Reza Fani, PhD

Amol, Mazandaran, Iran
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EDUCATION

Doctor of Philosophy, Computer Engineering, AmirKabir University of Technology, Tehran, Iran, 2022
- Thesis title: Hardware Trojan detection using reconfigurability, Supervised by Prof. Morteza SahebZamani

Master of Engineering, Computer Architecture, AmirKabir University of Technology, Tehran, Iran, 2003
- Thesis title: Implementing Simulated Annealing algorithm for placement on reconfigurable hardware, Supervised by Prof. Morteza SahebZamani

Bachelor of Engineering, Computer Hardware, Isfahan University of Technology, Isfahan, Iran, 2001
- Thesis title: Implementing a complete microcontroller system (with keypad, LCD, RAM) and interfacing it with PC through the parallel port, Supervised by Prof. Shadrokh Samavi

RESEARCH INTERESTS

- Hardware security, Hardware Trojan detection, Hardware Fault-tolerant systems
- Hardware/Software Co-design
- Hardware Modeling, Prototyping, FPGA
- EDA CAD, VLSI
- Microprocessors, Microcontrollers

RESEARCH & IMPLEMENTATION EXPERIENCES

- *Trojan Detection in Standard Cell-based Chips*
- *Anti-skimming ATM mechanism design and implementation*
- *Anti-theft Electronic Safe design and implementation*
- *Security Embedding in Hardware*
- *RFID tag reader design and manufacturing*
- *IoT devices Communications*
- *Smart Home Design*
- *FPGA modeling with VHDL*
- *FDC design and synthesis in ASIC*
- *Pipelined CPU implementation in FPGA*
- *Interfacing various IO devices to FPGA and Microcontrollers*
- *FPGA educational board design and manufacturing*

COMPUTER SKILLS

- *Languages:*
  C++/C#, VHDL, Verilog, 80x86 assembly

- *Software packages:*
  Xilinx Foundation (ISE), Modelsim, Leonardo, ORCAD, Pspice, LEDIT,SEDIT, LVS, Protel DXP, Altera Quartus (MAX plus II), Multisim (EWB), Codevision AVR, PIC CCS, PIC BASIC PRO, MPLAB, Hspice, Design Compiler, SOC Encounter

TEACHING EXPERIENCES

Honor:

- o Professor of the year: 2008

Supervisor:

- o Supervisor of some graduate-level and many undergraduate-level students

Lecturer:

- **Graduate Level**:

  - o Network Devises Architecture, High-Speed Networks, Digital Signal Processing, Information Theory and Coding, Seminar, *Computer Engineering Group, Technical Engineering Faculty,* Shomal University, Amol, Iran, 2017-present

  - o Electronic Commerce, *Industrial Engineering Group, Technical Engineering Faculty,* Shomal University, Amol, Iran, 2017-2018

- **Undergraduate Level**:

  - o Digital Systems Design Automation, Computer Architecture Lab, Electronics Lab, Logic Circuits Lab, Computer Engineering Faculty, *AmirKabir University of Technology, Tehran, Iran, 2002-2004, 2010-2013, 2015, 2017*

  - o Electric Circuits, Computer Fundamentals and Programming, Engineering Mathematics, Logic Circuits, Signals and Systems, Computer Architecture, Digital Electronics, Microprocessor, VLSI System Design, Interfacing Circuits, Peripheral Devices, Application Software (VHDL), Printed Circuit Boards Design, Interfacing Circuits Lab, Peripheral Devices Lab, Microprocessor Lab, Computer Architecture Lab, Digital Electronics Lab, Electric Circuits Lab, Electronic Circuits Lab, Logic Circuits Lab, *Computer Engineering Group, Technical Engineering Faculty, Shomal University, Amol, Iran, 2004-present*

  - o Digital Electronics, Digital Lab, Electronics Lab, *Electrical Engineering Group, Technical Engineering Faculty, Shomal University, Amol, Iran, 2004-2007*

- o Programming Languages (C++), *General Group, Technical Engineering Faculty, Shomal University, Amol, Iran, 2018-2020*

- o Computer Architecture, Computer Architecture Lab, *Amol Institute of Higher Education, Amol, Iran, 2011*

- o Microprocessor Lab, Computer Architecture Lab, Logic Circuits Lab, ICDL, *Islamic Azad University, Roudehen branch, Tehran, Iran, 2010-2011*

- o Computer Architecture, Microprocessor Lab, *Islamic Azad University, Parand branch, Tehran, Iran, 2008*

- o Logic Circuits Lab, *University of Applied Science and Technology - Development of Iran Informatics, Tehran, Iran, 2010*

PROFESSIONAL MEMBERSHIPS / ORGANIZATIONS

- **-** Namadiran Institute, Tehran, Iran (2001-2002)
  R&D Engineer (Web page Designer / Programmer (C Language))

- **-** Hatef Banking System Corporation, Tehran, Iran (2011-2013)
  R&D Engineer (Security Designer / Hardware Designer)

- **-** Shomal University, Amol, Iran (2004-Present)
  Faculty Member

- **-** Shomal University, Amol, Iran (2005-2006)
  Member of the University Research Council

- **-** Shomal University, Amol, Iran (2006-2007, 2011-2013)
  Director of University Laboratories and Educational Technologies

- **-** AmirKabir University, Tehran, Iran (2016-2017)
  R&D Engineer (RFID Group)

- **-** AmirKabir University, Tehran, Iran (2017-2018)
  Moderator (IOT Group)

PUBLICATIONS

Journal papers and books:

- o *Fani, Reza, and Morteza Saheb Zamani. "Runtime hardware Trojan detection by reconfigurable monitoring circuits." The Journal of Supercomputing 78, no. 10 (2022): 12726-12752.*
- o *Fani, Reza. "Digital Money." Journal Monadi for Cyberspace Security (AFTA) no. 6 (2002): 6-7. (Persian)*
- o *Fani, Reza, and Matin Moghaddam, Amin. (2009). "Basic microcontroller circuits", Nass Publications, ISBN: 978-964-410-166-3. (Persian)*

Translated book:

- *Navabi, Zainalabedin. (1998). "VHDL: Analysis and Modeling of Digital Systems", McGraw-Hill, ISBN: 9780070464797 (Into Persian with ISBN: 978-964-975-131-3)*

Lab Manuals:

- *Interfacing Circuits Lab, Peripheral devices Lab, Microprocessor Lab, Digital Electronics Lab, Electronic Circuits Lab, Logic Circuits Lab*