Mayank Pallai

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EDUCATION

Nanyang Technological University, Singapore   Aug 2021 – Jun 2025
- B.Eng. in *Electrical and Electronic Engineering,* Specialization: Computer Engineering
- Relevant Coursework: Data Structures and Algorithms, Computer Networks, Computer Architecture, Databases, Software Engineering , Web Application Design, Cybersecurity, Data Science and AI, AI and Data Mining

SKILLS

- Programming: C/C++, Golang, Python, PostgreSQL, NoSQL, JavaScript, TypeScript, PHP, HTML, CSS
- Frameworks & Libraries: Next.js, React.js, Tailwind CSS, Material UI, TensorFlow, NumPy, Pandas
- Technologies: Git, GitHub, Github Actions, Bitbucket, Jira, Docker, Redis, AWS, gRPC (Protobufs), WebSocket, RESTful APIs, Microservices, Airflow, FastAPI, Pytest, CI/CD, Snowflake, Supabase, Postman, Agile/Scrum
- Languages: Fluent Proficiency in English, Hindi, Odia

INTERNSHIP EXPERIENCE

FileAI   Jun 2024 – Aug 2024
Full-Stack Engineer Intern   Singapore
- Reduced serverless **AWS Lambda** infrastructural costs by **12%**. Integrated **Bedrock API** to scale backend operations with **LLMs**.
- Automated export rules for financial documents, reducing rule generation time by **40%**, adopted by **70%** of the clients.
- Orchestrated data ingestion from CRM APIs using **Airflow DAGs**, and created **Snowflake** dashboard queries through structured DB views to enable analytics on internal SaaS tools.
- Implemented **Python** post-processors to deliver tailored outputs for **20+** clients post OCR model processing.

Switcheo Labs   Jan 2024 – May 2024
Software Engineer Intern   Singapore
- Optimized and deployed features on the perp DEX trading engine in **Golang**, increasing transaction throughput by **15%** and managing **150+** open positions across **500+** markets concurrently.
- Leveraged **Golang** for efficient algorithm design, refactoring, and rigorous CI/CD pipelines using **CircleCI**.
- Developed **20+ CLI** commands for efficient blockchain transactions and queries using **gRPCs** (Protobufs).
- Facilitated **PostgreSQL** migrations for frequently accessed data, caching them in **Redis**, enhancing query efficiency.

Continental Automotive   May 2023 – Aug 2023
ML and Cybersecurity Intern   Singapore
- Implemented **GANs** and Autoencoders with **CNNs**, boosting image recognition accuracy to **86%** and enhancing performance on noisy datasets for better autonomous vehicle security.
- Applied cryptographic techniques, including encryption and hashing algorithms to secure data in model deployment.

PROJECTS

Student Management Portal *GitHub*
- Programmed a web-based platform as part of Final Year Project for managing events for **800+ MSc students** using **React + Typescript, Tailwind, Golang, Supabase,** and **PostgreSQL** and **Docker** for server deployment.
- Developed role-based authentication, event management features, and an admin dashboard for real-time statistics.

Concurrent Servers *GitHub*
- Built **C** and **Python** based concurrent-server system featuring multithreaded and asynchronous models.
- Used **POSIX** threads and network sockets for handling multiple clients, optimizing performance through non-blocking I/O and thread pooling.

Blockchain Implementation *GitHub*
- Engineered **Golang**-based blockchain with **3-node** distributed-system architecture, leveraging **UNIX** environments and using the UTXO model for wallet creation, address validation, and secure transactions.

Footscape *GitHub*
- Designed and implemented a shoe e-commerce site with **HTML, CSS, JavaScript, PHP,** and **MySQL**, featuring user auth, **AJAX**-based cart updates, and persistent cart storage and dynamic product display with SQL.

LEADERSHIP

NTU Social Impact Catalyst, *Vice-President* (Executive-Committee)   Aug 2023 – May 2024
IEEE NTU Student Branch, *Welfare Director* (Main-Committee)   Aug 2022 – Jul 2023