 6, pp. 63-72, 1 Nov.-Dec. 2018.

4. H. Afzali-Kusha, **O. Akbari,** M. Kamal and M. Pedram. "Reliability Improvement of CGRAs by Exploiting Voltage Overscaling", in *IEEE Journal on Emerging and Selected Topics in Circuits and Systems (JETCAS)*, vol. 8, no. 3, pp. 480-493, Sep. 2018.

5. **O. Akbari,** M. Kamal, A. Afzali-Kusha, and M. Pedram. "Dual-Quality 4:2 Compressors for Utilizing in Dynamic Accuracy Configurable Multipliers", in *IEEE Transactions on Very Large-Scale Integration (VLSI) Systems*, vol. 25, no. 4, pp. 1352-1361, April 2017.

6. **O. Akbari**, M. Kamal, A. Afzali-Kusha and M. Pedram, "RAP-CLA: A Reconfigurable Approximate Carry Look-Ahead Adder," in *IEEE Transactions on Circuits and Sys. II: Express Briefs*, vol. 65, no. 8, pp. 1089-1093, Aug. 2018.

7. **O. Akbari,** R. Omidi, and K. Mohammadi. "A Hybrid Redundancy Approach to Increase the Reliability of a FPGA Based Speed Controller Core for High Speed Trains", *Journal of Electronics*, vol. 31, pp. 256-266, Jun. 2014.

Conferences:

1. **O. Akbari (Speaker, long time presentation),** M. Kamal, A. Afzali-Kusha, M. Pedram, M. Shafique. "PX-CGRA: Polymorphic Approximate Coarse-Grained Reconfigurable Architecture", in proceeding of *Design, Automation, and Test in Europe (DATE)*, 2018.

2. H. Afzali-Kusha, **O. Akbari,** M. Kamal, and M. Pedram. "Lifetime and Power Efficiency Improvement of Coarse-Grained Reconfigurable Architectures Targeting Low-Power Error-Tolerant Applications by Selective Voltage Over-Scaling of Processing Elements", in proceeding of *ACM Great Lakes Symposium on VLSI (GLSVLSI)*, 2018.

3. **O. Akbari,** R. Omidi, and K. Mohammadi. "A Speed Controller System Based on FPGA for High Speed Trains", in proceeding of *3rd International Conference on Recent Advances in Railway Engineering (ICRARE)*, Iran University of Science and Technology, Tehran, I.R. Iran, 2013.

4. **O. Akbari** and K. Mohammadi. "Recent Advances in High Speed Trains Control and Signaling", in proceeding of *3rd International Conference on Recent Advances in Railway Engineering (ICRARE)*, 2013.

Honors & Awards

- **R**anked **2**nd among 76 students in B.Sc, 2011.
- **B**eing among distinct students in B.Sc., M.Sc., and PhD.
- **R**anked **19**th in PHD entrance exam of Iranian Universities, 2013.
- **R**esearch Fellowship Award in Vienna University of Technology, Austria, 2017.
- **D**istinct PhD student at the University of Tehran, Selected by Iran's National Elites Foundation (INEF), 2018.
- **C**andidate of Best PhD Thesis, IEEE Student Branch, Iran Section, 2018.
- **F**uture Talent Guest Stay Award in TU Darmstadt, for summer 2020.