

Amirmohammad Mohammadi

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EDUCATION

Texas A&M University, College Station, Texas December 2026

Doctor of Philosophy in Computer Engineering

Thesis: Distribution-guided Parameter-efficient Fine-tuning of Foundation Models for Waveform-based Sensing

Sharif University of Technology, Tehran, Iran February 2021

Master of Science in Electrical Engineering

Thesis: Design and Evaluation of an Integrated Biomedical System for Human Stress Detection and Monitoring

PROFESSIONAL EXPERIENCE

Texas A&M University, College Station, Texas September 2022 – Present

Graduate Research Assistant

- **Proposed** a neighborhood feature pooling layer that improved remote sensing image classification accuracy by up to **2.5 percentage points** over standard pooling with near-zero added overhead.
- **Reduced** the fine-tuning parameters of Transformer-based foundation models by over **10%** compared to conventional adapters by developing a distribution-aware adaptation algorithm.
- **Raised** the classification accuracy of a convolutional deep learning model by **7 percentage points** by designing a time-frequency feature engineering pipeline for audio applications.
- **Established** a cross-domain transfer learning benchmark showing that ImageNet-pretrained models outperform audio-pretrained models by **3 percentage points** in acoustic classification.
- **Built** a few-shot whole slide image classification pipeline with explainable AI capability to investigate parameter-efficient fine-tuning of vision-language models for alcoholic liver disease diagnosis.
- **Reduced** ground truth data requirements by a factor of **15** for physiological time-series signals by developing physics-informed neural networks for cuffless blood pressure measurement.
- **Disseminated** research findings through publications, presentations, and reports to funding agencies.

Sharif University of Technology, Tehran, Iran

July 2019 – February 2021

Graduate Student Researcher

- **Designed** an ECG + EDA electrical circuit for a wearable sensor (BLE SoC) with a **3×** longer battery life compared to alternatives and delivered **94%** mental stress detection accuracy across 18 participants.

SKILLS

- **Tools:** Python; PyTorch; Scikit-learn; NumPy; Pandas; Matplotlib; MATLAB; C; Hugging Face; Transformers; Git; Linux; VS Code; Jupyter Notebook; High-performance Computing.
- **Expertise:** Applied AI; Foundation Models; Deep Learning Architectures & Techniques; Generative AI; Physics-Informed Machine Learning; Multi-Modal Learning; AI Hardware; Efficient AI.

AWARDS

Fully funded research assistantship, \$152,000

January 2024 – September 2026

- Awarded by **Massachusetts Institute of Technology (MIT) Lincoln Laboratory** to advance parameter-efficient fine-tuning techniques of foundation models for waveform-based sensing.

Fully funded research assistantship, \$79,000

September 2022 – December 2023

- Awarded by **National Institutes of Health (NIH)** to investigate physics-informed neural networks for improved cuffless blood pressure estimation.

Tuition waiver for M.Sc in electrical engineering

September 2018 – February 2021

- Awarded based on top-tier performance in the Iran Nationwide **University Entrance Exam**.

Tuition waiver for B.Sc. in electrical engineering

September 2014 – August 2018

- Awarded based on top-tier performance in the Iran Nationwide **University Entrance Exam**.

Travel grants

Summer 2026

- Awarded by **IEEE Geoscience and Remote Sensing Society** to present at conference.
- Awarded by **TAMU Electrical & Computer Engineering Department** to present at conference.

PEER-REVIEWED PUBLICATIONS

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- Neighborhood Feature Pooling for Remote Sensing Image Classification., *Orvati Nia, F., Mohammadi, A., Al Kharsa, S., Naikare, P., Hampel-Aria, Z., & Peeples, J.,* (2026). Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision. [\[link\]](#)
 - Histogram-based Parameter-efficient Tuning for Passive and Active Sonar Classification., *Mohammadi, A., Carreiro, D., Van Dine, A., & Peeples, J.,* (2026). IEEE International Geoscience and Remote Sensing Symposium. [\[link\]](#)
 - Investigation of Time-Frequency Feature Combinations with Histogram Layer Time Delay Neural Networks., *Mohammadi, A., Masabarakiza, I., Barnes, E., Carreiro, D., Van Dine, A., & Peeples, J.,* (2025). IEEE OCEANS. [\[link\]](#)
 - Cross-Domain Knowledge Transfer for Underwater Acoustic Classification Using Pre-trained Models., *Mohammadi, A., Kelhe, T., Carreiro, D., Van Dine, A., & Peeples, J.,* (2025). IEEE OCEANS. [\[link\]](#)
 - Physics-informed neural networks for modeling physiological time series for cuffless blood pressure estimation., *Sel, K., Mohammadi, A., Pettigrew, R. I., & Jafari, R.,* (2023). Nature NPJ Digital Medicine, 6(1), 110. [\[link\]](#)
 - An integrated human stress detection sensor using supervised algorithms., *Mohammadi, A., Fakharzadeh, M., & Baraeinejad, B.,* (2022). IEEE Sensors Journal, 22(8), 8216-8223. [\[link\]](#)

MANUSCRIPTS UNDER REVIEW

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- Structural and Statistical Audio Texture Knowledge Distillation for Acoustic Classification., *Ritu, J., Mohammadi, A., Carreiro, D., Van Dine, A., & Peeples, J.,* [\[link\]](#)
 - Parameter-efficient Dual-encoder Architecture with Differentiable Choquet Integral Fusion for Underwater Acoustic Classification., *Mohammadi, A., Van Dine, A., & Peeples, J.,* [\[link\]](#)
 - Predicting Ethanol Drinking Status from Nonhuman Primate Liver Histology: A Proof of Concept for Parameter-efficient Fine-tuning in Few-Shot Vision-Language Modeling., [in review].

EXTRACURRICULARS

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- **Reviewer** for the 2023 IEEE International Conference on Acoustics, Speech and Signal Processing.
 - **Reviewer** for the Expert Systems With Applications international journal.
 - **Helper** for the 2024 IEEE International Conference on Acoustics, Speech and Signal Processing.
 - **Mentored** undergraduate and graduate students in designing & developing end-to-end AI projects.

- **Volunteered** for Night at the Zach during the Texas Science & Engineering Fair to showcase AI projects.
- **Served** as a session chair at the 2026 IEEE International Geoscience and Remote Sensing Symposium
- **Delivered** 3 lectures of ECEN 250, Machine Learning for Electrical Engineering, at Texas A&M University.

LANGUAGES

English (proficient); **Farsi** (native/bilingual); **Azerbaijani Turkish** (native/bilingual)