

# Tuneer Roy

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## EDUCATION

**University of Pennsylvania**, School of Engineering & Applied Science – Philadelphia, PA  
Master of Science (MSE) & Bachelor of Science (BSE) in Computer Science • GPA: 4.0/4.0

May 2025

## 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 analytics engine in C++ to process and analyze data usage across all products

**Martian** | Software Engineering Intern | San Francisco, CA

October 2022 – Present

- Designed full-stack features with React & Express for [EdTech tool](#), improving API response speed by over 150%
- Hacked together entire backend in FastAPI + MongoDB for [core product](#) in a single weekend (+4198/-1289 lines)
- 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*

April 2023 – May 2023

- Deployed Docker and Kubernetes-based application utilizing GPT-3.5 for code analysis

**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 deployed app whenever repository was 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