

# Amir Mohammadi

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## RESEARCH INTERESTS

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**Fundamental AI:** Deep Learning, Foundation Models, Parameter-Efficient Tuning, Algorithm Development

**Applied AI:** AI for Health, Scientific AI, Physics-informed ML, Signal Processing, Audio & Vision

## EDUCATION

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Texas A&M University, College Station, Texas

December 2026 (anticipated)

Doctor of Philosophy in Computer Engineering

## EXPERIENCE

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Texas A&M University, College Station, Texas

September 2022 – Present

### Research Assistant

- **Reduced** Transformer-based foundation models fine-tuning parameters (**>10%**) compared to conventional adapters by developing a distribution-aware algorithm. (**funded** by MIT Lincoln Lab)
- **Raised** classification accuracy of a convolutional-based deep learning model **7 percentage points** by constructing a time-frequency feature engineering for audio applications. (**funded** by MIT Lincoln Lab)
- **Cut** required ground truth by a factor of **15** in physiological time-series signals by using physics-informed neural networks for blood pressure measurement. (**funded** by National Institute of Health)
- **Published** 3 papers as first author and 3 papers as second author
- **Technical skills:** Python; PyTorch; NumPy; Git; Hugging Face; AI Project Development & Engineering

## 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., & Peebles, 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., & Peebles, J.*, PREPRINT. [\[link\]](#)
- Structural and Statistical Audio Texture Knowledge Distillation (SSATKD) for Passive Sonar Classification., *Ritu, J., Mohammadi, A., Carreiro, D., Van Dine, A., & Peebles, 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., & Peebles, 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., & Peebles, 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. [\[link\]](#)