**Tam Zher Min (Zac)**

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**Education**

**National University of Singapore Aug 2019 – May 2023**

Bachelor of Engineering in Electrical Engineering; Minor in Data EngineeringGPA: 4.49/5.00

* Dean’s List – Top 5% of Cohort

**Experience**

**Shopee – Algorithm Engineer** **Aug 2022 – Dec 2022 [**[**GitHub**](https://github.com/zhermin/cardscanner)**]**

*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 a low average MSE below 10 pixels in a 462x291 guided window by implementing 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 – Machine Learning Engineer** **Aug 2021 – Dec 2021 [**[**GitHub**](https://github.com/zhermin/ADCS)**]**

*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](https://share.streamlit.io/zhermin/adcs-web) 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**

**LeetNode | Next.js, Mantine, Tailwind, TypeScript, Prisma, MySQL, FastAPI 2022 – 2023 [**[**App**](https://leetnode.vercel.app) **|** [**GitHub**](https://github.com/zhermin/LeetNode)**]**

* 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 Apr 2021 [**[**GitHub**](https://github.com/zhermin/LaidLE)**]**

* 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 pgcrpyto’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) | C, Assembly, Tkinter Nov 2020 [**[**GitHub**](https://github.com/zhermin/COPEMON)**]**

* 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 – 2023**

* 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
* Delivered 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