Amirmohammad Mohammadi

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EDUCATION

Texas A&M University, College Station, Texas — May 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

EXPERIENCE

Graduate Research Assistant, Advisor: Prof. Joshua Peeples — January 2024 – Present
Texas A&M University, College Station, Texas

- Improved AI models performance by 11% through feature engineering for audio/time-frequency data.
- Introduced a parameter-efficient transfer learning method for foundation audio transformer models, significantly reducing tunable parameters compared to standard adapters.
- Contributed to cross-domain knowledge transfer learning applications of acoustic data using pre-trained models and explainable AI.

Graduate Research Assistant, Advisor: Prof. Roozbeh Jafari — September 2022 – December 2023
Texas A&M University, College Station, Texas

- Developed AI models for physiological time-series signals analysis and prediction.
- Devised physics-informed neural networks for cardiovascular dynamics, decreasing required ground truth training data by an average factor of 15.
- Served as Helper/Area Chair for Applied Signal Processing Systems at 2024 IEEE ICASSP, helping peer-review process and reviewer assignments. Contributed as Reviewer for 2023 IEEE ICASSP, evaluating three submitted papers.

Graduate Student, Advisor: Prof. Mohammad Fakharzadeh — July 2019 – February 2021
Sharif University of Technology, Tehran, Iran

- Developed low-power sensor for human mental stress diagnosis using supervised algorithms.
- Designed the schematics and PCB, programmed the microcontroller, conducted the data collection.
- Graded the assignments of Principles of Electronics course and resolved the disputes.

COMPUTATIONAL SKILLS

Python ● PyTorch (Lightning) ● MATLAB ● AI/ML ● Signal/Image Processing ● Feature Engineering

JOURNAL PAPERS

1. 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]
2. **Mohammadi, A.**, Fakharzadeh, M., & Baraeinejad, B. (2022). An integrated human stress detection sensor using supervised algorithms. *IEEE Sensors Journal*, 22(8), 8216-8223. [link]

PREPRINTS

1. **Mohammadi, A**., Masabarakiza, I., Barnes, E., Carreiro, D., Van Dine, A., & Peeples, J. Investigation of Time-Frequency Feature Combinations with Histogram Layer Time Delay Neural Networks. [link]
2. **Mohammadi, A**., Kelhe, T., Carreiro, D., Van Dine, A., & Peeples, J. Transfer Learning for Passive Sonar Classification using Pre-trained Audio and ImageNet Models. [link]

POSTER PRESENTATIONS

1. **Mohammadi, A.**, Masabarakiza, I., Barnes, E., Carreiro, D., Van Dine, A., & Peeples, J. (2024, April). Investigation of Time-Frequency Feature Combinations with Histogram Layer Time Delay Neural Networks. Poster session presented at the *Electrical & Computer Engineering Graduate Spring Poster Event*, College Station, TX.
2. **Mohammadi, A.**, Sel, K., Pettigrew, R. I., & Jafari, R. (2023, October). Physics-Informed Neural Networks for Modeling Cardiovascular Dynamics. Poster session presented at the *2023 AI in Health Conference*, Houston, TX.