Tuneer Roy

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EDUCATION

University of Pennsylvania, School of Engineering & Applied Science – Philadelphia, PA May 2024
Bachelor of Science in Engineering, Computer Science • Minor: Engineering Entrepreneurship • GPA: 4.0/4.0

TECHNICAL SKILLS

C++, Java, Python (Flask, Django, Pandas, NumPy, FastAPI, Matplotlib, PyTorch), JavaScript (TypeScript, React, Express), Git, Haskell, C, REST, Kubernetes, Docker, SQL, MongoDB, Redis, AWS (EC2, S3, ELB), Apache Spark

RELEVANT EXPERIENCE

Penn Labs | Team Lead, Backend Developer | Philadelphia, PA February 2022 – Present

- Lead teams of Penn Mobile and upcoming product Portal for 10k+ active student users
- Developing Django REST backend and data architecture while regularly collaborating with iOS/Android teams
- Spearheaded notification system to enable other products to send alerts to app (with optional delays using Celery)
- Increased API request speed by 50% through Redis caching; increased testing code coverage up to 90%

Martian | Full-Stack Engineer | Virtual October 2022 – Present

- Optimized user interface resulting in 30% faster performance; added full-stack features using React & Express
- Planned and executed LTI integration of platform to fully integrate Martian's products with other EdTech tools

University of Pennsylvania | Teaching Assistant | Philadelphia, PA September 2022 – December 2022

- Held weekly office hours, answered online questions, graded assignments, and proctored exams for 130+ students course CIS 2620: proof-based course exploring automata theory, undecidability, NP-completeness, etc.

University of Pennsylvania | Research Assistant | Philadelphia, PA May 2022 – August 2022

- Analyzed and compartmentalized data from the Ethereum blockchain using SQL queries and Python scripts
- Developed dashboard using TypeScript, React, Express, and MongoDB to automate fuzzing programs on new smart contracts on the Ethereum blockchain, resulting in 75% reduction in analysis time for research team

PROJECTS

PennOS | *C, Linux, Operating Systems, File Systems* March 2023 – Present

- Implementing priority scheduler for UNIX-like operating system using ucontext library in C
- Developing file system based on FAT16 that handles file creation, modification, and removal

Forecasting Stock Prices | *Python, Machine Learning* February 2023 – Present

- Collecting and wrangling stock data; predicting future prices using convolutional neural networks and long short-term memory networks; comparing results with predictions from ensembles and k-nearest neighbors

Shell | *C, Linux* February 2023

- Programmed simplified version of Bash using only Linux system calls in a single week
- Supports foreground and background processes, stdin/stdout redirections, multi-process pipelines, and job control; handles completed background processes asynchronously through interrupts and signal handling

Esoteric Language Compiler | *Haskell, ARM Assembly* November 2022 – December 2022

- Invented generic abstract language syntax to be compiled directly into ARM assembly
- Built parsers for two separate esoteric languages to be translated into internal representation of logic
- Ensured correctness by writing corresponding interpreters and using property-based testing with QuickCheck

Minesweeper | *C++* October 2022

- Created version of the popular 1989 puzzle game with additional functionality of saving/loading previous games

Stormlight WikiBot | *Java, Web Scraping* April 2022

- Constructed web scraper to efficiently traverse & extract data from entire Stormlight Archives fandom website
- Designed intuitive user interface that displayed graph of shortest path between any two given webpages