

Joel Sng Zhen Wei

Business and Information Systems Final Year Student

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Education

Singapore Management University (GPA: 3.79/4.00)

Aug 2021 – Present

Double Degree: Bachelor of Business Management & Bachelor of Information Systems (Analytics Track)

Key Courses Taken: Machine Learning & Applications | Supply Chain Analytics | Data Management | Global Supply Chains

Achievements: NCS Award for Top Student in Digital Business Tech | Yu Xin Leadership Award | Dean's List for all applicable years.

Co-Curricular Activities: Community Service (SMU SICS and StarringSMU) | SMU Climb Team | SMU Muay Thai.

Professional Experience

Data Science Intern, Zurich Insurance

Jan 2025 – Jun 2025

- Supported the APAC Data Science team in developing advanced digital solutions for use cases around the APAC region.
- Developed a program that extracts structured information from complex insurance policy slip documents and uses reinforcement learning to optimise, time savings from the project were valued at USD500k. Project won Zurich Insurance's BreakThru APAC competition for technological innovation.
- Developed document parsing and information extraction package that streamlines different file type processing for vector storage and RAG search.
- Developed a program that conducts SEO research in English and Chinese, cutting down research time by 3 hours per week (30% reduction).
- Developed case classification pipelines to analyse customer correspondences, cutting down case response time.
- Engaged client and business stakeholders extensively during project lifecycles, had to manage most of my projects with minimal guidance.
- Tools: Docling, LangChain, LangGraph, Python, Azure, Selenium, LLMs.

Data Analyst Intern, Housing & Development Board

Jan 2024 – Aug 2024

- Built and deployed Random Forest machine learning model to detect anomalies in transaction data and identify suspicious activities.
- Accelerated data processing by implementing RPA workflows with UiPath and OCR, reducing customer case processing time to 30s (88% reduction).
- Applied natural language processing (NLP) for topic modeling, clustering, and categorization of unstructured customer correspondence data.
- Designed automated data pipelines for extracting and cleaning unstructured data using SAS to improve operational efficiency.
- Developed interactive dashboards in SAS and Tableau to visualize structured transaction data for rental and transfer activities.
- Tools: SAS, UiPath, PowerBI, SQL, R, Tableau, Python.

Digital Transformation Consulting Intern, PwC Singapore

May 2023 – Aug 2023

- Conducted data analysis on business partner data to produce actionable insights for Digital Transformation team.

Projects

Broker contract information extraction using LLMs

Jan 2025 - Jun 2025

- Developed a software tool for Zurich Insurance's underwriters to expedite information extraction from complex contracts with varied formats.
- Processes documents in varied formats (PDF, emails, Docx, Xlsx, etc.) in extremely varied formatting and language for structured content extraction.
- Developed reinforcement learning modules using extracted results for automated prompt engineering, dynamically adjusting term weights.
- Estimated to have saved the company USD500k through time savings of underwriters.
- Tools: Azure Databricks, LangChain, Docling, Azure Doc Intelligence

Options pricing using machine learning

Aug 2024 – Dec 2024

- Conducted comprehensive comparative analysis of machine learning models and mathematical methods for options pricing.
- Designed and implemented SVR, artificial neural networks, and LSTM models, benchmarking performance against the Black-Scholes model.
- Developed a hybrid classification-regression ANN model to enhance the accuracy of options price predictions.
- Achieved superior performance in RMSE and R-Squared metrics compared to traditional and simpler ML models.
- Tools: Python, Scikit-learn

Leadership and Community Service

President, Special Interest and Community Service Sodality

Jan 2023 – Dec 2023

- Leader of a committee overseeing 22 SMU clubs, including the 9 largest SMU community service organisations.
- Held a seat on the SMU student council.
- Oversaw largest run of SMU's flagship fundraising event, SMOO Challenge, raising SGD617'000.
- Awarded SMU Yu Xin Community Leadership Award for my role in championing community service and student life vibrancy.
- Invited to speak on a CNA radio talk show, CNA938 Our Town, on undergraduates and youths' relationship with volunteerism in Singapore.

President, StarringSMU'22

Jan 2022 – Dec 2022

- Leader of largest freshman community service project in SMU.
- Project of 95 volunteers which helped over 250 persons with disabilities.
- Expanded project scope by developing partnerships with Heartware Network and Youth Council Singapore.
- Received an award from President Halimah Yacob during the President's Challenge Appreciation Night at the Istana for project work.

Skills

Coding Languages: Python, SQL, Java, R, JavaScript, HTML

Software Tools: Azure, Azure Databricks, Power BI, UiPath, AWS, Tableau

Frameworks/Libraries: Spring Boot, Docling, LangChain, LangGraph, Scikit, TensorFlow, Pandas, Selenium, NextJS, ReactJS

Certifications: Data Analytics (IBM), Python (University of Michigan), SQL (University of Michigan)