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

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

Technical Skills

- **Programming & Software:** Python (PyTorch, TensorFlow), C, C++, Java, C#, Unity, SQL, Android, ROS, MATLAB, Simulink, LabVIEW, Git/GitHub, Docker, AutoCAD, COMSOL Multiphysics, Linux.
- **Artificial Intelligence & Computer Vision:** Machine learning, deep learning, neural networks, computer vision, robotics & autonomous systems.
- **Hardware languages:** Verilog, Assembly, FreeRTOS, PLC programming.
- **Embedded Development:** Expertise in hardware–software co-design, firmware architecture, and debugging; RTOS-based, ARM Cortex-M, Microprocessors (AVR, PIC, MSP430, etc), FPGA.
- **Protocols & Communication:** Modbus, UART, RS485, RS232, GPRS, I2C, SPI.
- **Other Skills:** Microsoft Office Suite, problem-solving, self-learning, presentation skills, adaptability.

Conferences and Publications

- "*K-DAREK - Distance Aware Error for Kurková Kolmogorov networks*", **M Ataei**, V Dhiman, MJ Khojasteh , *IEEE ACSSC*, 2025, (Accepted).
- "*DAREK - Distance Aware Error for Kolmogorov networks*", **M Ataei**, MJ Khojasteh, V Dhiman , *IEEE ICASSP*, 2025.
- "*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 ICAIM Boston2024*, 2024.
- "*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).

Research and Academic Experiences

Research Assistance, University of Maine – Orono, ME 2022-Current

- Developed and analyzed uncertainty quantification techniques for Bayesian and probabilistic models, integrating control barrier functions (CBFs)
- Designed goal navigation and state estimation model using Spatial Transformation Networks.
- Explored safe reinforcement learning in realistic simulation environments.
- Applied genetic algorithm for spatial optimization.

- Enhanced robot positioning systems to improve safe control capabilities.
- Optimized a fall-detection model for ground robots to identify and report fallen individuals during periodic inspections.
- Conducted distance-aware worst-case analysis for spline-based neural networks.
- Implemented simultaneous localization and mapping (SLAM) for autonomous navigation tasks.

Volunteer Researcher, CompuMAINE, University of Maine – Orono, Maine 2021-2022
- Conducted statistical analysis of 3D chromosome territories, contributing to genomic research.

Instructure, University of Seyyed Jamaleddin Asadabadi – Asadabad, Hamedan, Iran 2015
- Taught courses on computer system architecture to two student groups.

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

Industrial Experiences

Electronics and Hardware Developer, Shokat – Tehran, Iran 2017-2019
- Designed and developed electronic boards for smart heaters (large production of approximately 20,000 units).

Electronics and Hardware Developer, KTC – Tehran, Iran 2014-2018
- Developed electronic boards for oil & gas/power systems, including AIOH, DIO, RTD, and DITT cards.
- Enhanced DCS and SCADA performance by adding hardware health logs and integrating HART commands.
- Developed three-phase energy meter.

Software and Hardware Developer, IRMFC – Tehran, Iran 2014-2019
- Led manufacturing of custom-designed gas process unit laboratories featuring MFCs, controllers, and sensors.

Hardware Designer, ITS – Tehran, Iran 2012-2019
- Designed DC and brushless motor controller boards for medical tools.

Hardware Designer, Yazd University (Arsen Group) – Yazd, Iran 2012
- Designed electronic board of a hybrid vehicle competing in the national competition.

Volunteer Reviewer

IEEE International Workshop on Machine Learning for Signal Processing **(MLSP)** 2025

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