Preya Shabrina

Experience

May 2019–Present **Graduate Research Assistant**, *North Carolina State University*, Raleigh, NC.
- Lead research projects
- Collaborate with professor and fellow graduate students in research projects
- Mentor undergraduate research students

Aug 2018–May 2019 **Graduate Teaching Assistant**, *North Carolina State University (NCSU)*, Raleigh, NC.
- Assisted CSC 236 (Computer Organization and Assembly Language) students by answering questions and providing hints to write assembly-language programs

Mar 2017–Jul 2018 **Software Engineer**, *Infosapex Limited, Expo Group*, Dhaka, Bangladesh.
- Developed web-based and iOS apps
- Mentored junior software engineers

Feb 2016–Feb 2017 **Undergraduate Research Student**, *Bangladesh University of Engineering and Technology*, Dhaka, Bangladesh.
- Collaborated with Professor and fellow students in a research project

Skills and Tools

Data Science Machine Learning (Linear and Non-Linear Models, Reinforcement Learning), Supervised, Unsupervised and Semi-Supervised Learning, Missing Data Handling, Feature Selection etc.

Programming Python (pandas, NumPy, SciPy, scikit-learn), C, C++, Java, Swift, Objective C, & SQL.

Data Tools Weka

Visualization R (ggplot2), Python (GraphViz, matplotlib), LaTeX.

Others HTML, CSS, JS, JQuery, Django, Firebase, Postman, Charles Web Debugging Proxy, FileZilla, Redis, PostgreSQL, Git

Research Projects

Since Oct 2019 **Prediction of Students' Wheel Spinning Behaviour in an Educational Math Game**, *Ongoing*.
- Feature engineering and generating a prediction model for students' wheel spinning behaviour [a state of high effort, low learning outcome] using sequential gameplay data in Spatial Temporal Math (ST Math), an educational math game

May 2019–Oct 2019 **Class format analysis from ST Math students' sequential gameplay data** .
- Identified class formats used while conducting gameplay sessions and modeled relationship between gameplay session features and class performance

May 2019–Oct 2019 **Data-informed Curriculum Sequences for a Curriculum-Integrated Game**.
- Identified the optimal sequence of objectives in ST Math for better learning outcome

Jan 2019–May 2019 **Prediction of students' future performance in ST Math**.
- Predicted performance on the next level and number of levels a student can complete in subsequent gameplay using prior gameplay data

Course Projects

Fall 2019 **Feature engineering and machine learning model generation to predict students' enjoyment in ST Math**.

Fall 2019 **Feature Selection to train an Intelligent Logic Tutor, Deep Thought, using Reinforcement Learning**.

Fall 2019	**Missing Value Imputation in Clinical Temporal data**.
	o Improvised the 3D-MICE algorithm to impute missing values in temporal clinical data by feeding a temporal view of the data to the MICE component of 3D-MICE
Spring 2019	**Email Authorship Identification**.
	o Employed Multiple Machine Learning Algorithms to Identify Emails from Trusted Authors
Fall 2019	**Graph Fitting for Quantum Annealers**.
	o Defined rules to map hamilltonian graphs to physical hardware graph and coded the rules using ASP
Fall 2018	**Wootz**.
	o Developed a compiler to generate Tensorflow Code from high level neural network specification
Fall 2018	**Static Analysis of EmberJS and AngularJS**.
	o Evaluated the git repository of EmberJS and AngularJS using static analysis tools (PLATO and SonarJS)

Industry Projects

2018	**BuzzListing**.
	o Designed and implemented an augmented reality based iOS app, BuzzListing, to find out nearby properties for sale or lease
2017	**Tuberculosis Patients' Report Management System**, *National Tuberculosis Control Program, People's Republic of Bangladesh*.
	o Implemented a tuberculosis patients' treatment data management system and developed an embedded data analyzing tool providing insight of overall condition of tuberculosis spread around the country
2017	**Digiflow**.
	o Designed and implemented a task notification system for Digiflow, a process making software
2017	**BoardMaestro**.
	o Designed and implemented a board meeting automation app(iOS)

Education

Exp May 2023	**Ph.D. Computer Science**, *North Carolina State University*, Raleigh, NC.
2017	**B.Sc. Computer Science and Engineering** - **CGPA (3.90/4.00)**, *Bangladesh University of Engineering and Technology (BUET)*, Dhaka, Bangladesh.

Relevant Courseworks

Artificial Intelligence, Automated Learning and Data Analysis, Machine Learning, Spatial Temporal Data Mining.

Publications

1. **Preya Shabrina**, Ruth Okoilu Akintunde, Mehak Maniktala, Tiffany Barnes, Collin Lynch, Teomara Rutherford. 2020. **Peeking through the Classroom Window : A Detailed Data-Driven Analysis on the Usage of a Curriculum Integrated Math Game in Authentic Classrooms**. In Proceedings of the ACM International Conference on Learning Analytics and Knowledge (acceptance rate 30.7%).
2. Ruth Okoilu Akintunde, **Preya Shabrina**, Veronica Cateté, Tiffany Barnes, Collin Lynch, Teomara Rutherford. 2020. **Data-informed Curriculum Sequences for a Curriculum-Integrated Game**. In Proceedings of the ACM International Conference on Learning Analytics and Knowledge (acceptance rate 30.7%).
3. Rachel Harred, Christa Cody, Mehak Maniktala, **Preya Shabrina**, Tiffany Barnes and Collin Lynch. **How Long is Enough? Predicting Student Outcomes with Same-Day Gameplay Data in an Educational Math Game**. 2019 WORKSHOP ON EDM & GAMES.

Selected Honors, Scholarships & Awards

2019	Nominee, Microsoft Ada Lovelace Fellowship 2020	*Department of CSC, NCSU*
2016	Champion (Built the prototype of a Tax Verification System)	*National Hackathon, Bangladesh*
2013-2016	University Merit Scholarship	*BUET*
2013-2016	Dean's List Scholarship	*BUET*