

# Ethan Tan

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## EDUCATION

### Carnegie Mellon University

Pittsburgh, PA

*Bachelor of Science in Information Systems and Computer Science*

*Expected Spring 2026*

**Relevant Coursework:** Parallel Algorithms, Computer Systems, Data Structures and Algorithms, Functional Programming, Software Engineering, Application and Database Development, Artificial Intelligence, Data Science

## EXPERIENCE

### DBS Bank

Singapore, SG

*Software Engineer Intern*

*May 2024 – Aug 2024*

- Developed a pricing engine for the proprietary trading team that interfaces market data with quantitative models
- Worked on the system architecture as a containerized application distributed on AWS EC2 instances on demand
- Implemented an asynchronous message queue to handle distributed jobs with in-memory caching using Redis
- Reduced latency by monitoring AWS Cloudwatch console logs and scaling the capacity of Docker Containers

### Coinhako

Singapore, SG

*Software Engineer Intern*

*May 2023 – Aug 2023*

- Built technical tools for the quantitative trading team that process live trading data in a time-sensitive manner
- Developed internal API using a RESTful architecture to process market data used in quantitative trading scripts
- Implemented trading dashboard using the Dash library to display processed market data and instrument graphs
- Containerized applications using Docker, utilized AWS Timestream as a time-series database to query market data

### Vincar Group

Singapore, SG

*Software Engineer Intern*

*Aug 2024 – Sep 2024*

- Utilized NextJS and TailwindCSS frameworks to implement a full stack application for an electric vehicle brand
- Built an inventory management system using GraphQL and Apollo Client to handle data requests and changes
- Implemented React hooks to handle changes in vehicular data from front end input and to authenticate users

### Carnegie Mellon University

Pittsburgh, PA

*Research Assistant*

*June 2024 – Present*

- Developing gamified applications that provide technical training for members of the Robotics Exploration Lab
- Utilizing Cloud Firestore database to identify users and evaluate key performance metrics for space rover missions
- Automating data labelling using CVAT.ai for a computer vision application that provides user training feedback

*Teaching Assistant*

*Jan 2024 – June 2024*

- Taught recitations to a group of 30 students on topics related to full-stack application and database development
- Mentored students on the client-server architecture model and guided them through Javascript and SQL code
- Graded programming assignments and written tests, organized small group sessions to clarify technical concepts

## PROJECTS

### Computer Systems Simulator | C, GNU, GDB, Linux

Sep 2023 – Dec 2023

- Designed and implemented a dynamic memory allocator using segregated lists, improving throughput by over 25%
- Developed a Unix shell using advanced techniques including concurrency, signal handling, and process control
- Constructed a multi-threaded web proxy, increasing efficiency by 30% with usage of cache locality principles

### Spotitector | Python, OpenCV, Spotify API, Tkinter, Git

Sep 2022 – Dec 2022

- Developed an app that recognizes an emotion using computer vision and recommends a song from Spotify's API
- Utilized the OpenCV library on a trained dataset of facial expressions to generate output of a person's emotion
- Implemented HTTP methods to establish connection within the fullstack and update songs displayed on frontend

## TECHNICAL SKILLS

**Languages:** Python, C, C++, C#, JavaScript, Typescript, Ruby, HTML, CSS, SQL, R, SML

**Frameworks:** React, Flask, .Net, GraphQL, Rails, MongoDB, PostgreSQL, Tailwind, Bootstrap

**Tools:** Docker, Amazon Web Services, Git, Redis, Postman, Jenkins, Figma, VS Code, Visual Studio

**Interests:** Technology, Software Development, Artificial Intelligence, Entrepreneurship, Web 3.0, Motorsport