Tuneer Roy

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EDUCATION

University of Pennsylvania, School of Engineering & Applied Science – Philadelphia, PA   May 2025
Intended M.S.E in Computer Science, B.S.E. in Computer Science • 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

University of Pennsylvania | Instructor | Philadelphia, PA   Beginning in August 2023
- Develop curriculum, grade assignments, and deliver weekly lectures for course CIS 1962 – JavaScript
- Teach subjects such as TypeScript, React, Redux, Mongoose, Socket.io, NextJS, Jest, and more
- Previously served as teaching assistant for CIS 2620: Automata, Computability, & Complexity (130+ students)

Penn Labs | Team Lead, Backend Developer | Philadelphia, PA   February 2022 – Present
- Lead teams for Penn Mobile and Portal, catering to over 10,000+ active student users
- Design and develop Django REST backend and data architecture in collaboration with iOS/Android teams
- Built notification system for Penn Labs products to send alerts to the app (with optional delays using Celery)
- Manage team developing an analytics engine in C++ to process and analyze data usage across all products

Martian | Software Engineering Intern | San Francisco, CA   October 2022 – Present
- Design and build full-stack features with React and Express, enhancing UI and performance by 30%
- Spearheaded LTI integration of Martian's NLP-based education tool with EdTech platforms including Canvas
- Develop LLM models using Transformers architecture for tasks such as PII redaction and code generation
- Contribute to core product of LLM model-router and provide consulting services to clients like Bubble

University of Pennsylvania | Research Assistant | Philadelphia, PA   May 2022 – August 2022
- Analyzed and organized Ethereum blockchain data using SQL queries and Python scripts
- Developed a dashboard with 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

GPT Code Critic | *Docker, Kubernetes, GitHub Actions* | Link   April 2023 – May 2023
- Deployed Docker and Kubernetes-based application utilizing GPT-3.5 for code analysis
- Published an action on GitHub marketplace for seamless integration into other repositories

PennOS | *C, Linux, Operating Systems, File Systems*   February 2023 – April 2023
- Implemented a priority scheduler for UNIX-like operating system using ucontext library
- Supported foreground & background processes, stdin & stdout redirections, signal handling, and more
- Created a robust file system based on FAT16 for easy file creation, modification, and removal

Forecasting Stock Prices | *Python, Machine Learning*   February 2023 – April 2023
- Developed an ensemble model combining ARIMA & Transformer architectures for predicting future stock prices
- Achieved average MSE of $2.63 per stock (where prices were in the thousands) and R^2 of 0.94

Book Nexus | *React, Express, MySQL, MongoDB, GitHub Actions* | Link   February 2023 – April 2023
- Wrote complex SQL queries to generate book & author recommendations based on users' favorites & preferences
- Created streamlined CI/CD pipeline that automatically deploys app whenever repository is updated

Esoteric Language Compiler | *Haskell, ARM Assembly* | Link   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