

RESEARCH INTERESTS

Romina Aalishah is a Ph.D. student in Electrical and Computer Engineering at Johns Hopkins University. Her research interests include **machine learning**, **computer vision**, **machine reasoning**, and **edge computing**. Her work focuses on model architecture design and compression techniques, along with representation analysis toward more interpretable and robust neural networks.

EDUCATION

•Ph.D. in Electrical and Computer Engineering (Direct) (2024 - Present)

Johns Hopkins University, Baltimore, MD GPA: 3.93/4.00

– M.S. in Electrical and Computer Engineering conferred 2025.

•B.Sc. in Electrical Engineering, Minor in Computer Science (2019 - 2024)

Amirkabir University of Technology (Tehran Polytechnic), Tehran, Iran GPA: 17.3/20 (3.75/4.00)

PUBLICATIONS

* denotes equal contribution.

Journal Articles

•MedMambaLite-v2: Shared Selective Scan for Efficient Edge Medical Mamba

[Romina Aalishah](#)*, [Mozhgan Navardi](#)*, [Nithin Kidangazhiath Mana](#), [Tinoosh Mohsenin](#)

IEEE Transactions on Biomedical Circuits and Systems (TBioCAS), Special Issue: Selected Papers from BioCAS 2025, 2026

Conference Papers

•Class Unlearning via Depth-Aware Removal of Forget-Specific Directions

Arman Hatami, [Romina Aalishah](#), [Ilya E. Monosov](#)

CVPR 2026 Workshop on Machine Unlearning for Computer Vision; Oral Presentation, 2026

•EdgeNavMamba: Mamba-Optimized Object Detection for Energy-Efficient Edge Devices

[Romina Aalishah](#), [Mozhgan Navardi](#), [Tinoosh Mohsenin](#)

11th IEEE International Conference on Edge Computing and Scalable Cloud (EdgeCom), 2025

•MedMambaLite: Hardware-Aware Mamba for Medical Image Classification

[Romina Aalishah](#), [Mozhgan Navardi](#), [Tinoosh Mohsenin](#)

21st IEEE Biomedical Circuits and Systems Conference (BioCAS); invited to the TBioCAS special issue, 2025

•GenAI at the Edge: Comprehensive Survey on Empowering Edge Devices

[Mozhgan Navardi](#), [Romina Aalishah](#), et al.

AAAI Spring Symposium, Generative AI @ Edge; Second Best Paper Award, 2025

•MambaLiteSR: Image Super-Resolution with Low-Rank Mamba using Knowledge Distillation

[Romina Aalishah](#), [Mozhgan Navardi](#), [Tinoosh Mohsenin](#)

ISQED Spring Symposium, Generative AI in Edge, 2025

Under Review

•Teacher-Side Prediction and Prevention of Subliminal Learning

Arman Hatami*, [Romina Aalishah](#)*, [Ilya E. Monosov](#)

Submitted to AAAI 2027, 2026

•Subliminal Learning in Vision-Language Models

Arman Hatami, [Romina Aalishah](#), [Ilya E. Monosov](#)

Submitted to WACV 2027, 2026

RESEARCH EXPERIENCE

• **Graduate Research Assistant, Laboratory of Adaptive and Maladaptive Intelligence (LAMI)** (*Feb. 2026 - Present*)

Johns Hopkins University • Advisor: [Prof. Ilya Monosov](#) Baltimore, MD

- Analyzing interpretability in deep neural networks by studying how internal representations drive model behavior.
- Using knowledge distillation as a controlled framework to compare representations across two networks solving the same task and quantify how compression changes internal computation.
- Evaluating how representation differences between teacher and student predict failure modes and using these insights to guide more interpretable and robust models.

• **Graduate Research Assistant, Energy-Efficient High-Performance Computing (EEHPC) Lab** (*Sep. 2024 - Jan. 2026*)

Johns Hopkins University • Advisor: [Prof. Tinoosh Mohsenin](#) Baltimore, MD

- Contributing to energy-efficient computing projects focusing on computer vision applications.
- Implementing hardware-aware optimization for compressed deep neural networks to enhance deployment on resource-constrained devices.
- Developing vision-language-action models in robotics projects focused on path planning by leveraging reinforcement learning and brain-inspired deep learning algorithms to enhance autonomous navigation.
- Using IsaacLab, MiniWorld, and Gazebo simulator for better assessment and decreasing the sim-to-real gap.

• **Undergraduate Research Assistant, Laboratory of Computational Intelligence** (*Mar. 2024 - Jul. 2024*)

Amirkabir University of Technology • Advisors: [Prof. M. B. Menhaj](#), [Prof. M. Shafiee](#) Tehran, Iran

- Trained reinforcement learning policies for autonomous area exploration on mobile robots; B.Sc. thesis on RL-based mobile robot position control.

• **Research Intern, Deep Learning for Signal Analysis** (*Mar. 2023 - Jun. 2023*)

West Pomeranian University of Technology • Advisor: [Prof. Grzegorz Psuj](#) Szczecin, Poland

- Benchmarked deep learning methods for robust analysis of Magnetic Barkhausen Noise signals, covering pre-processing, feature extraction, and comparative model evaluation.

TEACHING & INDUSTRY EXPERIENCE

Teaching Assistant, Design of Advanced Instruments and Systems, Johns Hopkins University *Aug. to Dec. 2025*

Back-End Developer, GoldScan, Tehran. Python services and data processing for an audit-automation platform *Feb. 2022 to Dec. 2023*

AWARDS AND HONORS

- **Second Best Paper Award**, AAAI Spring Symposium 2025 (Generative AI @ Edge).
- **Best Poster Award (People's Choice)**, Women in AI Symposium, JHU Data Science and AI Institute, 2025.
- **Young Student Fellow and Emerging Contributor Award**, 62nd Design Automation Conference (DAC), 2025; \$500 travel stipend and registration waiver.
- **Broadening Participation Scholarship**, CVPR 2026; \$600 travel stipend and registration waiver.
- **Code-Cup Programming Competition**; ranked 32/1,073 (Data Science) and 68/2,417 (Algorithms).
- **National Universities Entrance Exam (Iran)**; ranked 225 of 164,000 in Mathematics and Physics.

TECHNICAL SKILLS

Languages: Python, C/C++, MATLAB, SQL

Deep Learning: PyTorch, NumPy, Weights & Biases, Hugging Face Transformers, timm

Efficiency & Compression: Knowledge distillation, low-rank factorization, structured pruning, quantization, state-space models (Mamba/S4), ONNX, TensorRT

Vision & Language: Object detection, image super-resolution, image classification, vision-language and language models, post-training, learning, IsaacLab, Gazebo, MiniWorld

SERVICE & ADDITIONAL

Service: Student Volunteer, NeurIPS 2025 (San Diego); Organizing Staff, Conference on Information Sciences and Systems (CISS) 2025, JHU.

Languages: English (advanced, TOEFL iBT 105/120), Persian (native), German (conversational).

Other: Member, Amirkabir University chess team; 5th, National Universities Rapid Chess Championship 2022.