

Ahmad Ghasemi

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

EDUCATION

Ph.D. Data Science , GPA: 3.94/4.0, <ul style="list-style-type: none">- Worcester Polytechnic Institute (WPI), Worcester, MA, USA- Michigan Technological University (MTU), Houghton, MI, USA	2019 – 2023 2018 – 2019
M.Sc. Electrical and Computer Engineering , GPA: 17.27/20.0, Shiraz University, Shiraz, Iran	2009 – 2012

PROFESSIONAL EXPERIENCE

Deep Learning Consultant , SoilX, Worcester, MA <ul style="list-style-type: none">• Designing and implementing efficient deep learning and tiny computer vision 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.	01/2024 - Present
Lecturer , University of Massachusetts Amherst, Amherst, MA <ul style="list-style-type: none">• Lectured on advanced topics in efficient deep learning, digital signal processing, and on-device machine learning.• Guided graduate & undergraduate researchers, focusing on innovative approaches in machine learning and model optimization.	09/2023 - Present
Graduate AI Researcher , Worcester Polytechnic Institute, Worcester, MA <ul style="list-style-type: none">• 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 40% increase in network capacity with linear complexity.	01/2019 - 08/2023
Summer Graduate Research Internship (Funded by Ford) , Wireless Positioning Lab., Michigan Tech., MI <ul style="list-style-type: none">• Developed an efficient computer vision algorithm for autonomous vehicles, reducing latency by 15%.• Implemented the system on a Raspberry Pi, demonstrating practical, low-cost deployment.	06/2019 - 08/2019

SELECTED PROJECTS

1. Efficient Graph Neural Networks , UMass Amherst, Amherst, MA <ul style="list-style-type: none">• Innovated a Low Rank Message Passing Graph Neural Network (LR-MPGNN).• This innovative design significantly reduced the model size by 60X, with only a 2% performance reduction in the sum rate.	10/2023 - 01/2024
2. Tiny Graph Classification Expressiveness , UMass Amherst, Amherst, MA <ul style="list-style-type: none">• Applied pruning, quantization-aware training, and post-training quantization techniques to optimize models.• Reduced GCN and GIN model sizes by 93X and 78X respectively while maintaining performance.	09/2023 - 10/2023
3. Adversarial attacks against graph neural networks , WPI, Worcester, MA <ul style="list-style-type: none">• Introduced four novel adversarial attacks targeting GNN-based resource management, attained a 95% success rate.• Proposed a novel anomaly detection method based on eigen-value distribution, achieved a 100% accuracy.	01/2022 - 02/2023
4. Low-Cost Beamforming Algorithms , WPI, Worcester, MA <ul style="list-style-type: none">• Implemented dimension reduction methods for user classification and clustering, resulted in a 10% increase in accuracy.• Proposed two efficient ML algorithms for resource management with linear complexity, reduced processing time by 60%.	09/2020 - 04/2021
5. Real-Time object tracking , Wireless Positioning Lab., Michigan Tech., Houghton, MI <ul style="list-style-type: none">• Implemented efficient region-based CNN (R-CNN) and fast R-CNN on Raspberry Pi to track object in the real time.• Achieved 15% less latency.	06/2019 - 09/2019

SKILLS

Machine Learning & Deep Learning:	Efficient Deep Learning, Computer Vision, Generative AI, Multi-Model ML
TinyML and Deep Learning on the Edge:	Pruning, Quantization, Neural Architecture Search (NAS)
Deep Learning frameworks:	PyTorch, TensorFlow, Keras, TensorFlow Lite, TensorFlow Lite Micro
Programming:	Python, OpenCV, MATLAB, Julia
Version Control:	Git, GitHub

HONORS AND AWARDS

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