

# Tam Zher Min (Zac)

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## Education

### National University of Singapore

Bachelor of Engineering in Electrical Engineering; Minor in Data Engineering

• Dean's List – Top 5% of Cohort

Aug 2019 – May 2023

GPA: 4.49/5.00

AY21/22 SEM 2

## Experience

### Shopee – Algorithm Engineer

Aug 2022 – Dec 2022

*Under the Identity Verification team for the largest e-commerce platform in SEA to offer CV/ML solutions to Shopee systems globally*

- Significantly trimmed down 99.8% of SDK size by replacing the heavy OpenCV dependency with custom C++ algorithms
- Employed geometric constraints on top of Canny edge detector and Hough Line Transform algorithm to detect identity cards
- Obtained low average MSE below 10 pixels in a 462x291 guide view window with the help of a moving average frame queue
- Concurrently developed the algorithm on Android to reduce blockers between the SW and DS teams for the SDK deployment

### SSMC, Systems on Silicon Manufacturing Company – Machine Learning Engineer

Aug 2021 – Jan 2022

*Semiconductor manufacturing joint venture between TSMC and NXP looking to optimize their wafer QA system and data servers*

- Achieved 99.1% test accuracy and 80% precision to classify wafer defects by leveraging pretrained ResNets and MobileNets
- Explored online MLOps options for model deployment with an MVP Streamlit [webapp](#) before settling on the offline solution
- Architected a local “[Automatic Wafer Defect Classification System](#)” wrapping .h5 models in a portable Windows software
- Enabled upwards of >90% storage reductions, translating to tens of thousands in cost savings and incentivized digitalization

## Projects

### LeetCode | Next.js, Mantine UI, Tailwind, TypeScript, Prisma ORM & MySQL, FastAPI

[GitHub](#)

- Lead a team of 4 to build an adaptive learning software under the Agile methodology using Notion and Kanban boards
- Crafted learning courses presented with Markdown and LaTeX that dynamically suggests questions of appropriate difficulty
- Estimated topic mastery using a Bayesian Knowledge Tracing hidden Markov model wrapped under a FastAPI microservice
- Productionized the Docker containerized and Redis cached model to Heroku serverless functions with exposed API endpoints
- Hosted the webapp on Vercel, the MySQL database on PlanetScale, accessed using Prisma, and Cloudinary for media storage
- Documented the schema design using Mermaid and UI/UX designed in Figma, realized through Mantine and Tailwind CSS

### LaidLE – Database Technology & Management (Grade: A) | Django, Bootstrap, PostgreSQL

[App](#) | [GitHub](#)

- Deployed a meal-crowdsourcing social enterprise CRUD webapp with a non-Django ORM raw-SQL backend to Heroku
- Session-based authentication with password hashed by pycrypto's bcrypt and access-restricted views using custom decorators
- Featured 4 user-groups with a custom admin panel alongside generated QR codes for unique coupon and reward allocation

### COPEMON – MCU Programming & Interfacing (Grade: A) | Microcontroller, C, Assembly, Tkinter

[GitHub](#)

- Developed a MedTech IoT Windows software with live charting using sensor data drawn from the STM32 Cortex-M4 MCU
- Offered automatic SMS alerts to next of kins facilitated by the Twilio API whenever the patient falls into critical conditions

## Extracurricular & Hackathons

### NUS FinTech Society – Software & Machine Learning Engineering

2021 – Present

- Designed the society HRMS and home website for better management using the T3-Stack (TS, tRPC, Tailwind) and Next.js
- Incorporated deep learning and Haar Cascade OpenCV models to aggregate attention metrics on 5 to 10 student online classes
- Handed over the React and Firebase real-time dashboard POC webapp to ripplecreate, a kids STEM tutoring company

### DSTA – BrainHack (Machine Learning Hackathons)

Jun 2021

- **TIL:** Ranked 18/102 teams with PyTorch to perform object detection and sound classification on 5 to 10 different animals
- **SeeTrue:** Placed 7/53 individuals using InceptionV3 from TensorFlow and Keras to identify deepfake news in videos

NUS Hackers – Hack & Roll: Coded up QuizLah!, a JavaScript Alexa skill for a voice-interfaced trivia game

Jan 2021

## Skills

**Programming Languages:** Python, TypeScript/JavaScript, SQL, C++, C, Assembly, Verilog

**Software Engineering:** Next.js, React, HTML/CSS, PostgreSQL & MySQL, Django & FastAPI, AWS EC2, UNIX, Git

**Machine Learning / Data Science:** TensorFlow, Keras, PyTorch, Scikit-Learn, OpenCV, NumPy, Pandas, Matplotlib, Plotly