

HTML | CSS | JavaScript | Python | Django | Django REST | R | R-Shiny | SQL | React | Vue.js  
Dashboard & Reporting | Data Analytics | Machine Learning | Fine-Tuning & RAG  
LLM & Multi-Agent Systems | Web App Development | Product & Business Development

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🌐 cn-r-tsai.github.io  
🇯🇵 Eligible to work in Taiwan & Japan (permanent residency)

PROFESSIONAL EXPERIENCE

- **Senior Software Engineer** || Lam Research Japan  
Equipment Intelligence  
📅 Oct 2024 – Present
- **Software Engineer**  
📅 Sept 2022 – Sept 2024 📍 Yokkaichi, Japan
- **Data Scientist**  
📅 Mar 2018 – Dec 2021 📍 Hiroshima, Japan
- Web Application Development | Python | Django | Django REST APIs | JavaScript | D3.js | HTML | CSS | React | TypeScript | Vue.js | PostgreSQL | Docker | LLM Agent x RAG
- Lead a cross-regional Digital Transformation (DX) initiative for Japan, US, and Taiwan customer service operations, driving process innovation, enhancing productivity, and achieving operational excellence.
    - As the lead full-stack developer, drive the end-to-end development of an **Enterprise Asset Management (EAM) system**—from a front-end Single-Page Application (SPA) to a robust Django backend API service following the MVT design pattern—scaling it from 0→1 into a production-ready platform with **500+ daily users** across key operational sites.
    - **Architect and deploy a production-ready system** to revolutionize equipment performance monitoring and maintenance data management. **Lead the transition from Excel-based systems to digital platforms**, reducing workflow time by **90%**, improving operational efficiency by **40%**, and enabling real-time KPI tracking for equipment performance and maintenance metrics.
    - Develop an **LLM-powered AI chat agent** for tool maintenance, leveraging **Retrieval-Augmented Generation (RAG)** to enhance diagnostic accuracy, accelerate troubleshooting, and minimize equipment downtime.
    - Awarded **the Employee of the Quarter for 2023–2024** in the Japan region
  - Led the development of Lam’s Equipment Intelligence Data Analytics solution, managing a team of 4 to deliver **interactive web applications and dashboards** enabling real-time KPI tracking, operational insights, and data-driven decision-making. Integrated predictive ML models (e.g., PCA, K-means, Random Forest, XGBoost) into high-volume manufacturing workflows, resulting in a **45% reduction in MTTR**, **40% increase in tool productivity**, and **20% reduction in wafer scrap**.

- **Senior Software Engineer** || Tokyo Electron Ltd  
Intelligent System  
📅 Jan 2022 – Aug 2022 📍 Sendai, Japan
- R&D | Product Development | Python | R | R-Shiny | KNIME | Tableau | SQL
- Developed high-impact data analytics solutions using Python, R, and KNIME, building interactive dashboards and custom applications to drive data-driven decision-making.

- **Application Dev Engineer** || ASML US  
📅 Aug 2016 – Jan 2018 📍 Boise, USA
- Customer Support | Product Development | New Product Introduction | Python
- Managed the development of ASML’s optical metrology equipment, providing data insights and recommendations to support strategic decisions, optimize product performance for current and future Overlay/OCD metrology monitoring, and enhance customer satisfaction.

- **Application Dev Engineer** || KLA Taiwan  
📅 Nov 2013 – Nov 2014 📍 Tainan, Taiwan
- Customer Support | Product Development | Data Analytics | Machine Learning
- Drove up KLA metrology tool utilization for TSMC through high-quality recipe development, SEM imaging optimization, and in-depth technical engagement with the customer’s metrology team, resulting in a 30% cycle time reduction and enhanced IC manufacturing efficiency.

SKILLS

PROGRAMMING:

HTML CSS JavaScript

Python (pandas | scikit-learn)

TensorFlow | numpy | Langchain

R (shiny | ggplot2 | Tidyverse)

DATABASE:

SQL (PostgreSQL | MySQL | SQLite)

SQL Server

NoSQL (MongoDB)

WEB FRAMEWORK:

Django | Django REST

React

TypeScript

Vue.js

Express.js

OTHER:

RESTful API

Node.js

Redux

Hadoop

Linux

Docker

git

Jira

Confluence

Bitbucket

JSON

Bootstrap

D3.js

LaTeX

Power BI

Tableau

Google Cloud

Apache HTTP Server

LANGUAGES

- English – Fluent
- Japanese – JLPT N2
- Chinese – Native

EDUCATION

- **M.Eng. in Electrical & Computer Engineering**  
**Oregon State University**  
📅 Mar 2015 – Dec 2016  
📍 Corvallis, USA
- *Concentration in Computer Systems & Networking*
- **PhD student of College of Nanoscale Science & Engineering**  
**SUNY Polytechnic Institute**  
📅 Jan 2013 – Nov 2013  
📍 Albany, USA
- **M.S. in Electrical & Computer Engineering**  
**Auburn University**  
📅 Aug 2010 – Dec 2012  
📍 Auburn, USA
- *Concentration in Plasma, Microelectronics & Nanotechnology*
- **B.S. in Electrical Engineering**  
**National Taipei University of Tech**  
📅 Sept 2005 – Jun 2007  
📍 Taipei, Taiwan

PROFILE

- **Results-driven professional with a progressive 9+ years engineering career in data analytics, application & product development, and customer technical support**
- **Highly effective communicator and team player with proven ability to build long-term relationships with stakeholders by establishing a high level of confidence and trust**
- **An innovative software developer driven by a passion for creating impactful products that transform daily lives**
- **Skilled at developing and executing targeted initiatives that drive customer growth, achieve program objectives, and enhance R&D**
- **Passionate data enthusiast and lifelong learner, driven to uncover valuable insights through rigorous analysis**

PUBLICATIONS

- Tsai C.-N., Wang, X., Lee, C.-H., & Lin, C.-S. (2025). A multi-layer cooperative multi-agent framework for time series forecasting with large language models. *The 2025 Conference on Empirical Methods in Natural Language Processing*, (Submitted).
- Tsai C.-N., Lin, C.-S., Xie, Jingnan, & Lai, C.-M. (2025). Leveraging intra- and inter-references in vulnerability detection using multi-agent collaboration based on llms. *Cluster Computing*, (Revise & Resubmit).
- Lin, C.-S., Tsai C.-N., Jwo, J.-S., Lee, C.-H., & Wang, X. (2024). Heterogeneous student knowledge distillation from bert using a lightweight ensemble framework. *IEEE Access*, 12, 33079–33088 (SCIE, IF=3.4).
- Lin, C.-S., Tsai C.-N., Su, S.-T., Jwo, J.-S., Lee, C.-H., & Wang, X. (2023). Predictive prompts with joint training of large language models for explainable recommendation. *Mathematics*, 11(20), 4230 (SCIE, IF=2.3).
- Tsai C.-N., & Kirkici, H. (2013). Field-emission characteristics of selectively grown cnts. *IEEE Transactions on Electron Devices*, 60, 478–481 (SCIE, IF=2.358).
- Tsai C.-N., & Kirkici, H. (2012). Selectively grown carbon nanotubes (cnts): Characterization and field emission properties. In *2012 IEEE international power modulator and high voltage conference (ipmhvc)* (pp. 566–569).
- Kuo, Y.-S., Yao, L., Tsai C.-N., & Lin, J.-H. (2006). Design of remote measuring of insulation resistance for street lights. In *Proc. 27-th national conf. power engineering* (OD5.5.1–OD5.5.5).