MUNTAQIM AHMED RAJU

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ACADEMIC CREDENTIALS

Phd in Computer Science
University of Massachusetts Lowell
Major: Computer Science
September, 2023 - ongoing

CGPA: 3.923/4.00

RESEARCH INTERESTS

Multi-modal Machine Learning, Computer Vision, NLP, Time Series Analysis, LLMs, Generative and Agentic AI

RESEARCH EXPERIENCE

Research Assistant   **August, 2023 - Present**

University of Massachusetts Lowell
Research Areas: Multi-modal Machine Learning, Computer Vision, NLP, Time Series Analysis, LLMs, Generative and Agentic AI
Research Supervisor: Dr. Ruizhe Ma
Contributions and Learnings -

- Built and fine-tuned multimodal machine learning models integrating vision and language for cross-modal understanding
- Designed and executed computer vision and NLP experiments, including data preprocessing, model training, and evaluation.
- Optimized large language models (LLMs) for tasks such as summarization, reasoning, and multimodal alignment.
- Developed multimodal fusion strategies combining textual, visual, and structured data to improve representation learning.
- Conducted experiments on cross-modal retrieval and alignment, enabling robust connections between image and language.
- Evaluated multimodal models across benchmark datasets.
- Applied deep learning techniques for time series forecasting, anomaly detection, and sequential pattern recognition.
- Authored technical reports and research papers, presenting findings through visualizations, publications.

PUBLICATIONS

Journal Paper

Krantz, J., Licata, J., **Raju, M. A.**, Gao, P., Ma, R., & Masato, D. (2025). "Machine Learning-Based Process Control for Injection Molding of Recycled Polypropylene". *Polymers, 17(7), 940.*   **Show Publication**

Conference Paper

Raju M.A., Mia M.S., Sayed M.A. and Uddin M.R., 2020. "Predicting the Outcome of English Premier League Matches Using Machine Learning", *2nd International Conference on Sustainable Technologies for Industry (STI) 4.0*, DOI: 10.1109/STI50764.2020.9350327, pp. 1-6.   **Show Publication**

Poster Paper

Raju M.A. and Mia M.S., 2020. "A Machine Learning Approach to Predict the Health Status of COVID-19 Patients to Assist in Treatment Decisions", *Proceedings of 2nd International Conference on Sustainable Technologies for Industry (STI) 4.0*, pp. 73.

CONFERENCE PRESENTATIONS

Given **oral presentation** of the research work: "Predicting the Outcome of English Premier League Matches Using Machine Learning" at 2nd International Conference on Sustainable Technologies for Industry (STI) 4.0 on December 20th, 2020.   **Show Certification**

Given **poster presentation** of the research work: "A Machine Learning Approach to Predict the Health Status of COVID-19 Patients to Assist in Treatment Decisions" at 2nd International Conference on Sustainable Technologies for Industry (STI) 4.0 on December 20th, 2020.   **Show Certification**