

Lee Gene Ee

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EDUCATION

NATIONAL UNIVERSITY OF SINGAPORE

Aug 2022 - May 2026

Bachelor of Science in Business Analytics, Financial Analytics Specialization

- Cumulative Average Point (CAP): 4.80 / 5.00
- Recipient of NUS Merit Scholarship
- Recipient of Canada-ASEAN Development Scholarship
- Awarded Dean's List AY23/24 Sem 2 (School of Computing)
- Relevant Modules (A+): Risk Analytics for Financial Services, Econometrics Modelling for Business Analytics, Application Systems Development for Business Analytics, Programming Methodology, Data Management and Visualization, Mining Web Data for Business Insights

WORK EXPERIENCE

GOVTECH, SINGAPORE *Data Scientist Intern*

Jan 2025 - Present

- Developed and validated machine learning models, including regression, clustering and deep learning techniques to quantify SLS interventions on student learning outcomes
- Built data pipelines to extract and clean student learning and social network datasets.
- Applied matrix factorization and collaborative filtering techniques to personalize educational content, enhancing the alignment of learning resources with individual student needs.
- Designed and implemented a multimodal, agentic flow system utilizing Large Language Models (LLMs) with Retrieval-Augmented Generation (RAG) to address complex SQL queries and AI-related tasks.
- Designed and deployed scalable ML solutions on AWS Sagemaker and RedShift.

NATIONAL UNIVERSITY OF SINGAPORE *ML Research Assistant*

May 2024 – Aug 2024

- Conducted advanced research on integrating time series data into Graph Neural Networks (GNNs) to forecast Distributed Denial of Service (DDoS) attacks on Internet Service Providers.
- Built various architectures including LSTM, Message Passing, and custom-designed Transformer models for optimal performance in predictive analytics.
- Collaborated with Tel Aviv University and SANS Institute to collect and analyze relevant datasets.

INCOME INSURANCE LIMITED *Data Analyst Intern (Cybersecurity Division)*

May 2024 – Aug 2024

- Developed a robust ETL pipeline to automate data extraction and streamline consolidation of cybersecurity data into user-friendly dashboards for real-time insights.
- Conducted comprehensive Exploratory Data Analysis (EDA) to uncover underlying patterns and correlations in large datasets, informing model development and strategic decisions.
- Utilized statistical analysis such as Correlation Analysis and PCA to further detect anomalies.
- Implemented ML models, including regression models, K-means clustering, word embeddings, and rule engines in DLP domain, resulting in up to 110% improvement in detection accuracy.

TRIDENTITY TECH *Business Analyst Intern*

Dec 2023 - May 2024

- Gathered relevant data to create insightful dashboards to support decision making
- Collaborated closely with product managers to analyze market trends, create product roadmaps and document User Stories.
- Facilitated communication among cross-functional teams, translated business requirements into functional specifications for development teams.

SKILLS

- Languages: English, Chinese
- Frameworks: Keras, Pytorch, TensorFlow, Scikit-learn, Apache Spark, NLTK, Airflow
- WebDev Frameworks: ReactJS, VueJS, NodeJS, Firebase, MongoDB, SQL Alchemy, Flask
- Programming Languages: Python, Java, SQL, R, JavaScript, HTML/CSS, Google Apps Script
- Others: Terraform, Docker, Tableau, PowerBI, JIRA, Git, VBA, AWS S3, Sagemaker

PROJECT EXPERIENCE

Claude Drive

AWS Cloud / Artificial Intelligence / LLM

- Developed a project utilizing Claude LLM and Retrieval-Augmented Generation (RAG) to fine-tune LLM models.
- Utilized AWS Sage maker and S3 bucket to store and deploy model.
- Created a RAG pipeline incorporating techniques like RAG fusion, RAPTOR and Agentic Flow.
- Generated driving technique advisories and location-based suggestions for food and nearby locations based on collected data.

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Multimodal LLM for Video Queries

Artificial Intelligence / LLM

- Developed a comprehensive pipeline utilizing Ollama to integrate multiple models, enabling advanced video comprehension through image processing, reasoning, and Retrieval Augmented Generation (RAG) techniques.
- Employed reasoning algorithms to interpret sequences of visual data, allowing for contextual understanding and inference of events within the video.
- Implemented temporal modeling techniques to capture dynamic patterns and efficiently handle long videos.

Utilizing Graph Neural Networks for Social Bot Detection

Data Science / GNN

- Submitted project paper under guidance by NUS to the Hawaiian International Conference on System Sciences (HICSS).
- Explored a novel approach and innovative architecture of Graphical Neural Networks (GNNs) for Social Bot Detection, aiming to mitigate evolving bot evolution techniques.
- Conducted an in-depth analysis of misclassified bots within the Twitter ecosystem.
- Built and evaluated architecture against classical ML models, including XGBoost, Random Forest, K-Nearest Neighbors and Support Vector Machines.
- Link: https://gene2345.vercel.app/static/media/HICSS_Paper.3179fdb4914ad7f60215.pdf

Intent Classification of Financial Data

Data Science / NLP

- Developed a hybrid NLP approach, GAN-BERT, to improve the robustness and accuracy of intent classification models for FinTech applications
- Experimented and conducted performance evaluations with various BERT variations combined with Generative Adversarial Networks (GANs) for data augmentation.
- Addressed challenges of data scarcity in the FinTech industry by leveraging GANs to generate synthetic data samples.

Over Easy

Full Stack Development / Machine Learning

- Developed a comprehensive investment tracking website using Python, Flask, Jinja, HTML, CSS, and SQL Alchemy that supports Comparable Companies Analysis (CCA).
- Implemented web scraping algorithms through BeautifulSoup / Selenium.
- Utilized scikit-learn and NLTK to conduct NLP and extract market sentiments from online text, allowing users to gain better insights.

CO-CURRICULAR ACTIVITIES

EUSOFF EXPEDITIONS, Training and Development Head

Aug 2022 - Present

- Led the planning and execution of a two-week Overseas Community Involvement Program in Cambodia during the summer, focusing on impactful experiences and cross-cultural learning.
- Spearheaded local fundraising and carnival events for the Rare Disorders Society to promote community engagement and support.

EUSOFF HALL, Basketball Team

Jul 2023 - Present

- Navigated the art of drilling with style, nailed jump shots with pinpoint accuracy and practiced tenacious defense during biweekly training sessions and the Inter-Hall Competition
- Skills: Teamwork, Perseverance, Quick Thinking

EUSOFF HALL, Special Projects Team

Aug 2022 - May 2023

- Hosted Eusoff Hall Bash 2023 as emcee for 250 attendees.
- Organized various carnivals, night cycling events, and bonding activities for the entire hall community.
- Skills: Public Speaking, Time Management

HWA CHONG INSTITUTION, 45th Students' Council Member

Jan 2018 - Dec 2019

- Managed day-to-day welfare services for students, ensuring needs were met.
- Communicated with school governance bodies regarding student welfare issues.
- Led a team of 8 members to plan and ensure coordination and execution of Mid-Autumn Festival
- Led the planning and execution of orientation events for approximately 1,200 students.