Jiachen Gu

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Education

University of New South Wales Feb 2020 – Oct 2021
School of Mathematics and Statistics — Master of Financial Mathematics *Sydney*

- **Relevant Coursework:** Stochastic Processes, Operations Research, Data Mining, Stochastic Analysis, Time Series Analysis, Bayesian Statistics

Capital University of Economics and Business Sep 2015 – Jun 2019
School of Statistics — Bachelor of Statistics *Beijing*

- **Relevant Coursework:** Time Series Analysis, Bayesian Statistics, Mathematical Statistics, Probability Theory

Experience

Schneider Electric (China) Co., Ltd. Apr 2022 – Present
Digital Innovation — Algorithm Engineer *Beijing*

- Developed time-series forecasting and optimization algorithms for energy management.
- Gathered project requirements and designed algorithmic solutions for KA projects.
- Participated in the design and development of standardized algorithm products, contributing to the EcoStruxure AI engine.
- Engaged in external solution sharing, organizing regular algorithm exchanges with the global AI team, and represented the department in external conferences and forums.
- Explored the feasibility and application of large language models (LLMs) in company scenarios, including pre-sales consultation experts and BuildingGPT projects.

Hong Kong Polytechnic University Nov 2021 – Mar 2022
Faculty of Science and Technology — Research Assistant *Hong Kong*

- Combined deep learning with topic models to design real-time updating topic models for online short text scenarios, completing two industry research academic reports.
- Conducted data simulation experiments and participated in replicating theoretical models from 12 papers, including LDA and HDP.
- Developed new sampling algorithms to reduce the time consumed by Gibbs Sampling by 70%, making the model better suited for online scenarios.

Projects

BuildingGPT | *Algorithm Engineer*

- Designed intelligent agent solutions, including sub-tasks, data pipelines, and solution architecture.
- Verified the feasibility of recognizing CAD drawings and converting them into structured information.
- Developed a hybrid model combining GPT-4 with computer vision techniques using CNNs for accurate interpretation of CAD drawings.
- Used RAG to enhance the model's ability to retrieve relevant information from a vast database, improving the accuracy and relevance of generated content; Used function calling to control the format of output results.
- Created a feedback loop mechanism to continuously improve the model's performance based on user interactions and corrections.

AI Pre-Sales Consultant | *Algorithm Leader*

- Researched and evaluated large model suppliers.
- Collected extensive data and implemented data augmentation and multi-task learning to improve model generalization.
- Optimized and fine-tuned models, creating a pre-sales consultation assistant based on the ChatGLM model.

Taikoo Cooling Station AI Energy Saving Project | *Algorithm Engineer*

- Improved cold load prediction algorithms, increasing prediction accuracy from 85% to 96%.
- Designed cold station group control algorithms, exploring reinforcement learning solutions like DQN and DPG, and ultimately using heuristic algorithms with SCIP as the strategy solver to improve site COP by 11%.

- Enhanced the generality and reusability of optimization algorithms, meeting the needs of different equipment cascades and site structures, promoting recurring business in 11 subsequent sites.

Prediction Algorithm Standard Module Development | *Algorithm Eigineer*

- Collected scenario requirements from over 10 existing projects and distilled algorithm application functions.
- Designed interfaces for different functional modules and created algorithm acceptance criteria documents for various data scenarios and customer needs.
- Consolidated custom algorithms from existing projects to maintain accuracy while enhancing algorithm module reusability, reducing new project deployment time by 70%.

EcoStruxure AI Engine | *Algorithm Engineer*

- Participated in the design of major features and specific scene development for Schneider's AI algorithm platform, which won a SAIL Award at the 2024 World Artificial Intelligence Conference.
- Developed business scenarios for lithium battery thermal failure prediction, collaborating with the hardware department and participating in discussions with universities, achieving a 2% precision rate using a second-order equivalent circuit model combined with extended Kalman filtering to estimate battery SOC.
- Developed resume OCR scenarios, improving text recognition accuracy from 75% to 92% using CRNN with ResNet, MobileNet V2, and Bi-LSTM.

Skills

Languages: Mandarin (native), English (fluent)
Programming: Python, PyTorch, MySQL, Matlab, C++, R
Tools: PowerBI, Tableau, LaTex