Subir Dey Raju

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EDUCATION

Master of Science in Data Science **August 2023 - Present**
Tampere University | Tampere, Finland

- Relevant Coursework: Text Data Analysis, Dimensionality Reduction, Data Mining, Machine Learning, Computational Diagnostics, Statistical Inference

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

- Honors: *Magna Cum Laude*

RESEARCH EXPERIENCE

Master's Thesis | GPT Lab **November 2024 - Present (exp. completion: September 2025)**
Analyzing AI-Simulated Roundtable Discussions: Extracting Structured Insights from LLM-generated Dialogues

- Designed a multi-agent dialogue analysis framework using sentence embeddings, hierarchical attention networks, and a transformer-based classifier with attention to linguistic feature extraction
- Developed pipelines for topic relevance, coherence, and sentiment analysis using Python
- Applied graph neural networks (GATConv) to model conversational influence and role dynamics

Research Assistant | North South University **February 2021 - May 2021**

- Designed a data preprocessing and visualization pipeline for large-scale industrial datasets
- Implemented machine learning algorithms for anomaly detection, improving data reliability
- Co-authored a peer-reviewed IEEE paper (2021)

WORK EXPERIENCE

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

- Built server-rendered web applications with React.js & Node.js, optimizing rendering speed
- Developed RESTful APIs with Python FastAPI, improving system efficiency for large-scale data
- Integrated OpenAI NLP models to create a chatbot for automated user queries, reducing manual intervention
- Applied testing frameworks to ensure robustness of speech- and language-driven applications

PUBLICATION

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

SKILLS

Programming Languages	**:** Python, R, MATLAB, Java, C++
Speech & NLP	**:** Transformers, Topic Modeling, Sentiment Analysis, Embeddings, Speech Diarization (Pyannote-audio)
ML & AI Tools	**:** PyTorch, TensorFlow, GNNs, Hierarchical Attention Networks, Random Forest, Gradient Boosting
Statistical & Data Science	: Statistical Modeling, Logistic Regression, Dimensionality Reduction (PCA, t-SNE, UMAP), Visualization (Plotly, Network visualization)
Web Dev	**:** React.js, Node.js, HTML, CSS
Tools	**:** Git, Docker, Azure, SQL/MySQL,
Natural Languages	**:** English (C1), Bengali (Native), Finnish (B1), German (B1)

PROJECTS

InTrack | A web-based solution for defect detection in the ready-made garments industry

- Developed a prototype of a web-based data-driven system utilizing data processing and real-time visualization techniques to optimize manufacturing quality using RabbitMQ for reliable data communication and Microsoft Azure for cloud infrastructure
- Utilized—ReactJS, Microsoft Azure, MySQL, RabbitMQ, Power BI

Docket | A website to track and share the list of movies, TV shows, anime, games, and books

- Developed a scalable data management platform enabling real-time tracking and review-sharing of multimedia content
- Built a scalable backend with MySQL to handle user-generated input
- Developed APIs to enable smooth real-time connections between the user and the server
- Utilized—HTML, CSS, JavaScript, PHP, MySQL