JUAN SEBASTIAN

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EDUCATION

Singapore Management University (SMU) — Aug 2020 – Apr 2024

Bachelor of Science, Information Systems with 2nd Major in Quantitative Finance — GPA: 3.99/4.00

- Awards: Dean's List 2020 to 2023, ASEAN Undergraduate Scholarship
- Tracks: Business Analytics & Financial Technology

EXPERIENCE

Autove — Singapore

Software Engineer (Contract) — Dec 2023 – Present

- Developed e-commerce application for customers to select and track their orders and Order Management System along with automated CI/CD pipeline for automated deployment.
- Automated delivery robot resource allocation by developing Business Process Management System (BPMS) backend layer for optimal allocation by time using Python Fast API to create RESTful APIs.
- Created robot monitoring dashboard for security applications complete with teleoperations (Remote control, Job Management, Video and Audio interactions).

Siemens — Singapore

Digital Solutions Specialist Intern — May 2023 – Aug 2023

- Delivered large tenders totalling over $80 million over 6 projects by formulating customised smart building infrastructure solutions through understanding customer needs and their current building infrastructure.
- Expanded Siemens' leads and opportunities by establishing a team of lighting consultants and contractors by leveraging existing relationships resulting in a new stream of clients.
- Reduced tender solution business process time by 50%, from 2 weeks to 1 week, by proposing and implementing agile methodologies along with utilizing RACI tables to ensure stakeholder accountability.
- Leveraged knowledge: Stakeholder Management, Consultation, Solutioning, Business Development.

Grab — Singapore

Audit Innovation Intern — May 2022 – Aug 2022

- Improved audit intervals by 80%, from 1 day to 2 hours across 200 internal audits by creating continuous audit workflow by integration of Slack, GSuite, KNIME, Power BI, and Tableau.
- Reduced dashboard workload for quarterly audit reports to audit committee by 50% by developing reporting dashboards and integrating them into KNIME Analytics Platform for automated quarterly reports generation.
- Utilized RDBMS with 25 tables and logging features to keep track of audits and generate audit reports.
- Ensured standard operating procedures (SOPs) adherence for business units across 7 countries by providing business process and data analytics consultation for audit analytics team.
- Leveraged knowledge: Database Management (SQL), Business Consultation, Business Analytics.

NCS Group — Singapore

Software Developer Intern — Jun 2021 – Aug 2021

- Implemented remote robot control by integrating with Robot Manager network using MQTT protocol.
- Developed robot navigation, vision, remote control, and interaction features using Java Android.
- Beautified UI/UX of robot interface by empathizing with National Gallery visitors' needs.
- Communicated with stakeholders at National Gallery Singapore to demonstrate the robot's capability and safety features while managing product features and expectations.
- Leveraged knowledge: Git, Android dev (Java), debugging using Android Studio, Stakeholder management.

PROJECTS

Mean Reversion Pair Trading Strategy

- Generated alpha using a Pair Trading strategy, leveraging the mean reversion of cointegrated pairs.
- Tested strategies using diverse models like Kalman filters and ARIMA-X models for optimization.
- Conducted robust backtesting procedures to validate the effectiveness of trading strategies.
- Deployed live model on Alpaca to assess real-world performance such as fees and slippages.

My Server
- Created a personal server serving personal and active work projects enabling agile development and testing process to bypass commercial could products weakness.

Automated Loan Origination System for Narfin (http://tbankonline.com/)
- Enhanced over 1000 students' learning experience across 3 institutes of higher learning by developing Automated Loan Origination System to automate loan processes.
- Improved Business Process Automation modules for the university by forming relationship with Camunda and negotiating for an educational license for educational use across 500 students per semester.
- Individually solutioned the entire project and built formal relationship with external stakeholder Camunda.

Option Pricing for SPY and SPX (https://github.com/juanjaho/QF101-SPY-SPX-Option-Pricing)
- Designed and implemented Binomial and Trinomial models for pricing options on the SPDR S&P 500 ETF (SPY) and the S&P 500 index (SPX) using Python.
- Calibrated model parameters, including measuring volatility, selecting interest rate and dividend yield based on current market conditions, and backtesting the models.
- Conducted performance analysis using Sharpe ratio, Calmar ratio, and Max drawdown to evaluate the model's performance in various market conditions.
- Compared the performance of American and European options and made recommendations for risk management and investment strategies based on the results.

ESG-Stock-Recommendation (https://github.com/juanjaho/ESG-Stock-Recommendation)
- Conducted financial analysis on a set of 30 ESG stocks to determine the best portfolio weightings.
- Utilized a variety of risk-adjusted return methods, including the Sharpe Ratio, Treynor Ratio, and Beta-adjusted Sharpe Ratio, to evaluate the performance of each stock.
- Utilized Monte Carlo simulation to model the behaviour of the candidate portfolios over time and determine their expected returns and risk levels.
- Implemented convex optimization techniques to find the portfolio weights that would result in the highest risk-adjusted return and lowest volatility portfolio.
- Utilised: Monte Carlo simulation, Convex Optimization, Financial Analytics

Real-Time Object Detection (https://RTOD.vercel.app)
- Developed web-based real-time object detection to identify and label objects through web camera.
- Optimised application as a Progressive Web App (PWA) to give users an experience on par with native apps.
- Increased inference speed though use of ONNXruntime library running on WebAssembly.
- Optimised object-detection speed and accuracy through use of state-of-the-art YOLOv7 model.
- Minimised use of client resources through server-side rendering and selective webcam management.
- Utilised: ONNX, PWA, YOLOv7, Next.js, PyTorch, Vercel, JavaScript, Html, CSS

HotelBot (https://hotel-bot-dev.vercel.app)
- Built a full-stack web app for users to order and manage room services reducing the need for personnel.
- Utilised Next.js API routing to implement serverless RESTful APIs for CRUD operations.
- Utilised: Next.js, Html, CSS, JavaScript, Firebase, Vercel, React-Redux

NinjaTruck (VMware Tanzu Finalist, SMU IIE 1st Runner Up, https://github.com/juanjaho/IS213-driver-app)
- Created a 'virtual delivery experience' by leveraging google maps API and package cluster management.
- Designed a cloud native containerised microservices architecture using docker managed through Kubernetes, deployed on AWS, monitored using VMware Tanzu, and using Kong as an API gateway.
- Developed RESTful APIs (Node.js, Flask) as main communication protocol between containers along with message queuing capabilities (RabbitMQ and Kafka).
- Implemented user notification features through integration of Twilio API and Nodemailer.
- Utilised: Docker, Kubernetes, AWS, VMware Tanzu, Python, Spring Boot, Node.js, RabbitMQ, Kafka, Git

AnimeArcaneGAN_Mobile (https://juanjaho.github.io/AnimeArcaneGAN_Mobile)
- Created mobile native photo to animation using Generative Adversarial Network (GAN) ML models.

- Maintained biometric privacy through on-site processing of PyTorch model using Java for efficiency.
- Connected native android and JavaScript frontend by leveraging on React Native integration capabilities.
- Enable mobile usage of GAN models by converting Just-In-Time and PyTorch models to PyTorch Lite models.
- <u>Utilised:</u> React Native, PyTorch, Java, Android, ONNX, JavaScript, Html, CSS, Git

SKILLS & INTERESTS

- Technical: Python, SQL, Next.js, React, PyTorch, ONNX, Node.js, React-Redux, Firebase, Docker, Kubernetes, Git, Jira, Bitbucket, Tanzu, AWS, Azure, Vercel, React Native, Vue.js, Android, Java
- Community Service: Volunteer at Waterways Watch Society