Tasmia Shahriar

shahriartasmia@gmail.com | +19197375573 | Google Scholar | LinkedIn

Education

North Carolina State University, PhD in Computer Science *GPA 3.73/4.00, Aug 2018 – Aug 2024*

North Carolina State University, MS in Computer Science *GPA 3.73/4.00, Aug 2018 – May 2024*

Bangladesh University of Engineering & Technology (BUET),
BSc in Computer Science and Engineering (CSE) *GPA 3.81/4.00, May 2012 – Feb 2017*

Technical Skills

- **Research Methods:** Contextual Inquiry, Questionnaires and Survey design, A/B testing, Think-aloud study, Storyboarding and Prototyping, Wizard of Oz study.
- **Qualitative Data Analysis:** Thematic analysis, Inductive coding, Affinity diagrams.
- **Quantitative Data Analysis:** Descriptive and Inferential Statistics, Principal Component Analysis (PCA) and Factor Analysis, Parametric Statistics, Univariate and Multivariate Statistics, Mixed and Factorial Designs, Regression Analysis.
- **Programming languages:** R, Java, Python
- **Libraries and Frameworks:** Pandas, NumPy, Scikit-learn, Tensorflow, Keras, PyTorch

Projects

[Dissertation] Modelling Conversational Questions to Enhance Learning. NCSU *2023-2024*
Research Project, IEC Lab

- Improvised the traditional chain-of-thought prompting reducing hallucinations by 15%.
- Evaluated the capability of LLM prompting technique to generate quality educational explanations as perceived by in-service middle school teachers through survey data analysis.
- Developed three stacked LLM model for generating context-aware conversational questions.
- A/B experiments with 33 middle school students showed a 13% learning improvement. (AIED 2024 Paper, **acceptance rate: 25%**)

Classifying student response that represent knowledge building
NCSU *2023-2024*
Research Project, IEC Lab

- Conducted inductive coding of response features that indicate students' engagement in knowledge building, collaborated with CS masters graduates to achieve inter-coder reliability of .81 measured through Cohen-kappa and trained SVM model to predict students' knowledge building response % accuracy (AIED 2023 Paper, **acceptance rate: 21%**)

Differential Sequence Mining in Intelligent Tutoring Systems. NCSU *2022*
Research Project, IEC Lab

- Analyzed learning behaviors of low-knowledge students using differential sequence mining and Welch's t-test.

Metadata Extraction from Educational Videos CMU *2023*
Summer School Project, LearnLab

- Extracted informative video features like questions along with context, solutions, presence of off-topic entertaining elements through schema iterations using LangChain. (github)

Intrusion Detection in Network flow data NCSU *2023*
Course Project, Automated Learning and Data Analytics

- Applied Principal Component Analysis and Information Gain for feature-engineering, handling data imbalance with sampling techniques.
- Developed a multitask deep neural network that yield 98.87% recall for category and 97.34 in the sub-category prediction (github)

Itinerary Summarization with Temporal Information from Travelers' Blog
Course Project, Natural Language Processing

Android, ReactNative mobile app and Django webapp development.