

# Dave Martheen Gunawan

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## EDUCATION

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### Nanyang Technological University, Singapore

Information Engineering and Media (First Class Honours)

Aug. 2022 - Present

CGPA: 4.78/5.0

## EXPERIENCE

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### Full Stack Developer Intern

Ilmulia, Jakarta

Dec. 2022 - Jun. 2023

Online

- Contributed to creating a real-time stock trading simulator with user dashboard, rank system, stock viewer, and player contests
- In-depth understanding of PostgreSQL relational databases, and creating them using Prisma schemas
- Designed efficient queries using SQL for various data retrieval requirements
- Segregated code modules into server-side rendering and client-side rendering to optimize render time and performance, overall enhancing the user experience

## PERSONAL PROJECTS

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### SRGAN

Resolution upscaling model based on the paper, "Photo-Realistic Single Image Super-Resolution Using a GAN" by C. Ledig et al.

- Repository: [GitHub - SRGAN](#)
- Implemented the discoveries from the research paper using Tensorflow, effectively enhancing the generator and discriminator architectures, and optimizing the content and adversarial loss functions
- Incorporated custom training procedures to ensure both the generator and discriminator train at a balanced and consistent pace
- Technology Used: Tensorflow, Keras, Python

### Transformer(architecture) chatbot

An encoder-decoder transformer modeled chatbot based on the 2017 paper "Attention is All You Need" by A. Vaswani et al

- Repository: [GitHub - transformer-chatbot](#)
- Used Object-Oriented Programming practices in Tensorflow to create all modules of the model (encoder, decoder, positional encoder, etc.)
- Built an ETL pipeline to transform natural language sentences into constant token arrays of usable length
- Implemented a sub-word tokenizer using a BERT tokenizer in Tensorflow Text trained against a custom dataset
- Containerized the model using Docker to ensure a Linux environment for the model to run
- Technology Used: Tensorflow, Keras, Python, Docker, Linux(Ubuntu)

### Chatbot webapp

A full-stack web app to interact with the raw transformer chatbot model

- Repository: [GitHub - chatbot-web](#)
- Utilized Django REST Framework as a REST API to connect both front and back ends of the application
- Dockerized the backend to ensure a stable running environment for both parts of the web application
- Technology Used: React, Django, Docker, Tensorflow

## TECHNICAL SKILLS

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**Programming Languages:** C/C++, Python, Java, JavaScript, Typescript, SQL

**Dev Frameworks and Tools :** React, Redux, Tailwind, Next.js 13, Django, Docker, PostgreSQL, MySQL, Prisma

**Machine Learning:** Tensorflow, Keras, Numpy, Pandas, Matplotlib, scikit-learn

**Relevant Coursework:** Object-Oriented Programming (IM1003), Data Structures & Algorithms (IE2108), Designing and Developing Databases (BC2402)

## OTHER EXPERIENCES

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### MAE Club Special Projects Subcommittee

Aug. 2022 - Jul. 2023

- Contributed to maze design and construction for a pathfinding Arduino in a robotics event
- Worked as a team to design and test model gliders for a workshop attended by local polytechnic students

## INTERESTS

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Maths, Algorithms, Software Development, Low-Latency Programming, Quantitative Finance, NLP, Diffusion Models