Masoud Ataei

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Education

PhD in Electrical and Computer Engineering, *University of Maine* – Orono, ME 2022-Current
- **Dissertation topic:** Bayesian Learning for Safe Control, GPA: 4/4
- **Relevant Courses:** Mobile Robotics, Neural Network, Deep Learning, ...

Master of Science in Electrical Engineering, *Amirkabir University of Technology* – Tehran, Iran 2011-2013
- **Dissertation topic:** Simulation of ZnO Nanowire BioFETs

Bachelor of Science in Electrical Engineering, *Yazd University* – Yazd, Iran 2007-2011
- **Dissertation topic:** Real-Time processing with a high speed ADC

Professional Experiences

Research Assistance, University of Maine – Orono, ME 2022-Current
- **Project 1:** Study uncertainty quantification of Bayesian and probabilistic models and investigate their robustness, reliability, and accuracy on a ground vehicle equipped with a control barrier function to guarantee its safety.
- **Project 2:** Goal Navigation and State Estimation Using Spatial Transformation Network.
- **Project 3:** Safe Reinforcement Learning in a Realistic Simulation.
- **Project 4:** Genetic Algorithm to find the largest circles in a map.
- **Project 5:** Robot Positioning in Safe Control
- **Project 6:** Optimizing fall detection model for a ground robot that inspects environment in intervals and reports felt persons.
- **Project 7:** Distance aware worst-case analysis for spline base networks.
- **Project 8:** SLAM

Volunteer Researcher, CompuMAINE, University of Maine – Orono, Maine 2021-2022

Statistical Analysis of 3D Chromosome Territories

Electronics and Hardware Developer, Shokat – Tehran, Iran 2017-2019
- Designed electronic boards for the smart heaters (home appliances). The company produced and sold about 20,000 of that product.

Electronics and Hardware Developer, KTC – Tehran, Iran 2014-2018
- Developed electronic boards for the Oil-Gas and power station control and monitoring. The boards included but were not limited to AIOH, DIO, RTD, and DITT cards. Optimized and developed DCS and Scada software to run smoother, added log of hardware health, and read HART commands. Test and develop 3-phase energy meter.

Software and Hardware Developer, IRMFC – Tehran, Iran 2014-2019
- As a part of the company, we designed and developed custom-designed gas process unit labs that included MFCs, Back Pressure Controllers, Transmitters, and sensors.

VLSI Course Project, Amirkabir University of Technology – Tehran, Iran 2014
- Designing, simulating, and post-simulating a specific I2C IC in Cadence (circuit, layout, post layout).

Hardware Designer, ITS – Tehran, Iran 2012-2019
- Design and produce DC motor controller and brushless motor controller board for medical saws and drills.

Hardware Designer, Yazd University (Arsen Group) – Yazd, Iran 2012
- Design electrical circuit for a Hybrid Vehicle in an Iranian Machine Design competition.

Instructure, University of Seyyed jamaleddin asadabadi – Asadabad, Hamedan, Iran 2015
- Computer system architecture (Two groups).

Teaching Assistant, Electronics I – Amirkabir University, Tehran, Iran 2012-2013

Skills

Robotics: ROS, Gazebo, PyBullet, RTab-Map, Arduino.

Programming languages: Visual C#, C, C++, Visual Basic, assembly, Python, Java, Android, SQL.

Hardware languages: Verilog, programming on OS-9 and ElinOS, freeRTOS.

Electronic Software: Pspice, System Verilog, Modelsim, Codevision, Iar, Keil, Proteus, Protel DXP, Lab view, AutoCAD. STM32CubeMX, STM32IDE, TouchGFX.

Scientific software and languages: SIESTA, SG Framework, Matlab (M-file and Simulink), Comsol Multiphysics, LEDIT, Cadence(layout design), Hspice.

General software: Office family(Word, Power Point, Excel, Visio, Access), Windows, Linux.

Hardware skills: MEN cpu, EKF cpu, AVR micro, PIC micro, ARM micro, MSP430 micro, design embedded systems, PLC.

Protocols & Communication: Modbus protocol, S-Protocol, l-Protocol, UART, RS485, RS232, GPRS, I2C, SPI, etc.

Research Interest

Robotics, Safe Control, Localization, Mapping, and Navigation
Artificial intelligence, Machine Learning, Data Visualization, and Data Processing
Image and Audio processing
Hardware and software programming, and Embedded systems
Fabrication, Design, and Simulation of Semiconductor Structures and Biosensors

Conferences and Publications

- "*DAREK - Distance Aware Error for Kolmogorov networks*", **M Ataei**, MJ Khojasteh, V Dhiman, *ICASSP*, 2025, Accepted.

- "*DADEE: Well-calibrated uncertainty quantification in neural networks for barriers-based robot safety*", **M Ataei**, V Dhiman, *arXiv*, 2024, preprint arXiv:2407.00616.

- "*Omobot: a low-cost mobile robot for autonomous search and fall detection*", SU Ahamad, **M Ataei**, V Devabhaktuni, V Dhiman, *IEEE International Conference on Advanced Intelligent Mechatronics*, 2024, (IEEE ICAIM Boston2024).

- "*Opto-Electronic Mixer*", H Kaatuzian, HD Nayeri, **M Ataei**, A Zandi, *Journal of Semiconductors*, 2013.

- "*Analysis of quantum well size alteration effects on slow light device based on excitonic population oscillation*", H Kaatuzian, H Shokri Kojori, A Zandi, **M Ataei**, *Optical and Quantum Electronics*, 2013, 45, 947-95911.

- "*Structural parameters improvement of an integrated HBT in a cascode configuration opto-electronic mixer*", H Kaatuzian, HD Nayeri, **M Ataei**, A Zandi, *Journal of Semiconductors*, 2013, 34 (9), 094001.

- "*Bayesian Learning for Safe Control*", **M Ataei**, V Dhiman, *AI in Maine*, 2023, The Toux Institute in Portland, Maine, (poster presentation).

- "*Electron states in graphene nano-disks*", MJ Sharifi, M Ahmadian, **M Ataei**, *5th Iranian Conference on Electrical Engineering (ICEE)*, 2017, 233-237.

- "*In-plane Heterostructure of G-BN: A first-principle study*", **M Ataei**, MJ Sharifi, *7th National Conference on Nanotechnology from Theory to Application (NCNTA)*, 2019, Tehran, Iran (poster presentation).

- "*Simulation and Analysis of ZnO Nanowire BioFETs*", **M Ataei**, M Khatami, *5th ICNS*, 2014, Kish Island, Iran (poster presentation).

Reviewer for

International Conference on Acoustics, Speech, and Signal Processing, **(ICASSP)**	2025
IEEE International Conference on Robotics and Automation **(ICRA)**	2024 - 2025
IEEE Robotics and Automation Letters **(IEEE RA-L)**	2024 - 2025
IEEE/RSJ International Conference on Intelligent Robots and Systems **(IROS)**	2023 - 2024

Hobbies

Learning fast new things, Research,
Teamwork, Cooperation with others,
Walking, Cinema, Listening to music, Reading Books.