

# Amirmohammad Mohammadi

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## PROFILE SUMMARY

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4½ years of grant-funded ML/AI applied research in digital health, sensing, remote monitoring, and wearables; first author of four papers.

## RESEARCH EXPERIENCE

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Texas A&M University, College Station, Texas

September 2022 – Present

### *Research Assistant*

- **Reduced** trainable parameters by **40%** compared to adapters in passive sonar parameter-efficient transfer learning (Transformers) by proposing a histogram-based algorithm, while maintaining accuracy.
- **Raised** DeepShip (audio) classification accuracy **7 pp** by a time-frequency feature engineering.
- **Cut** required ground truth by a factor of **15** in Bio-Z signals with physics-informed neural networks.
- **Published** 3 papers as first author and 2 papers as second author.

Sharif University of Technology, Tehran, Iran

July 2019 – February 2021

### *Student Researcher*

- **Designed** a low-power ECG + EDA wearable (BLE SoC) that has a higher battery life (**3.5×**) compared to alternatives and delivers **94%** mental stress detection accuracy across 18 participants.
- **Published** a paper as first author.

## SKILLS

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Python, PyTorch (+Lightning), TensorFlow, Jupyter Notebook, Spyder, GitHub, LaTeX

## EDUCATION

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Texas A&M University, College Station, Texas

Fall 2026 / Spring 2027 (anticipated)

Doctor of Philosophy in Computer Engineering

Sharif University of Technology, Tehran, Iran

February 2021

Master of Science in Electrical Engineering

University of Tabriz, Tabriz, Iran

September 2018

Bachelor of Science in Electrical Engineering

## POSTER WORKS

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- **Mohammadi, A.**, Sel, K., Pettigrew, R. I., & Jafari, R. (2023). Physics-Informed Neural Networks for Modeling Cardiovascular Dynamics. Poster presented at the *2023 AI in Health Conference*, Houston, TX.

## PUBLICATIONS

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- **Mohammadi, A.**, Carreiro, D., Van Dine, A., & Peeples, J. (2025). Histogram-based Parameter-efficient Tuning for Passive Sonar Classification. *PREPRINT*. [link]
- Ritu, J., **Mohammadi, A.**, Carreiro, D., Van Dine, A., & Peeples, J. (2025). Structural and Statistical Audio Texture Knowledge Distillation (SSATKD) for Passive Sonar Classification. *PREPRINT*. [link]
- **Mohammadi, A.**, Masabarakiza, I., Barnes, E., Carreiro, D., Van Dine, A., & Peeples, J. (2025). Investigation of Time-Frequency Feature Combinations with Histogram Layer Time Delay Neural Networks. *IEEE OCEANS*. [link]

- **Mohammadi, A.**, Kelhe, T., Carreiro, D., Van Dine, A., & Peeples, J. (2025). Cross-Domain Knowledge Transfer for Underwater Acoustic Classification Using Pre-trained Models. *IEEE OCEANS*. [link]
- Sel, K., **Mohammadi, A.**, Pettigrew, R. I., & Jafari, R. (2023). Physics-informed neural networks for modeling physiological time series for cuffless blood pressure estimation. *Nature NPJ Digital Medicine*, 6(1), 110. [link]
- **Mohammadi, A.**, Fakharzadeh, M., & Baraeinejad, B. (2022). An integrated human stress detection sensor using supervised algorithms. *IEEE Sensors Journal*, 22(8), 8216-8223. [link]

## **LEADERSHIP & SERVICE**

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### **Peer-Review and Conference Support:**

- Served as a Helper/Area Chair for Applied Signal Processing Systems at IEEE ICASSP 2024, helping manage the peer-review process. Served as Reviewer for IEEE ICASSP 2023.

### **Research Mentorship:**

- Guided an undergraduate student during development of a pipeline for an AI project.

### **Teaching Support:**

- Graded coursework in Principles of Electronics.