

# Chih-Yu Chang

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## RESEARCH INTERESTS

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Decision-making and machine learning, with a primary focus on efficiency, interpretability, and accuracy.

## EDUCATION

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**PhD Student in Mathematics Research**  
*Imperial College London*

London, United Kingdom  
Sep. 2025 - Expected Sep. 2029

- Investigating the potential of foundation models in reinforcement learning.

**Master of Science in Applied Statistics** GPA: 3.77/4.0  
*University of Michigan, Ann Arbor (UMICH)*

Michigan, U.S.A.  
Aug. 2023 - Dec. 2024

- Statistics Courses: Regression Anal., Bayesian Data Anal., Prob. Theory, Statistical Theory
- Optimization Courses: Continuous Optimization Method, Adv. Bayesian Data Science, Nonlinear Programming

**Bachelor of Science in Mathematics**  
*National Tsing Hua University (NTHU)*

Hsinchu, Taiwan  
Sep. 2019 - Jun. 2023

- Advanced Statistics Courses: Linear Model, Discrete Analysis, Stat. Computing, Stat. Learning.

## PUBLICATIONS

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1. **Aggregated Accelerated D-optimal Design for Estimating Main Effects in Black Box Models.**  
**C.-Y. Chang** and M.-C. Chang.  
*arXiv preprint arXiv:2510.08465, 2025.*
2. **Collaborative Contextual Bayesian Optimization**  
**C.-Y. Chang**, T. Gao, Q. Chen, C. Okwudire, D. Fenning, N. Dasgupta, W. Lu and R. A. Kontar  
*Submitted to IEEE Transactions of Automatic Science and Engineering, 2025.*
3. **LLINBO: Trustworthy LLM-in-the-Loop Bayesian Optimization**  
**C.-Y. Chang**, M. Azvar, C. Okwudire, R. A. Kontar.  
*arXiv preprint arXiv:2505.14756, 2025.*
4. **Bootstrap Aggregation for Regression Problems via Generalized Least Squares**  
**C.-Y. Chang** and M.-C. Chang  
*Submitted to Statistics and Computing, 2025.*

## WORK EXPERIENCES

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**Institute of Statistical Science, Academia Sinica** | *Research Assistant*

Jan. 2025 - Aug. 2025

- Did research in extracting the main effects in the black box models advised by Dr. Ming-Chung Chang.

**Institute of Statistical Science, Academia Sinica** | *Visiting Scholar*

May. 2024 - Aug. 2024

**UMICH Data Science Lab** | *Research Assistant*

Jan. 2024 - Dec. 2024

- Conducting research in **Optimization** and **Federated Learning** under Prof. Raed Al Kontar's supervision.

**Institute of Statistical Science, Academia Sinica** | *Research Assistant*

Mar. 2022 - Aug. 2023

- Did research in improving predictive power for **multi-agent system** advised by Dr. Ming-Chung Chang.

**Department of Mathematics, NTHU** | *Teaching Assistant*

Sep. 2022 - Jul. 2023

- Became a Teaching Assistant of Calculus I and II offered to 140 international students.

## PROJECTS

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*An Investigation of Adaptive Stepsize Quasi-Newton Methods on ML Tasks*

Apr. 2024

*Advisors: Professor Albert Berahas*

- Developed three novel approaches to prevent overfitting when training ML using Quasi-Newton Methods.
- Successfully reduced the testing error in both regression and classification problems and awarded **Best Project**.

*Equilibrium and Data-analytics Laboratory (adviser: Professor Yu-Ching Lee)*

Sep. 2021

- Compared different optimization algorithms used in solving online fish market problem using Python.

## AWARDS

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- **Government Scholarship for Studying Abroad.** 2023-2025 Ministry of Education, Taiwan
- **Special Education Student Award Grant.** 2020, 2021, and 2022 NTHU, Taiwan
- **Adjunct Research Grant.** 2022-2023 Institute of Statistical Science, Academia Sinica
- **Roth Scholarship** 2025-2029 Department of Mathematics, Imperial College London

## SKILLS

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- Languages: English (fluent), Chinese (native)
- Programming: Python, R (Both are able to conduct research and perform data analysis)
- Tools: SQL, Power BI (entry-level)