Subir Dey Raju

Email: subirdeyraju@gmail.com
Linkedin: https://www.linkedin.com/in/subir-dey/
GitHub: https://github.com/subir-raju

EDUCATION

Master of Science in Data Science August 2023 - December 2025
Tampere University | Tampere, Finland

BSc in Computer Science and Engineering January 2017 - May 2021
North South University | Dhaka, Bangladesh

RESEARCH EXPERIENCE

Master's Thesis | GPT Lab, Finland November 2024 - December 2025
Title: Analyzing AI-Simulated Multi-Agent Discussions: Extracting Structured Insights from LLM-Generated Dialogues

- Designed an end-to-end multi-agent discussion analysis framework using Python, sentence embedding, hierarchical attention networks, and transformer-based classifiers to extract linguistic features and evaluate conversational dynamics
- Developed computational and statistical methods to evaluate AI system reliability, risks, and failure modes, demonstrating how multi-agent dialogue analysis can inform regulatory design and governance standards for agentic systems.
- Applied Design Science Research methodology to identify model confidence-accuracy misalignment and conditions under which AI systems become unreliable for responsible AI practice
- Explored technical insights into interpretable multi-agent systems, including trust, transparency, and human oversight in AI-mediated communication contexts

Research Assistant | North South University February 2021 - May 2021

- Designed a data preprocessing and visualization pipeline for large-scale industrial datasets in collaboration with Garment manufacturing stakeholders
- Developed anomaly detection systems (isolation forest, reconstruction-error autoencoders) to identify quality degradation patterns, improving production reliability and organizational decision-making
- Designed real-time alerting and decision support dashboards enabling the production team to respond to quality issues with minimal latency, connecting technical systems and human operators

WORK EXPERIENCE

Full Stack Developer | HypeScout Pte. Ltd | Bangladesh July 2021 - January 2023

- Developed server-rendered backend systems with Python, FastAPI, Node.js, and React to manage real-time data pipelines and model inference at production scale
- Integrated OpenAI NLP models to develop a conversational chatbot for automated user query resolution, implementing comprehensive testing frameworks to ensure reliability and user trust
- Designed and maintained robust database architectures (MySQL, relational models) supporting large-scale data tracking, decision support, and organizational transparency
- Experienced firsthand the challenges of building trust in automated systems when human users questioned AI-generated responses, leading to insights about responsible AI deployment

INTERDISCIPLINARY SKILLS

- **Statistical & Data Science:** Statistical Modeling, Logistic Regression, Dimensionality Reduction (PCA, t-SNE, UMAP), Visualization, Statistical Inference, Machine Learning
- **Speech & NLP:** Transformers, Topic Modeling, Sentiment Analysis, Embeddings, Speech Diarization (Pyannote-audio)
- **ML & AI Tools:** PyTorch, TensorFlow, Hugging Face, GNNs, Hierarchical Attention Networks, Random Forest, Gradient Boosting
- **Programming Languages:** Python, Java, R, MATLAB, C
- **Web Development:** React.js, Node.js, FastAPI, HTML, CSS
- **Tools:** Git, Docker, Azure, SQL/MySQL
- **Natural Languages:** English (Fluent), Bengali(Native), Finnish(Intermediate), German(Intermediate), Hindi(Fluent)

PUBLICATION

- Saha L., **Dey Raju S.**, Rahman Chowdhury M., Salam K. M. A., "Implementation of a Web-based Technology for Tracking Readymade Garment Manufacturing Defects," 2021 International Conference on Intelligent Technologies (CONIT). doi.org/10.1109/CONIT51480.2021.9498295

SELECTED PROJECTS

InTrack | Web-based Solution for Defect Tracking in Readymade Garments Industry

- Designed and deployed a Python-based integrated system for real-time anomaly detection and quality decision support in garment manufacturing, serving as a sociotechnical interface between automated ML models and human production managers
- Utilized RabbitMQ for reliable message queuing, Microsoft Azure for cloud infrastructure, and Power BI for analytics dashboards to ensure trustworthiness, data integrity, and performance under high-throughput production conditions
- Addressed organizational challenges, including human oversight, stakeholder trust, and responsible system deployment in high-stakes industrial environments
- Co-authored a peer-reviewed paper published by IEEE (2021)

Docket | Web Platform for Tracking and Sharing Multimedia Content

- Developed a scalable data management platform enabling real-time tracking and review-sharing functionality of multimedia content
- Built a scalable backend with MySQL to handle user-generated input and developed APIs to enable smooth client-server interaction
- Technologies: HTML, CSS, JavaScript, PHP, MySQL

AWARDS & HONOR

- Full tuition scholarship for MSc in Data Science at Tampere University
- Magna Cum Laude, Bachelor of Science in Computer Science and Engineering, North South University
- 50% tuition scholarship for BSc in Computer Science and Engineering at North South University