

# KUAN-TING CHEN

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## Research & Industry Experience

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### Mohamed Bin Zayed University of Artificial Intelligence

June 2024 – Now

Research Assistant, Supervisor: Prof. Chih-Jen Lin

Abu Dhabi, United Arab Emirates

- **Revisit One-versus-One (OVO) and One-versus-Rest (OVR) Multi-class Decomposition Methods**

- Refined a long-held assumption in multi-class classification by revealing the significant performance differences of OVR and OVO under class imbalance.
- Developed OVR and OVO loss functions for neural networks, grounded in corresponding decomposition concepts.
- **Publications:** K.-T. Chen and C.-J. Lin, “Revisiting one-versus-one and one-versus-rest: Insights into imbalanced multi-class classification,” in *Proceedings of the IEEE International Conference on Data Mining (ICDM)*, 2025 (Best Paper Award candidate)

- **Tree-based Linear Methods for Extreme Multi-label Classification (XMC)**

- Identified probability estimation error in existing Support Vector Machine-based approaches, and proposed a framework that corrects performance degradation across multiple XMC benchmarks. (*Submitted to EACL 2025 under review*)
- Systematically analyzed hyperparameter influences, and developed an efficient guideline for hyperparameter tuning. (*Submitted to EACL 2025 Industry Track under review*)

- Improved and Maintained core machine learning libraries: LIBSVM, LIBLINEAR, and LibMultiLabel

### Yahoo Inc.

May 2022 – Mar. 2024

Data Scientist

Taipei, Taiwan

- **Optimal Campaign Discount Strategy for E-Commerce**

- Developed a discount strategy balancing contribution margin and variable costs, validated via A/B testing, resulting in +3% revenue and +15% improvement in contribution margin.

- **Flash Sale Product Selection**

- Built automated flash-sale product selection pipeline using profit margin, keyword volume, and price competitiveness, achieving comparable revenue but higher margin relative to manual selection.

### Taiwan Semiconductor Manufacturing Company

Sept. 2020 – Apr. 2022

Machine Learning Engineer

Hsinchu, Taiwan

- **StarGAN-Based Wafer Positional Bias Simulation for Yield Improvement**

- Novelty reconceptualized wafer positional bias patterns as images, and formulated the simulation task as a multi-domain translation problem.
- Developed a StarGAN-based framework that deployed across four fabs, achieving a significant 3% yield improvement for 80% of wafers and saving millions in production costs.

- **Real-Time Defect Classification for Production Efficiency**

- Designed a real-time defect classification pipeline using domain-aware features and AdaBoost, achieving >90% accuracy on production wafers. Deployment reduced manual inspection by 3.5 hours/day.

## Professional & Internship Experience

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### WorldQuant

Nov. 2022 – Now

Research Consultant, Part-time

Taipei, Taiwan

- **Genetic Algorithm Framework for Trading Strategies**

- Developed an interpretable and efficient Genetic Algorithm framework for quantitative trading strategy optimization, and ranked 5th globally among 1,000+ consultants in WorldQuant’s internal competition.

### Cupoy

Apr. 2023 – May 2024

Natural Language Processing Lecturer, Part-time

Taipei, Taiwan

- Delivered monthly lectures to beginners, building foundational understanding and gradually introducing advanced topics to a cohort of 50 participants.

## Education

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### National Chengchi University

Sept. 2018 – June 2020

Master of Statistics, Supervisor: Prof. Chiu-Hsing Weng

Taipei, Taiwan

- Awarded Phi Tau Phi Scholastic Honor Society of the Republic of China (Top 1%)

- Master Thesis: *Convergence of Stochastic Gradient Descent for Ordinal Regression Model and Applications for Recommender Systems*

- Python Study Group Leader: Led weekly sessions for 20 peers, guiding them through Python fundamentals and data science applications with individualized support.

### National Central University

Sept. 2014 – June 2018

Bachelor of Mathematics

Taoyuan, Taiwan