

# Amirmohammad Mohammadi

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## RESEARCH INTERESTS

Foundation Models; Physics-Informed Machine Learning; Healthcare AI; Multi-modal AI; Explainable AI; Efficient Architectures & Parameter-Efficient Fine-Tuning; Edge AI; Continual Learning; Time-Series Analytics

## EDUCATION

Texas A&M University, College Station, Texas	December 2026 (anticipated)
Doctor of Philosophy in Computer Engineering	
Sharif University of Technology, Tehran, Iran	February 2021
Master of Science in Electrical Engineering	
University of Tabriz, Tehran, Iran	September 2018
Bachelor of Science in Electrical Engineering	

## SKILLS

**AI/ML & Data Science** (Python; PyTorch; NumPy; Pandas; VS Code; High-performance Computing)

**Electrical & Computer Engineering** (Circuit & system design; Embedded systems; SPICE; MATLAB; C)

## EXPERIENCE

Texas A&M University, College Station, Texas	September 2022 – Present
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### *Ph.D. Research Assistant*

- **Proposed** an architecture-agnostic pooling layer that improved remote sensing classification accuracy by up to **2.5 percentage points** over standard pooling with near-zero added overhead.
- **Reduced** Transformer-based foundation models fine-tuning parameters (**>10%**) compared to conventional adapters by developing a distribution-aware algorithm.
- **Raised** classification accuracy of a convolutional-based deep learning model **7 percentage points** by constructing a time-frequency feature engineering for audio applications.
- **Demonstrated** that ImageNet-pretrained models outperform audio-pretrained models by **3 percentage points** in acoustic classification, establishing a cross-domain transfer learning benchmark.
- **Cut** required ground truth by a factor of **15** in physiological time-series signals by using physics-informed neural networks & domain knowledge integration for cuffless blood pressure measurement.
- **Led** research efforts spanning audio, image, and physiological sensing, resulting in **6** publications.

Sharif University of Technology, Tehran, Iran	July 2019 – February 2021
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### *Graduate Student Researcher*

- **Designed** an ECG + EDA sensor (BLE SoC) that has a higher battery life (**3x**) compared to alternatives and delivers **94%** mental stress detection accuracy across 18 participants (HW-SW co-design).
- **Published** a first-authored peer-reviewed Q1 journal paper.

## AWARDS & EXTRACURRICULARS

- **Received** fully-funded Ph.D. position through Massachusetts Institute of Technology Lincoln laboratory.
- **Received** fully-funded Ph.D. position through National Institute of Health.
- **Received** funded tuition through National University Entrance Exam for M.Sc. studies.
- **Received** funded tuition through National University Entrance Exam for B.Sc. studies.

- **Reviewer** for the 2023 IEEE International Conference on Acoustics, Speech and Signal Processing.
- **Reviewer** for the Expert Systems With Applications international journal.
- **Graded** exams and homework for undergrad electronics course.
- **Helper** for the 2024 IEEE International Conference on Acoustics, Speech and Signal Processing.
- **Provided** guidance on developing AI projects for undergrad and grad students.

## 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). IEEE/CVF Winter Conference on Applications of Computer Vision (WACV) Workshops (Computer Vision for Earth Observation). [\[link\]](#)
- Histogram-based Parameter-efficient Tuning for Passive Sonar Classification., *Mohammadi, A., Carreiro, D., Van Dine, A., & Peeples, J.*, PREPRINT. [\[link\]](#)
- Structural and Statistical Audio Texture Knowledge Distillation (SSATKD) for Passive Sonar Classification., *Ritu, J., Mohammadi, A., Carreiro, D., Van Dine, A., & Peeples, J.*, PREPRINT. [\[link\]](#)
- 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. [\[link\]](#)

## LANGUAGES

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