

Yu Shiuan (Leo) Shr

Scalable AI systems scientist with 5+ years of experience in deploying Graph-based Optimization, Agentic AI, and production-grade ML pipelines. Specializes in solving high-impact industrial challenges through knowledge graph, multi-modal reasoning, and modular system design.

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EXPERIENCE

• Taiwan Semiconductor Manufacturing Company Limited, (TSMC)

Sep 2023 - Now

Applied Data Scientist - AI application Department

- **Scalable AI-driven knowledge graph recommendation system:** Designed and developed a memory-enabled, context-aware agentic recommendation system for internal R&D —integrating domain-specific RAG (e.g., GraphRAG), knowledge base orchestration, and in-house jargon retrieval to bridge knowledge silos, accelerate junior onboarding, and prevent redundant component work via architecture-level advisory across teams.
- **Multi-modality Chart Interpretation system:** Architected and contributed to the development of a scalable VLM+LLM-based chart reasoning module for TunePro, enabling automated anomaly detection and action recommendation across hundreds of real-world process charts. Achieved >90% accuracy across critical chart types (scatter, residual-actual, MDS), reducing manual review overhead and accelerating junior onboarding through reusable visual-data understanding infrastructure.

ML DevOps - Machine Learning Analysis Department

- **Massive system design and leadership:** Led the architecture and rollout of a scalable, production-grade retargeting system for wafer zone-level measurements in 2/3nm fabs—designed with modular dispatch/scheduling components and domain-driven design, now operating across 8 fabs (F14–F22), covering >50% of SPC data and saving 233+ engineer-hours per fab per day.
- **Advanced technical breakthrough:** Designed and led a TSMC-tailored graph-based optimization system that solved TSMC's long-standing cross-station tuning bottleneck, leveraging **GNN modeling and Lemur optimization** to automate parameter tuning for upstream toolchains under 99% real scenario coverage .

Early Technical Experience(2019–2022, Taiwan):

• Graph-based Anomaly Detection ETL in AML (Data Analyst - Bitfinex, iFinex. Inc, Remote)

- Designed and deployed a PageRank-variant graph algorithm to identify suspicious remittance behaviors in AML operations—automating risk detection across 3,500+ accounts per quarter, and demonstrating early expertise in graph-based reasoning and high-volume financial workflows.

• Data Pipeline Automation & Dashboarding (Business Intelligence analyst, Bitfinex, iFinex. Inc)

- Built *end-to-end* operational data pipelines and interactive dashboards for account monitoring, significantly improving cash flow transparency and enabling proactive compliance responses.

• Transfer Learning & NLP Pipeline Ownership (Industrial Technology Research Institute, Machine Learning Engineer Intern)

- Led an NLP classification project using BERT/T5 and random forest models, improving accuracy from 86% to 93%—owning the pipeline from data scraping, preprocessing, modeling to delivery.

• GCP-based Scalable ELT for Smart Manufacturing (Micron Technology, Inc, Data Engineer Intern)

Data Engineer Summer Intern, Smart Manufacturing Artificial Intelligence Department. Prob Domain

- Developed parallelized ELT pipelines on GCP Dataflow + Apache Beam for probe defect analysis, resolving compute bottlenecks in semiconductor workflows and integrating with BigQuery, Snowflake, and NiFi.

EDUCATION

National TsingHua University Hsinchu, Taiwan

Sep 2021 - Now

M.B.A., Service Science (Information Management) Institute, Specialized in Information System & Business Analytics GPA 4.0/ 4.3

Data Science Program Certificate

Sep 2021 - Aug 2023

Teaching Assistant of Programming of Business Analytics (2022), Business Analytics of Data Mining (2022)

National ChengChi University Taipei, Taiwan

Sep 2014 - May 2018

B.A., Economics, class representative of 103 Academic Year

GPA 3.59/ 4.0

OpenSource & Extracurricular

• Google Developer Student Club Hsinchu, Taiwan

Oct 2022 - Now

Technical Product Manager

[Web](#) [Github](#)

- Mentor 11 university student as a team to co-develop a client/server recommendation product for Google open source activity.

SKILLS SUMMARY

Languages: Python(Proficient), SQL(Proficient), R(Familiar), Ruby(Familiar), PySpark(Medium), Linux(Medium)

Data: Graph, Knowledge Graph, Agentic AI, LLM, OOP, Sync/async high frequency System Design, Domain-driven design,, MinIO, API Gateway, Snowflake, MS SQL, PostgreSQL, Firebase