Shutonu Mitra

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Education

- **Virginia Tech** — Virginia, USA
  Master of Engineering in Computer Science and Applications (CSA) — *Aug. 2023 – May. 2025*
  - **Major**: : Data Analytics & Artificial Intelligence
  - **Minor**: : Software Engineering
- **Military Institute of Science and Technology (MIST)** — Dhaka, Bangladesh
  Bachelor of Science in Computer Science and Engineering (CSE); ***CGPA: 3.65/4.00*** — *Feb. 2018 – May. 2022*

Professional Experience

Selise Digital Platforms — Dhaka, Bangladesh
Intern : Data Analytics and Data Engineering — *Dec 2022 - March 2023*

- Worked on building data-pipelines, processing data from various sources, conducting complex data analysis, developing data tools, prototypes and algorithms, and generating reports. *Languages and Technologies: Python, SQL, Tableau, Microsoft Excel, Cloud, Git.*

Teletalk Bangladesh LTD. — Dhaka, Bangladesh
Intern : IT and Networking — *Feb 2020 - March 2020*

- Gained a practical understanding and hands-on experience on Server System Administration, Cloud Infrastructure, Virtualization, the company's ERP software and a range of services offered by the business, including posting SSC and HSC results nationwide and offering IVR support in the event of a major disaster.

Research Experience

- **Student Researcher** — Dec 2021 - Feb 2023
  Advisor: *Dr. Muhammad Nazrul Islam* — *Dept. of CSE, MIST*
  - **ML and AI-based research works**: Built ML models from real-time data of biomedical sensors for detection of potential risks of Cardio Vascular disease. My contributions include processing data from sensors(ECG, Pulse, BP), developing the ensembled classifier algorithm and evaluating the ML models.
  - **User Experience-based research works**: Conducted an evaluation study to evaluate the performance and the usability of the developed systems in terms of four indicators: I) Effectiveness, II) Efficiency, III) Satisfaction IV) Subjective feedback. My responsibilities included collecting data from users using the developed application and surveying, developing questionnaires and forms for subjective feedback and analyzing both quantitative and qualitative data.
  - **Designing and Developing tools and applications**: Designed and Developed Web and Android applications for the both Cardiovascular disease prediction system and Postpartum depression detection system. I especially contributed to designing the UI, deploying the ML model to the cloud, and integrating various functions in the applications such as demonstrating ECG graphs and emergency calls.
- **Undergradute Thesis** — July. 2021- Mar. 2022
  Advisor: *Muhammad Shajahan Majib* — *Dept. of CSE, MIST*
  - **Research in NLP and Social Media Analytics**: Developed Neural Networks from the collected textual Twitter data for the purpose of detection and classification of cyberbullying in social media.
  - **Designing the framework for Cyberbully Prevention**: Contributed to designing the framework for the automatic detection of bullying texts and monitoring user activity in web interfaces of social media through AI.

Technical Skills

- **Languages**: HTML, CSS, Java, Typescript, React, Python, JavaScript, C++, PHP, SQL, Matlab
- **Technologies**: Android, Flask, Node, Django, MySQL, Firebase, Bootstrap, Oracle, QuestionPro, Microsoft Office, Linux, Latex, IBM Cloud
- **Analytic Skill**: Data visualization (Tableau Python and R), Machine Learning (Python), Neural Network (Tensorflow), Natural Language Processing.
- **Tools**: Eclipse, Visual Studio, Git, VMWare, VirtualBox, Atom, Matlab, Netbeans, Android Studio, Adobe XD, Figma, Jupyter Notebook
- **Others**: Well presentation and technical writing skills. Used to both individual and team/group work

Notable Projects

- **PPD Coach**: An HCI-based research project, for the purpose of recognizing if a graphical scenery-based multimodal screening tool proves to be more effective than standard screening tools for the detection of Postpartum Depression (PPD) in Bangladeshi Mothers. Technologies used are- Android & Graphic Design. (2021-2022) View Code
- **ASMA** : A database project for a salon management system built with Oracle for effective employee, customer, inventory, accounts and salon services management system along with an online appointment feature, using Oracle, SQL, HTML, CSS and PHP. (2020) View Code
- **Predictis**: A medical decision making diagnosis system, which is an Android Application that predicts its user's future possibility of having Cardio-vascular diseases using Machine Learning, Data Analytics and IOT. (2021-2022) View Code
- **Cyberbully Detection & Classification**: A machine learning, neural network and natural language processing-based project with an aim to find the best-performing model for detecting and classifying cyberbullying from collected Twitter data. (2021-2022) View Code

Publications

- ***S. Mitra***, T. Tasnim, M. A. R. Islam, N. I. Khan and M. S. Majib, "A Framework to Detect and Prevent Cyberbullying from Social Media by Exploring Machine Learning Algorithms," 2021 International Conference on Computer, Communication, Chemical, Materials and Electronic Engineering (IC4ME2), 2021, pp. 1-4, doi: 10.1109/IC4ME253898.2021.9768450. View Article
- Islam, M.N., Raiyan, K.R., ***Mitra, S.*** et al. Predictis: an IoT and machine learning-based system to predict the risk level of cardiovascular diseases. BMC Health Serv Res 23, 171 (2023).https://doi.org/10.1186/s12913-023-09104-4 View Article
- M.M. Rushadul Mannan, ***Shutonu Mitra***, Tasfia Tasnim, Kazi Rafid Raiyan, Nafiz Imtiaz Khan, Muhammad Nazrul Islam. "PPD COACH: An Application for detecting Postpartum Depression in Bangladeshi Mothers using Visual Questionnaires." Engineering Reports (Under Review)

Achievements

- Inter-University Girls' Programming Contest **Ranked 12th among 1000 teams** (IUGPC- Season 2) arranged by North South University 2019