

# 陳旻寬 Chen Min-Kuan

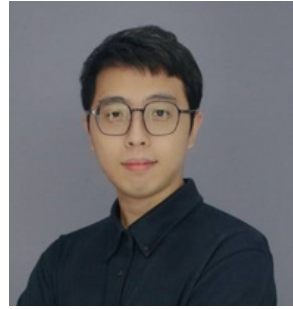
My focus is on AI systems, LLM optimization, and enterprise IT integration, with proven outcomes demonstrated through publications and practical system development.

📌 Bio: <https://minkuanishere.github.io/min-kuan-cv/>

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🔗 GitHub: <https://github.com/MinKuanIsHere>

🔗 LinkedIn: <https://www.linkedin.com/in/min-kuan-chen-89a525236/>



## Education

**M.S., Computer Science/ Institute of Network Engineering** - Feb 2025 – Expected Jan 2027

- National Yang Ming Chiao Tung University

**M.S., Commerce/ Financial Engineering** - Aug 2022 – Jul 2024

- National Chengchi University - GPA 4.3/ 4.3

**B.S., Information and Finance Management** - Aug 2018 – Jul 2022

- National Taipei University of Technology - GPA 3.87/ 4, 第1名畢業及3學年度書卷獎

## Skills

- **Programming & Languages:** Python, C/C++, JavaScript, SQL
- **AI & Machine Learning:** LLM fine-tuning, RAG, AI Agent, Transformers, PyTorch, TensorFlow
- **Web & System Development:** n8n, RESTful API, React, Node.js, HTML/CSS
- **Infrastructure & DevOps:** Linux server, Docker, Git, CI/CD, MySQL

## Experience

**產學案研究助理/ 企業級專業數位分身平台系統 (奇鋁科技股份有限公司)** - Jul 2025 - Now

- Develop an AI Assistant with LLM understanding hardware specifications
- Use VLM to compare files (PDF and Excel) and mark differences to improve file reading efficiency

**產學案研究助理/ 專業眼科醫療數位分身(台北榮總眼科部門診諮詢平台)** - Fed 2025 - Now

- Co-developed 593 clinical dialogue scenarios and validated LLM responses
- Achieved <2% hallucination rate and summary with 85% precision with RAG

**產學案研究助理/ 股票市場程式交易之監理 (中華民國證券櫃檯買賣中心)** - Jan 2023 – Dec 2023

- Developed AI-powered trading and supervisory models for Taiwan's financial market.

**資訊工程人員/ 台灣增輝藝品有限公司** - Jul 2021 – Jun 2022

- Managed 40+ devices and optimized troubleshooting workflows, reducing resolution time by 25%.

**金融服務平台部實習生/ 將來銀行** - Jan 2021 - Fed 2021

- Improved UI/UX and tested 10+ core mobile banking features, enhancing customer onboarding.

## Publications

- **Best Student Paper Award** (2024). AI-based predictive system for trading strategies. *Euro-China Conference on Intelligent Data Analysis and Applications*, 2024.
- **Master's Thesis** (2024). Based on Quantile Regression Forests for Predicting Option Settlement Price Returns and Trading Strategy Applications.
- **First Author** (2024). An intelligent option trading system based on heatmap analysis via PON/POD yields. *Expert Systems with Applications*, 257, 124948.
- **First Author** (2022). Quantitative Trading of Vertical Spread Option Strategies with Stop-Loss by Machine Learning. *5th International Conference on Econometrics and Statistics*, 2022.
- **First Author** (2022). On the Prediction of Stock Price Return Based on LSTM and Application for Options Trading. *TRIA-FeAT International Conference on Risk, Insurance, and Financial Engineering*, 2022.

## Enterprise AI Assistant

企業級專業數位分身平台系統/ 奇鋆科技股份有限公司

- **On-premise AI Assistant:** Developed an enterprise-level digital twin platform where data circulation remains strictly internal. Supports natural language queries for hardware specifications.
- **Automated Report Generation:** Enabled LLM to interpret requirements and output structured spreadsheet reports, improving efficiency by 3×.
- **File Comparison with VLM:** Integrated VLM-based comparison for PDF and Excel files, highlighting differences to streamline document review with 85% accuracy.



## Generative AI with Integrated Pathway-guided Dialogue Flow and RAG

專業眼科醫療數位分身/ 台北榮總眼科部門診諮詢平台

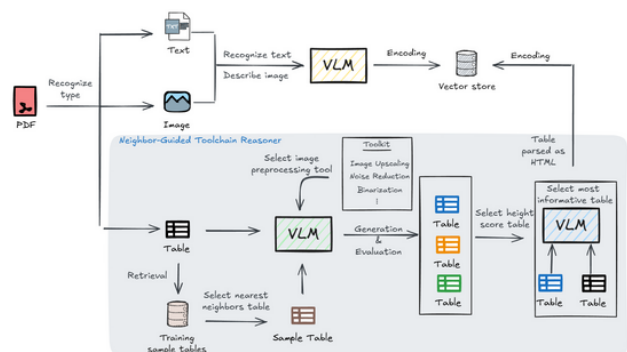
- **Clinical Application:** Applied LLM in pre-operative education and decision-support for ophthalmology consultations.
- **Quality & Collaboration:** Co-developed 593 clinical dialogue scenarios and validated AI responses to ensure clinical relevance and reliability.
- **Model Optimization:** Achieved <2% hallucination rate and summary with 85% precision with Retrieval-Augmented Generation (RAG).



## Enhancing OCR for Multi-row/Column Tables with VLM

Research Project

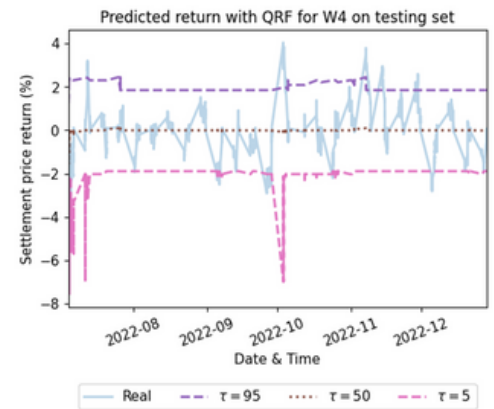
- **Table Recognition with LLM:** Applied LLM to interpret image-based tables and improve recognition accuracy.
- **Performance Improvement:** Addressed complex and low-quality tables, significantly enhancing VLM-based OCR performance.
- **NGTR Framework:** Implemented the Neighbor-Guided Toolchain Reasoner (NGTR) to boost table recognition without direct fine-tuning.
- **Pre-processing Enhancement:** Improved input image quality prior to VLM processing for better overall results.



## Algorithmic Trading with Financial Engineering & Machine Learning

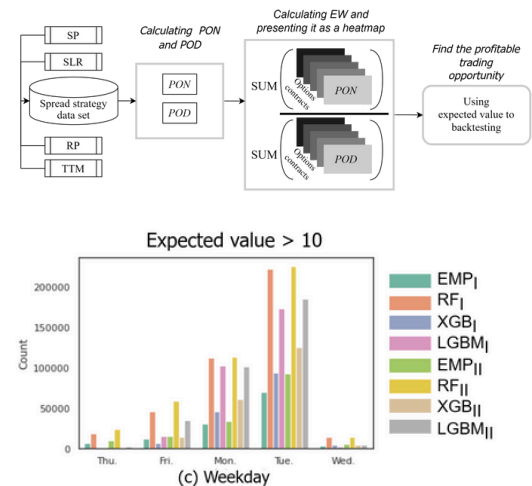
### Master's Thesis in National Chengchi University

- **Methodology:** Based on Quantile Regression Forests for Predicting Option Settlement Price Returns and Trading Strategy Applications
- **Empirical Study:** Conducted backtesting on weekly options of the Taiwan Stock Exchange Capitalization Weighted Stock Index (TAIEX options).
- **Prediction Accuracy:** Achieved **88.7%** accuracy after feature selection and optimized trading models.
- **Performance Results:** Delivered significant positive returns with a **61.5%** win rate and **1.2%** average return.



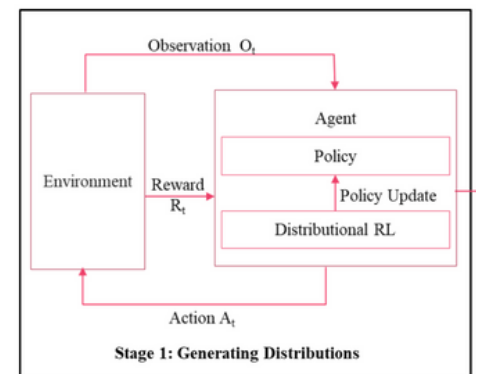
### An intelligent option trading system based on heatmap analysis via PON/POD yields. *Expert Systems with Applications*, 257, 124948.

- **Framework Development:** Proposed HAPPY (Heatmap Analysis via PON/POD Yield), a novel quantitative trading framework for options.
- **Machine Learning Models:** Applied Random Forest, XGBoost, and LightGBM to predict win rates and backtest option trading strategies.
- **Performance Results:** Achieved **63.3%** accuracy and **62.4%** precision in forecasting outcomes.



### 國科會計畫/ 基於人工智慧技術的智能期權交易系統設計

- **Reinforcement Learning (RL):** deep learning models, as agents to predict option trade win rates.
- **Empirical Study:** Applied and validated models using TAIEX index price data within option trading strategy frameworks.
- **Risk Management:** Incorporated Modern Portfolio Theory to construct option portfolios and minimize variance in trading risk.



### 國科會大專生計畫/ 基於機器學習架構下選擇權量化交易系統建置

- **System Development:** A real-time options trading web platform using JavaScript to apply ML-based trading strategies.
- **Modeling Approach:** Implemented a Random Forest model in Python to estimate the probability distribution of option expiration prices, combined with the Kelly criterion for money management.
- **Performance Results:** Achieved an average **71.97%** win rate, **5.25%** annualized return, and **9.55** Sharpe ratio, based on Taiwan Index Options data.

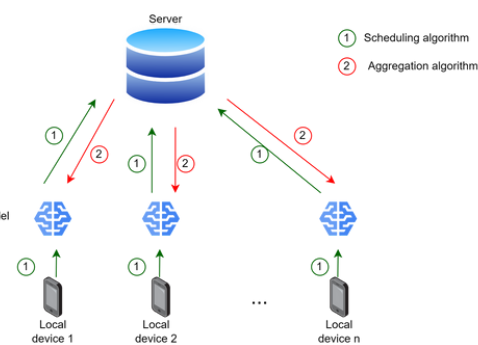




## Applying Federated Learning to Simulated Visual Systems

### Side project/ Federated Learning in edge device

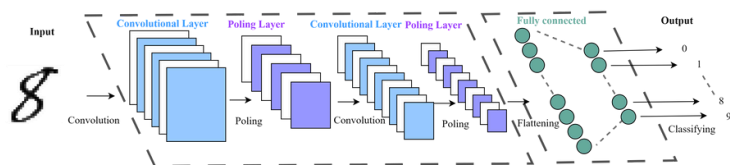
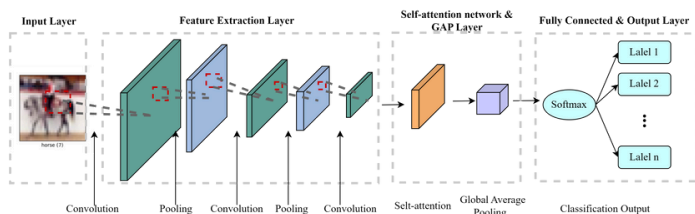
- **Local Training:** Users train visual recognition models locally using their own data to address limited sample availability.
- **Privacy Protection:** Models remain on local devices to ensure sensitive data is never directly shared.
- **Scheduling Algorithm:** Designed a mechanism for uploading only trained model parameters to the server at scheduled intervals.
- **Aggregation Algorithm:** Implemented server-side aggregation to combine updates from multiple users into a unified global model.



## Image Recognition Based on CNN

### Side project/ Image Classification Based on CNN and Self-attention Network

- **Feature Extraction:** Used CNNs to capture local spatial features from images.
- **Feature Weighting:** Applied self-attention mechanisms to assign importance to extracted features, capturing long-range dependencies.
- **Classification:** Implemented fully connected layers for final prediction, achieving an AUC of 96%, significantly outperforming traditional CNN-only models.



## Activity

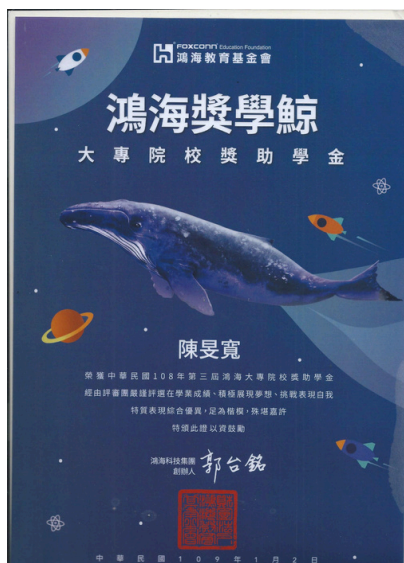


109年度國際扶輪社

生命橋梁5萬元獎學金獲獎合照



與外籍生交流中文與台灣文化之社團合照



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