

# Cogal Jacques Tracy Pasaol

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## EDUCATION

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**Nanyang Technological University, Singapore**

**Aug 2020-May 2024**

**Double Degree Programme (Double Distinction & Honours)**

Bachelor of Engineering (Computer Science) and

Bachelor of Business (with specialization in Business Analytics)

**Temasek Polytechnic**

**Apr 2015-Apr 2018**

Accounting and Finance (Diploma with Merit)

## WORK EXPERIENCE

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**CPF Board**

**Singapore**

*Software Engineering Intern*

*Dec 2023-May 2024*

*Leveraged these tools: Python (FastAPI), JavaScript (Next.js) and Azure Cloud*

Involved in projects relating to large language models and data engineering

- Optimised information retrieval of customer-facing internal search engine, improving search relevance by up to 10%
- Streamlined search index creation with azure functions

**JP Morgan Chase & Co.**

**Singapore**

*Software Engineering Intern*

*Jun 2023-Aug 2023*

*Leveraged these tools: Python, Java, JavaScript (React.js), Oracle Database and Amazon Web Services*

Delivered key projects in artificial intelligence and proxy gateway solutions for the financial crimes and asset wealth management teams

- Engineered data pipelines to channel big data into AI models, generating actionable insights for risk assessments
- Developed an SDK that enabled a microservice usage, reducing API gateway calls by over 90% through a proxy with a caching layer
- Integrated the SDK solution with an in-production software to prove its efficacy
- Led a hackathon team to victory at JP Morgan's internal Global Hackathon by developing an innovative anti-money laundering solution

**Zuellig Pharma**

**Singapore**

*Data Analyst Intern*

*Sep 2022-Dec 2022*

*Leveraged these tools: Python, PostgreSQL Database and Tableau*

Engineered data solutions for large-scale, unstructured pharmaceutical datasets, streamlining machine learning model training for data scientists

- Automated data retrieval and cleaning, optimizing machine learning training pipelines
- Validated data cleaning effectiveness via hypo testing, achieving at least 70% population coverage
- Adapted to stakeholder feedback and managed time between projects to deliver successful products for managers in a timely manner

**Novelship**

**Singapore**

*Strategy/Business Analyst Intern*

*May 2022-Aug 2022*

*Leveraged these tools: Python, SQL Database and Tableau*

Automated new key market index, achieving efficient data extraction and processing

- Automated Python-to-Tableau pipeline for a new key performance index, enabling better data-driven decisions by key stakeholders

## AWARDS AND HONOURS

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<b>Champion of GIC Code to Impact 2023</b> Developed AI enabled full stack solution as full-stack, ai and dev-ops engineer	<b>2023</b>
<b>Dean's Honours List AY2022/2023 (BUS)</b> Top 5% of student cohort based on annual academic performance	<b>2023</b>
<b>Champion of J.P Morgan Global Hackathon Singapore 2023</b> Team and frontend lead for a proof of concept serving internal stakeholders	<b>2023</b>
<b>Champion of J.P Morgan Code for Good 2022</b> Designed, developed and deployed solution to address social enterprise problem	<b>2022</b>

## PROJECTS

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### Portfolio Chatbot (Retrieval Augmented Generation AI Chatbot)

*TechStack: React, Python Flask, LangChain, OpenAI, AWS EC2, Docker and Pinecone*

Site: [jacquescogal.github.io](https://jacquescogal.github.io)

GitHub (Frontend): [github.com/jacquescogal/jacquescogal.github.io](https://github.com/jacquescogal/jacquescogal.github.io)

Docker Repo (Backend): [docker.com/repository/docker/jacquescogal002/portfolio](https://docker.com/repository/docker/jacquescogal002/portfolio)

Built portfolio with AI chatbot feature that returns context rich answers to users about myself

- Leveraged latest vector database technology in Pinecone to quickly retrieve relevant document context
- Deployed backend retrieval augmented generation (RAG) AI on ec2 instance

### FlashCard AI (Leverage LLM as a personal flashcard mentor)

*TechStack: React, Python Flask, OpenAI and Amazon Web Services (Lambda, Cloudfront, DynamoDB and etc.)*

Site: [flashcardai.app](https://flashcardai.app)

GitHub: [github.com/jacquescogal/FlashCardAI](https://github.com/jacquescogal/FlashCardAI)

Developed a full-stack web-app that leverages the GPT-4 and AWS infrastructure to deliver an improved flashcard learning experience

- Deployed backend flask with RESTful API design on EC2 with elastic beanstalk
- Implemented user session authentication with JWT access tokens
- Used API gateways to enforce a limit on API calls to prevent abuse and manage cloud service costs

### Golang Marketplace app

*TechStack: Golang (HTTP + TCP server), nginx, mysql, redis and wrk*

Developed marketplace app with millions of rows as an optimisation exercise

- Leveraged Go's concurrency to manage connection pools
- Applied test-driven development leveraging go's testing packages
- Leveraged snowflake algorithm to create uuids for sharded tables
- Tested for and minimised bottlenecks with wrk stress tests

## SKILLS

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**Programming Languages:** Python, JavaScript (Typescript, React.js, Node + Express, Next.js), Golang, Java, C++ and C#

## CERTIFICATES

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<b>FOCP: FinOps Certified Practitioner</b>	<b>2023</b>
<b>AWS Certified Cloud Practitioner</b>	<b>2023</b>