Amirmohammad Mohammadi

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PROFILE SUMMARY

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

RESEARCH EXPERIENCE

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

- **Reduced** trainable parameters by **40%** compared to adapters in parameter-efficient transfer learning of Transformer models by proposing a histogram-based method, while maintaining baseline accuracy.
- **Raised** DeepShip classification accuracy **7 pp** by designing a spectrogram-based feature engineering.
- **Cut** required ground truth by a factor of **15** in Bio-Z signals with physics-informed neural networks.
- **Published** 3 conference papers as first author and 2 journal 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 journal paper as first author.

SKILLS

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

EDUCATION

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

- **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

- **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

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 and reviewer assignments. Served as Reviewer for IEEE ICASSP 2023.

Research Mentorship:
- Guided an undergraduate student during development of an AI project.

Teaching Support:
- Graded coursework in Principles of Electronics, providing timely feedback.

PROJECTS IN PROGRESS

Texas A&M University, College Station, Texas   Present
Research Assistant
- **Working** on a dual-guidance diffusion generative AI method to improve the classification accuracy in DeepShip dataset by generating new samples that carry class discriminative embeddings.