

# Ahmad Ghasemi

✉ [ahmad.ghasemi@gmail.com](mailto:ahmad.ghasemi@gmail.com) | 🌐 <https://ahdghasemi.github.io> | [LinkedIn](#) | 📞 +1 (906) 231-5803 | 🏠 Amherst, MA

## EDUCATION

<b>Ph.D. Data Science</b> , GPA: 3.94/4.0, - Worcester Polytechnic Institute (WPI), Worcester, MA, USA - Michigan Technological University (MTU), Houghton, MI, USA	<b>2019 – 2023</b> <b>2018 – 2019</b>
<b>M.Sc. Electrical and Computer Engineering</b> , GPA: 17.27/20.0, Shiraz University, Shiraz, Iran	<b>2009 – 2012</b>

## PROFESSIONAL EXPERIENCE

<b>Efficient Deep Learning Consultant</b> , SoilX, Worcester, MA • Designing and implementing efficient deep learning and tiny machine learning models for UAVs, focusing on model optimization and resource efficiency. • Developing and optimizing end-to-end machine learning pipelines for large-scale, multi-modal data, improving computational efficiency and model performance. • Mentoring a cross-functional team of data scientists and engineers, fostering collaboration and innovation in project development.	<b>01/2024 - Present</b>
<b>Lecturer</b> , University of Massachusetts Amherst, Amherst, MA • Lectured on advanced topics in efficient deep learning, computer vision, and digital image processing. • Guided graduate and undergraduate research, focusing on innovative approaches in machine learning and model optimization.	<b>09/2023 - Present</b>
<b>Graduate AI Researcher</b> , Worcester Polytechnic Institute, Worcester, MA • Led a research project on low-cost, efficient deep learning algorithms for radio resource management, enhancing network capacity and computational efficiency. • Developed and implemented efficient machine learning algorithms to optimize resource management, resulting in a <b>40%</b> increase in network capacity with linear complexity. • Published original research and presented findings at top-tier conferences, contributing to the field of machine learning.	<b>01/2019 - 08/2023</b>
<b>Summer Graduate Research Internship (Funded by Ford)</b> , Wireless Positioning Lab., Michigan Tech., MI • Developed an efficient computer vision algorithm for autonomous vehicles, reducing latency by <b>15%</b> . • Implemented the system on a Raspberry Pi, demonstrating practical, low-cost deployment.	<b>06/2019 - 08/2019</b>

## SELECTED PROJECTS

<b>1. Efficient Graph Neural Networks</b> , UMass Amherst, Amherst, MA • Innovated a Low Rank Message Passing Graph Neural Network (LR-MPGNN). • This innovative design significantly reduces the model size by <b>60X</b> , with only a <b>2%</b> performance reduction in the sum rate.	<b>10/2023 - 01/2024</b>
<b>2. Tiny Graph Classification Expressiveness</b> , UMass Amherst, Amherst, MA • Applied pruning, quantization-aware training, and post-training quantization techniques to optimize models. • Reduced GCN and GIN model sizes by <b>93X</b> and <b>78X</b> respectively while maintaining performance.	<b>09/2023 - 10/2023</b>
<b>3. Adversarial attacks against graph neural networks</b> , WPI, Worcester, MA • Introduced four novel adversarial attacks targeting GNN-based resource management, achieving a <b>95%</b> success rate.	<b>01/2022 - 02/2023</b>
<b>4. Low-Cost Beamforming Algorithms</b> , WPI, Worcester, MA • Proposed two efficient ML algorithms for resource management with linear complexity, reducing processing time by <b>60%</b> .	<b>09/2020 - 04/2021</b>
<b>5. Real-Time object tracking</b> , Wireless Positioning Lab., Michigan Tech., Houghton, MI • Implemented efficient region-based CNN (R-CNN) and fast R-CNN on Raspberry Pi to track object in the real time. • Achieved <b>15%</b> less latency.	<b>06/2019 - 09/2019</b>

## SKILLS

<b>Machine Learning &amp; Deep Learning:</b>	Efficient Deep Learning, Computer Vision, Generative AI, Multi-Model ML
<b>Post-training Model Optimization:</b>	Pruning, Quantization, NAS
<b>Deep Learning frameworks:</b>	PyTorch, TensorFlow, PyTorch Geometric, TensorFlow Lite
<b>Programming:</b>	Python, OpenCV, MATLAB, Julia
<b>Version Control:</b>	Git

## HONORS AND AWARDS

<b>Travel Award</b> , School of Arts & Sciences, WPI, Worcester, MA, USA	<b>2022</b>
<b>TA of the Year Award (Finalist)</b> , WPI, Worcester, MA, USA	<b>2022</b>
<b>Charles Kao Best Paper Award</b> , the 29th Wireless and Optical Communications Conference, NJ, USA	<b>2020</b>