Ahmad Shabani

Visiting Researcher @ KTH
Assistant Professor @ AUT

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ahmad-shabani.github.io

PROFILE

Ahmad Shabani is a researcher in hardware and computer security domain, and digital ASIC design. He is an Assistant Professor at Amirkabir University of Technology and has recently joined KTH University as a researcher. Ahmad's research primarily focuses on developing efficient countermeasures against Hardware Trojans and lightweight PUF-based authentication protocols. What sets his research apart is its focus on the hardware security at different abstraction levels from the microarchitectural-level down to the physical level. His research and academic contributions have been recognized through numerous publications in prestigious journals, as well as by receiving esteemed awards.

EDUCATION & RESEARCH

Nov 2025 – present
Stockholm, Sweden

PostDoc Researcher: Hardware and Computer Security
KTH Royal Institute of Technology
The research focuses on improving the security of computer processors. Modern processors are very complex and can have hidden vulnerabilities that hackers can exploit to steal confidential data from computers.

Apr 2016 – Aug 2021
Tehran, Iran

Ph.D.: Digital Electronic Systems
University of Tehran
GPA: (18.02 Out of 20)
Ph.D. Dissertation: "Hardware Trojan Detection Approaches Using Design for Hardware Trust"; (Score: **Excellent**)
Goal: Design efficient methodologies based on Design for Hardware Trust (DfTr) to detect hardware Trojans mounted by untrusted foundry.

TEACHING EXPERIENCES

2023 – present
Tehran, Iran

Amirkabir University of Technology
Teaching the following courses as faculty member:
Course I: "*Computer Architecture*"
Course II: "*Introduction of Logic Design*"
Course III: "*Cyber-Physical Systems*"
Course IV: " *Digital System Design Automation Using VHDL*"

Aug 2026 – Oct 2026
Stockholm, Sweden

KTH Royal Institute of Technology
I will Teach the following course as Teacher:
Course I: "*Digital forensics and incident response (EP2780)* "

2021 – 2023
Tehran, Iran

University of Tehran
Teaching the following courses as faculty member:
Course I: "*Core-Based Embedded System Design*"

WORK EXPERIENCE

Dec 2024 – Present
Tehran, Iran
Assistant Professor (on Sabbatical Leave)
Amirkabir University of Technology (Tehran Polytechnic)

Dec 2023 – Oct 2025
Tehran, Iran
Embedded Linux Software Dev. (Part-time)
CROUSE PJS Co

Mar 2021 – Apr 2023
Tehran, Iran
Digital ASIC Designer
Mana Excellence Center (Full-time)

Feb 2020 – Oct 2025
Tehran, Iran
CTO & Technical Consultant
Shahab Co.

HONORS & AWARDS

Recipient of Prestigious Award for Outstanding Ph.D. Dissertation.
19th International ISC Conference on Information Security and Cryptography (ISCISC2022), 2022

Ranked 1st Among Graduate Students in Master's Degree Program.
Shahid Beheshti University, Digital Electronic Systems, Tehran, IRAN, 2016.

Recipient of Student Prize from Iran's National Elites Foundation.
Recipient of Student Prize for two successive years, Iran's National Elites Foundation, 2017-2018.

Admitted to Ph.D. Degree Program with Exceptional Merit, Waiving Entrance Exam Requirement.
Organization for Development of Exceptional Talents, University of Tehran, Tehran, Iran, 2016.

INDUSTRIAL & RESEARCH PROJECTS

Evaluate Security Measures in Distributed Management System (DMS) for Smart Grid.
Iran's National Elites Foundation, University of Tehran, Iran, 2020.

National Project for Monitoring and Management of Water and Wastewater Based on IoT Ecosystem
Niroo Research Institute, Smart Grid Center, Tehran, Iran, 2018-2019.

Supervisor of project "Investigating the Communication and Security Considerations of Smart Power Grid
Niroo Research Institute, Smart Grid Center, Tehran, Iran, 2019.

Design Automatic Chip Tester for Automotive Application Based on Zynq FPGA SOC.
CROUSE PJS Co. 2024

"Digital ASIC Design (Front-End & Back-End) of High-Speed and Fault-Tolerant CAN Transceivers"
Mana Excellence Center, 2022-2023.

"Smart Electricity Meter (Harware & Firmware Development)"
Shahab-Co, 2021-2022.
Low-cost non-destructive ESP-based smart electricity meter able to measure energy, voltage, and current of twelve input channels. (https://github.com/hiddenman23?tab=repositories).

Digital ASIC Design (Verification and Back-End) of Immobilizer IC Used in Automotive Key-Fobs, Freelance Project, 2023.
Designing the digital part of Transponder IC available in automotive Key-Fobs

"Gas Meter Telemetry Add-on Based on Computer-Vision"
Shahab-Co, 2021-2022.
A small-sized device capable of adding telemetry and supervised monitoring to the traditional non-smart gas meters by using machine vision and image processing.