Curriculum Vitae

Ahmad Mohammadshirazi

Ph.D. Candidate | mohammadshirazi.2@osu.edu , ahmad.shirazi@flairdocs.com | (614) 530-9924

EXPERTISE

Programming	Advanced AI & Computational Techniques	Teaching
.NET.	Large Language Model (LLM).	Foundations of Speech and Language Processing.
MS SQL.	Large MultiModal Models (LMM).	Advanced Computer Science.
Oracle SQL.	High-Performance Supercomputing.	Design of Experiment.
Python.	Optimization (Nonlinear & Multi-Objective).	Linear Regression.
R.	Parallel Computing.	Probability & Statistics.

EDUCATION

Ph.D. Candidate, Computer Science and Engineering

The Ohio State University (08/2020-current)

- Advisor: Prof. Rajiv Ramnath.
- Current Research: Development of an OCR-Free Large Multimodal Model (LMM) for Document Understanding.

WORK EXPERIENCE

Senior ML Applied Science

FlairSoft Company, Columbus, OH (05/2022-current).

- Designed and implemented AI/ML solutions for real-time audio transcription and annotation using AI/ML.
- Engineered OCR and LLM-based techniques for intelligent document management and scanned document annotation.
- Developed a knowledge-driven chatbot to provide file-specific answers based on backend data using RAG.
- Integrated speech-to-text and text-to-speech features into existing software.
- Developed a multilingual translation aid supporting over 80 languages.

Graduate Teaching Associate

The Ohio State University, Columbus, OH (01/2023-current)

- Foundations of Speech and Language Processing - CSE 5525

Fellowship

NSF Research Traineeship Program, EMPOWERMENT Program, Columbus, OH (08/2021- 01/2023)

- Proposed Advanced Machine Learning Models to Predict Air Quality Pollutants.

Graduate Research Associate

The Ohio State University, Columbus, OH (01/2021-12/2022)

- Develop Self-Suppervised Learning Method to Estimate Ventilation Rate.

Data Analytic & Technical Trader Self-Employed

Freelancer®, Columbus, OH (09/2017-07/2020)

- Developed Statistical & Machine Learning Models to Analyze Experimental Data.
- Developed Statistical Models to Analyze Health Insurance Companies ER Spending.
- Performed Data Productions, Mgmt., Mining, Enrichments, Feature Extractions, & Dimensionality Reductions.
- Performed Experimental & Computational Research in Area of Food Production.

PEER-REVIEWED JOURNAL PUBLICATIONS (AS OF 01/2025, OVER 460 CITATIONS AND H-INDEX OF 5)

Mohammadshirazi, A., Prasad Guha Neogi, P., Lim, L. & Ramnath R. (2025). DLaVA: Document Language and Vision Assistant for Answer Localization with Enhanced Interpretability and Trustworthiness. CVPR (submitted).

Mohammadshirazi, A., Nosratifiroozsalari A., & Ramnath R. (2025). DSSRNN: Decomposition-Enhanced State-Space Recurrent Neural Network for Time-Series Analysis. ICLR (submitted).

Mohammadshirazi, A., Nosratifiroozsalari A., Zhou M., Kulshrestha D., & Ramnath R. (2024). DocParseNet: Advanced Semantic Segmentation and OCR Embeddings for Efficient Scanned Document Annotation. ICML Workshop on Efficient Systems for Foundation Models II.

Mohammadshirazi, A., Nadafian, A., Monsefi, A. K., Rafiei, M. H., & Ramnath, R. (2023). Novel Physics-Based Machine-Learning Models for Indoor Air Quality Approximations. The 9th SIGKDD International Workshop on Mining and Learning from Time Series.

Karimi Monsefi, A., Shiri, P., **Mohammadshirazi, A.,** Karimi Monsefi, N., Davies, R., Moosavi, S., & Ramnath, R. (2023, November). CrashFormer: A Multimodal Architecture to Predict the Risk of Crash. In Proceedings of the 1st ACM SIGSPATIAL International Workshop on Advances in Urban-AI (pp. 42-51).

Mohammadshirazi, A., Kalkhorani, V. A., Humes, J., Speno, B., Rike, J., Ramnath, R., & Clark, J. D. (2022). Predicting airborne pollutant concentrations and events in a commercial building using low-cost pollutant sensors and machine learning: A case study. Building and Environment, 108833.

MANUSCRIPT REVIEWS

Reviewed approximately 50 conference papers and journal articles for prestigious academic venues, including ICML, KDD, NeurIPS, ICLR, and CVPR (2014–Present).