

SHUTONU MITRA

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Education

Virginia Tech | Virginia, USA

August 2023 – May 2025

Master of Science in Computer Science; GPA: 3.83/4.00

Courses: Neural Network, Big Data, Cloud Computing, ML

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, PL/SQL, HTML 5, CSS 3, Bash

Analytic Skill: Data visualization (Tableau, Excel, Python), Machine Learning, Neural Networks (Tensorflow, PyTorch), Natural Language Processing, IBM cloud, AWS cloud services (EC2, EMR, Lambda), PySpark, Google Cloud Platform.

Software Development: Object-Oriented Design, Agile Methodologies, Version Control (Git), Distributed Systems.

Technologies: Android, Django, MySQL, Firebase, Oracle, Latex, Figma, Open GL, MongoDB, React, Node JS, Rest API.

Experience

Curanostics Inc.

May 2024– Present

Data Analyst Intern

Suwanee, Georgia, USA

- Collaborating with the product development team to seamlessly integrate AI features into the platform by developing REST APIs and interactive visualizations of health care data, enhancing user engagement by 25%.
- Designing and implementing scalable back-end systems for health information technology software, improving performance by 40% and ensuring robust infrastructure through rigorous testing and debugging.
- Leveraging Google Cloud Platform for medical report summarization and question answering, developing and optimizing machine learning models for healthcare data analysis using Retrieval-Augmented Generation (RAG).

Selise Digital Platform

December 2021– March 2023

Data Analytics Engineer

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%.

Virginia Tech

June 2024–Present

Graduate Research Assistant

Virginia, USA

- Employed open data and advanced data science techniques to quantify and visualize social cyber vulnerabilities
- Developed and implemented multimodal data analytics and fraud detection algorithms.
- Contributed to the creation of a geospatial dashboard that maps SCVI across different regions, identifying high-risk areas.

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%.

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 Server 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.

REST API with LAMBDA Functions| JAVA, MySQL, AWS Lambda Function

Git Repository

- Devised Developed and managed a suite of AWS Lambda functions to serve as a scalable backend for REST APIs, facilitating seamless data interaction between a MySQL database and a web application frontend.

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).