SHUTONU MITRA

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Education

Virginia Tech | Virginia, USA   *August 2023 – May 2025*
Master of Engineering in Computer Science; GPA: 3.90/4.00   Courses: Machine Learning, ML with Big Data, Cloud Computing

Military Institute of Science & Technology | Bangladesh   *February 2018 – May 2022*
Bachelor of Science in Computer Science; CGPA: 3.65/4.00

Skills

Languages: Java, Python, C, C++, JavaScript, PHP, SQL, HTML 5, CSS 3, Bash, Ruby/Rails.
Analytic Skill: Data visualization (Tableau, Python), Machine Learning, Neural Networks (Tensorflow, PyTorch), Natural Language Processing, IBM cloud, AWS cloud services (EC2, EMR, Lambda), PySpark.
Technologies: Android, Django, MySQL, Firebase, Git CLI, Oracle, Latex, Figma, Open GL, MongoDB, React, Node JS, Rest API.

Experience

Selise Digital Platform   *December 2022– March 2023*
Data Analytics Engineer Internship   Dhaka, Bangladesh

- Implemented and optimized SQL and NoSQL databases, achieving a 35% performance enhancement through query tuning.
- Automated ETL processes and collaborated on troubleshooting, resulting in a 40% reduction in data pipeline defects.
- Engineered machine learning models, data analyses, and comprehensive reports, resulting in improved predictive accuracy, reduced processing time, and enhanced decision support improving client satisfaction by 19%.

Military Institute of Science & Technology   *December 2021– February 2023*
Undergraduate Research Assistant   Dhaka, Bangladesh

- Applied ML algorithms to infer health (e.g. physiological indicators), behaviors (e.g., conversation), and spatiotemporal contexts from wearable and mobile sensors.
- Supervised and conducted evaluation studies to evaluate the performance and usability of the developed systems by collecting and analyzing both quantitative and qualitative data.
- Designed and developed Android and Web applications for collecting, cleaning, predictive modelling, and visualizing data.

Teletalk Bangladesh LTD.   *February 2021–April 2021*
Engineer Intern   Dhaka, Bangladesh

- Reduced server downtime by 20% through proactive server monitoring and maintenance.
- Increased user satisfaction rating for ERP software by 20% through system optimization.
- Streamlined exam result publication process, reducing publication time by 50% and minimizing errors by 25%.

Projects

Malicious URL Detection | Tensorflow, Pytorch, NLP, Neural Networks   *Git Repository*

- Architected a real-time malicious URL detection system to block phishing, malware, and defacement URLs that lead to malicious websites causing cyber threats by the proposed Convolutional neural network model with an F1 score of 97.67%.

Predictis | Machine Learning, IoT, Android, Cloud   *Git Repository*

- Created and validated an android application that predicts its user's future possibility of having Cardio-vascular diseases using an ML model built on real-time data from biomedical sensors, improving utility and user satisfaction by 25%.

PPD Coach| Android, Graphic Design, Chatbot   *Git Repository*

- Invented an innovative Android application, designing chatbot and multimodal screening techniques, to detect Postpartum Depression (PPD) in Bangladeshi mothers, which demonstrated about 80.8% improvement in PPD screening.

Papertown | React, CSS,TypeScript, Restful API, MySQL, JDBC, Tomcat, AWS   *Git Repository*

- Implemented a bookstore web application featuring a React client with a single-page architecture, a Tomcat server, and a MySQL database, emphasizing accessibility, performance, and scalability considerations. Deployed the webapp in Amazon EC2, where the MySQL is in Private Subnet and the Tomcat Web server in Public Subnet of the VPC.

Twitter Hashtag Counter| PySpark, AWS EMR, AWS S3, Map-Reduce   *Git Repository*

- Devised a custom hashtag analysis pipeline by Map-Reduce algorithm utilizing Apache Spark deployed on Amazon EMR, seamlessly processing Twitter data hosted on AWS S3 to identify and store the top 20 hashtags, showcasing a comprehensive big data solution integrating Python, Spark, EMR, and S3.

Publications

[1] "A Framework to Detect and Prevent Cyberbullying from Social Media by Exploring Machine Learning Algorithms." International Conference on Computer, Communication, Chemical, Materials and Electronic Engineering (IC4ME2) (2021)
[2] "Predictis: an IoT and machine learning-based system to predict the risk level of cardiovascular diseases." BMC Health Serv Res 23, 171 (2023).