

# 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 | Generative AI

**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, Java, Spring Boot, 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.
- 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 LangGraph**

Jan 2025 - Jun 2025

- Demo of project with estimated annual savings of USD500k in underwriter time; project won multiple innovation awards.
- Software tool for Zurich Insurance underwriters, enabling rapid extraction of key data from complex contracts in multiple formats (PDF, email, DOCX, XLSX, etc.).
- Integrated Spring Boot (router/controller) with FastAPI document-processing service using LangChain workflows, and React-based frontend.
- Implemented reinforcement learning modules for automated prompt engineering, dynamically adjusting extraction weights based on results.
- Tech stack:** Java (Spring Boot), Python (FastAPI), LangChain, LangGraph, React.

**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)