Rutwij Patel

https://github.com/Rutwij12

EDUCATION

Imperial College London — London, United Kingdom
Predicted 2:1 MEng Computing — *September 2022 - Present*
- Algorithms, Software Engineering Design, Operating Systems, Networks, Compilers, Linear Algebra, Architecture

Greenhead College — Huddersfield, United Kingdom
A*A*A*A* Computer Science, Mathematics, Further Mathematics, Physics — *September 2020 - July 2022*

EXPERIENCE

Developer Intern — July 2024 – Present
IoTIoT.in — *Remote, India*
- Worked alongside senior developers to build a custom RAG GPT using Llama3's large language model based on user-defined wiki of information
- Reduced latency of requests by over 100ms by creating a vector-store index to cache model embeddings

Microservices and Serverless Cloud Applications Researcher — June 2024 – Present
Imperial College London — *London, United Kingdom*
- Working on reducing latency of cold starts when starting new instances of serverless applications
- Created a suite of benchmarking AWS applications using AWS Lambda and S3 storage that are fully deployable with use cases such as image processing, file encryption and compression.

Generative AI Researcher — June 2023 – July 2023
Imperial College London — *London, United Kingdom*
- Experimented using a variety of different generative AI models including RunwayML, Stable Diffusion, and Deforum to generate a music video containing a series of coherent frames using the lyrics, rhythm, and context of the song
- Selected as part of top 20 AI research projects at Imperial and presented work to over 1000 people at Imperial Lates
- Medium Article: http://tiny.cc/saqjzz

PROJECTS

PintOS | *C, Operating Systems* — October 2023 - December 2023
- Worked in a group to develop scheduling, user program execution, and virtual memory for PintOS, a Linux-based operating system. Achieved an overall score of 95%

WACC | *Scala, Compilers* — January 2024 - March 2024
- Led a group project to create a compiler for the WACC programming language from scratch using Scala and Parsley library
- As an individual extension, added further optimisations such as support for more architectures and a REPL-like feature.

COVID-19 Urban Epidemic Modelling with Mobility Data | *Python* — September 2021 - June 2022
- Modelled how COVID-19 spreads across Mumbai using sample mobility data gained from average taxi journeys to predict 'hot spots' where the virus is most likely to spread.
- Ability to tune up to 3 parameters to alter the effects of different lockdown measures to predict and compare the best plan of action to restrict the epidemic's effects. Leveraged APIs to build a responsive web application and chatbot to display live, up-to-date information. Processed 4 data types for over 60 states in India

CERTIFICATIONS

Head of Infrastructure and Web Development — July 2024 – Present
Imperial College London Data Science Society — *London, United Kingdom*
- Maintain and manage the web services for Imperial's Data Science Society with over 400+ users.
- Currently working on creating a NextJS React app to allow effective communication for events and socials.

Optiver X Imperial College Algorithmic Trading Course — October 2023 – December 2023
Optiver
- Developed an Active Arbitrage Trading Strategy in Python that generated over £10,000 in virtual profit
- Placed in the top 10 out of over 50 selected groups