CAROLYN (CHIH-HSUAN) KAO

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PROFESSIONAL SUMMARY

AI/ML expert specializing in the development of cutting-edge Generative AI and Retrieval-Augmented Generation (RAG) systems for the financial industry. Proven track record in designing and implementing LLM-powered chatbots, sophisticated AI agents, and end-to-end knowledge retrieval pipelines. Expertise in engineering large-scale GenAI products, including data ingestion, advanced indexing, and designing robust model evaluation frameworks to deliver state-of-the-art conversational AI solutions.

TECHNICAL HIGHLIGHTS

Generative AI: Retrieval-Augmented Generation (RAG), Large Language Models (LLMs), Prompt Engineering Retrieval Fine-Tuning, Conversational AI Chatbots, AI Agents, Hallucination Mitigation, Azure AI.
Machine Learning: Deep Learning (DL), Natural Language Processing (NLP), Reinforcement Learning, Time Series Analysis, Predictive Modeling, Optimization, Numerical Methods.
Technologies/Frameworks: Python, PyTorch, TensorFlow, Scikit-learn, C++, C#, SQL, REST APIs, FastAPI.
Quant Finance: Algorithmic Trading, Mathematical Modeling, Fixed Income & Volatility.

EDUCATION   HTTPS://CHKAO831.GITHUB.IO/COURSEWORK/

Stanford University   **Stanford, CA**
M.S. Computational and Mathematical Engineering; CGPA 3.93/4.3   **Sep 2019 - Jun 2021**
Deep Learning (DL), Natural Language Processing (NLP), Reinforcement Learning, Time Series Analysis, Algorithmic Trading, Numerical Analysis, Optimization, Stochastic Control Process, Distributed Computing, Mathematical Finance, Differential Equations.
University of California San Diego (UCSD)   **La Jolla, CA**
B.S. Applied Mathematics; GPA 3.91/4 | *B.S. Management Science*; GPA 3.87/4   **Sep 2015 - Jun 2019**
Graduated magna cum laude with CGPA 3.88; Awarded Honors with Distinction in Management Science; Member of Phi Beta Kappa; National Name Exchange 2019
NLP, Java OOP, Data Structures, Statistics, Real Analysis, Optimization, Calculus, Actuarial Mathematics, Operations Research, Micro/Macroeconomics, Corporate Finance, Industrial Organization, Accounting, Econometrics, Financial Mathematics.

PROFESSIONAL EXPERIENCE   HTTPS://AETHETECH.COM

Aethetech.AI | London, UK | *Co-Founder & CEO*   **Aug 2025 - Present**
- Co-founded a strategic AI consultancy dedicated to helping businesses harness AI for transformative growth.
- Lead client engagements to develop and implement custom AI solutions that streamline operations.
- Drive AI literacy through educational content and workshops, making advanced AI concepts accessible.

London Stock Exchange Group (LSEG) | London, UK | *Gen AI Data Scientist*   **May 2023 - Present**
Spearheading the AI development for the Workspace 10X Acceleration initiative, a flagship project integrating Generative AI into financial analysis workflows for investment banking and buyside research.
- Architected and developed an advanced AI chatbot leveraging Retrieval-Augmented Generation (RAG) and Azure AI to query insights from 33+ datasets, including unstructured sources (transcripts, filings, research, news).
- Engineered the end-to-end AI pipeline, encompassing data ingestion, RAG retrieval strategies, prompt fine-tuning, and search algorithm optimization for LLM-driven knowledge retrieval.

Taiwan Semiconductor Manufacturing Company (TSMC) | Hsinchu, Taiwan | *ML Data Scientist*
- Developed and optimized a multi-modal AI search kernel for an internal ML platform,   **Aug 2021 - Sep 2022** achieving a 10x performance speedup and enabling novel R&D applications.
- Engineered novel deep learning solutions using gradient-based optimization to solve complex, high-dimensional calibration problems for 2nm semiconductor development.

RESEARCH & ACCOMPLISHMENT   HTTPS://CHKAO831.GITHUB.IO/PORTFOLIO/

- **Winner**, LSEG Post Trade ML Competition (2024)
- **Published Co-author**, IJHPCA (2021) on automated parameter tuning frameworks in collaboration with Sandia National Laboratories. (Vol. 37, Issue 5, pp. 600-625, DOI: 10.1177/10943420231183688)
- **Divisional Quarterly Star**, TSMC (2021) in AI Application & Integration (AAID) division
- **Bronze Prize**, TSMC-Wide Machine Learning Competition (2020)