Shazzad Hasan

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Education

Durham University Durham, UK
MSc in Scientific Computing and Data Analysis (Specialisation: Financial Technology) 2023 - 2024
Modules: Introduction to Statistics and Data analysis, Introduction to Machine Learning, Introduction to Scientific Computing, Introduction to High-Performance Computing, Performance Engineering, GPU Programming, Advanced Algorithms, Discrete Systems, Financial Technologies, Financial Mathematics

North South University Dhaka, Bangladesh
BSc in Electrical and Electronic Engineering (Specialisation: Artificial Intelligence) 2015 - 2020
Thesis: Predicting Pulmonary Fibrosis Progression Using Deep Learning
Modules: Artificial Intelligence, Machine Learning, Pattern Recognition and Neural Network, Introduction to Multi-Agent Systems and Control

Skills Summary

Fields of Interest: Data Science, Data Analytics, Causal Inference, Machine Learning, Software Development
Key Skills: Querying Databases, Creating Dashboard, Data Analysis and Storytelling, Developing Machine Learning and Deep Learning Models, Mathematical Modelling and Simulation
Programming: Python, SQL, C++, C, MATLAB, PostgreSQL, SQLite, PyTorch, Keras, scikit-learn, pandas, NumPy, SciPy, Matplotlib, FastAPI, SQLAlchemy, Beautiful Soup, CUDA, OpenMP, MPI, likwid, gprof, Bash, HTML, CSS
Technologies: Tableau, BigQuery, Excel, Git and GitHub, macOS, Unix/ Linux

Employment

North South University Dhaka, Bangladesh
Research Assistant, Advisor: Dr. Mohammad Monir Uddin Jan. 2017 - Dec. 2017
- Expanded the PDEG method for model order reduction of structured dynamical systems and the RKSM method for solving second-order structured Lyapunov matrix equations.
- Developed a model for computing Riccati-based feedback stabilization matrix from the reduced order state-space system to stabilize a large-scale unstable power system model.

Projects

Car Sharing Web App (Python, FastAPI, SQLAlchemy)
- Built a RESTful API for a Car Sharing Web App and designed a database to store data.
Detecting Anomaly and Fraudulent Accounts on Ethereum with Machine Learning (Python, scikit-learn)
- Developed some models to detect fraudulent accounts and predict address types in the Ethereum ecosystem.
Predicting Pulmonary Fibrosis Progression Using Deep Learning (Python, Keras, scikit-learn)
- Worked in a team to develop a model for predicting the progression of the disease in patients suffering from pulmonary fibrosis.
A Machine Learning Approach for Future Career Planning in IT in Bangladesh (Python, scikit-learn, Beautiful Soup)
- Web-scraped Information Technology job circular data in Bangladesh and developed a model to predict new job types.
Siamese Neural Networks (Python, PyTorch)
- Simple PyTorch implementation of the “Siamese Neural Networks for One-shot Image Recognition” paper.
Performance Analysis and Efficient CUDA Implementation of Matrix Arithmetic (C++, CUDA, likwid, gprof, Bash)
- Visualized execution times of serial code to identify hotspot functions and plotted roofline model.
- Used CUDA to implement loop parallelism within compute functions and extended this to task parallelism.
Parallelization and Scaling Analysis of 2D Reaction-diffusion System (C, OpenMP, MPI, Bash)
- Implemented parallel code of the serial implementation of a variant of FitzHugh-Nagumo model using OpenMP and MPI and investigated weak and strong scaling.
Gray-Scott Reaction-diffusion System Simulation Software (C++, GoogleTest, git, GitHub)
- Worked in a team to build an agile, responsible, and collaborative software.
Software Project Management
- Worked in a team to develop a project management plan for the software development of a client company.

Professional Development and Certifications

MicroMasters Program in Statistics and Data Science (5 MIT graduate-level courses) - MITx 2021 – Present
Deep Learning Specialization - deeplearning.ai