

# Che-Ping Tsai

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## RESEARCH INTEREST

Seeking full-time AI research roles starting **Jan/Feb 2026**, with a focus on **large language models post training and embedding models**. PhD research on principal algorithms for representation learning [1]-[3], and interpretability [5]-[7]; internship experience in fine-tuning large language models for tabular data [4] and explainable recommender systems [6].

## EDUCATION

<b>Carnegie Mellon University</b> <i>Ph.D., Machine Learning, advised by Prof. Pradeep Ravikumar.</i> <ul style="list-style-type: none"><li>Representation learning [1]-[3], LLMs for tabular data [4], interpretability [5]-[7], and robust statistics [8].</li></ul>	Aug. 2020 - Present Pittsburgh, PA
<b>National Taiwan University</b> <i>M.S., Computer Science, advised by Prof. Hung-Yi Lee and Lin-Shan Lee.</i> <ul style="list-style-type: none"><li>Multi-label classification [9]-[10] and automatic speech recognition [11]-[12].</li></ul>	Sep. 2017 - Jan. 2020 Taipei, Taiwan
<b>National Taiwan University</b> <i>B.S., double major in Electrical Engineering and Mathematics.</i>	Sep. 2013 - June 2017 Taipei, Taiwan

## COMPETITION AWARDS

<b>Silver Medal</b> , 52nd International Mathematical Olympiad (IMO). <ul style="list-style-type: none"><li><b>Ranked 1st</b> in the national training camp at the age of 16.</li><li>Ranked top 10% among 544 international representatives from 101 countries.</li></ul>	Amsterdam, Netherland, 2011
<b>Silver Medal</b> , 53rd International Mathematical Olympiad (IMO).	Mar del Plata, Argentina, 2012
<b>Top 30</b> , National Training Camp for the International Olympiad in Informatics (IOI).	Taiwan, 2013

## WORK EXPERIENCE

<b>Amazon AWS</b> <i>Applied scientist intern, advised by Phillip Wallis and Wei Ding</i> <ul style="list-style-type: none"><li>Tabular anomaly detection with LLMs, paper accepted by ICLR 2025 [4].</li></ul>	May. 2024 – Aug. 2024 Seattle, WA
<b>Amazon Search</b> <i>Applied scientist intern, advised by Hsiang-Fu Yu and Cho-Jui Hsieh</i> <ul style="list-style-type: none"><li>Explaining recommender system with training samples, paper accepted by ICML 2023 [6].</li></ul>	May. 2022 – Aug. 2022 Palo Alto, CA
<b>Microsoft, Taiwan AI center</b> <i>Research intern, supervised by Bo-June (Paul) Hsu</i> <ul style="list-style-type: none"><li>Working with MSRA and MSR on receipt understanding.</li></ul>	Mar. 2020 – July 2020 Taipei, Taiwan

## PUBLICATIONS (SORTED BY DATES)

- [1] **Che-Ping Tsai\***, Burak Varici\*, Ritabrata Ray, Nicholas Boffi, Pradeep Ravikumar. Eigenfunction Extraction for Ordered Representation Learning, AISTATS 2026(under submssion)[preprint].
- [2] Burak Varici, **Che-Ping Tsai**, Runtian Zhai, Hugo Contant, Arnav Mantro, Zico Kolter, Pradeep Ravikumar. Mixing Contexts for Representation Learning, AISTATS 2026(under submssion).
- [3] Runtian Zhai\*, Kai Yang\*, **Che-Ping Tsai\***, Burak Varici\*, Zico Kolter, Pradeep Ravikumar. Contextures: Representations from Contexts, ICML 2025. [paper]
- [4] **Che-Ping Tsai**, Ganyu Teng, Phillip Wallis, Wei Ding. AnoLLM: Large Language Models for Tabular Anomaly Detection, ICLR 2025. [paper] [code]
- [5] **Che-Ping Tsai**, Chih-Kuan Yeh, Pradeep Ravikumar. Sample based Explanations via Generalized Representers, Neurips 2023. [paper]

- [6] **Che-Ping Tsai**, Jiong Zhang, Hsiang-Fu Yu, Eli Chien, Cho-Jui Hsieh, Pradeep Ravikumar, Representer Point Selection for Explaining Regularized High-dimensional Models, ICML 2023. [paper] [code]
- [7] **Che-Ping Tsai**, Chih-Kuan Yeh, Pradeep Ravikumar, Faith-Shap: The Faithful Shapley Interaction Index. Journal of Machine Learning Research (JMLR), Vol. 24 (94), pages 1-42, 2023. [paper][code]
- [8] **Che-Ping Tsai**, Adarsh Parasad, Sivaraman Balakrishnan, Pradeep Ravikumar, Heavy-tailed Streaming Statistical Estimation, AISTATS 2022 (Oral). [paper]
- [9] **Che-Ping Tsai**, Hung-Yi Lee Order-free Learning Alleviating Exposure Bias in Multi-label Classification, AAAI 2020. [paper] [code]
- [10] **Che-Ping Tsai**, Hung-Yi Lee. Adversarial Learning of Label Dependency: A Novel Framework for Multi-class Classification, ICASSP 2019 [paper]
- [11] Kuan-Yu Chen, **Che-Ping Tsai**, Da-Rong Liu, Hung-Yi Lee, Lin-shan Lee. Completely Unsupervised Phoneme Recognition By A Generative Adversarial Network Harmonized with Iteratively Refined Hidden Markov Models, Interspeech 2019 [paper][code1] [code2]
- [12] **Che-Ping Tsai\***, Yi-Lin Tuan\*, Hung-Yi Lee, Lin-shan Lee. Transcribing Lyrics from Commercial Song Audio: the First Step towards Singing Content Processing, ICASSP 2018 [paper][code]

## SELECTED HONORS

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<b>NeurIPS 2023 Scholar Award</b>	New Orleans, 2023
<b>Study Abroad Scholarship</b> (US\$16000), Ministry of Education	Taiwan, 2021

## TALKS

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<b>Speaker</b> , Sample-based Explanations for Recommender Systems.	Amazon AWS (Jun, 2024)
<b>Speaker</b> , Faith-Shap: The Faithful Shapley Interaction Index.	CMU MLD Ph.D. Lunch (Nov 2024)
<b>Invited Talk</b> , Sample-based Explanations for Recommender Systems.	AI TIME (Jun 2023)
<b>Oral presentation</b> , Heavy-tailed Streaming Statistical Estimation.	AISTATS 2022

## TEACHING EXPERIENCE

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<b>Teaching Assistant</b> , Probabilistic Graphical Models (10708)	CMU, Fall 2022
<b>Teaching Assistant</b> , Probabilistic Graphical Models (10708)	CMU, Spring 2022
<b>Teaching Assistant</b> , Advanced Deep Learning [CSIE7430]	NTU, Spring 2018
<b>Teaching Assistant</b> , Machine Learning [EE5184]	NTU, Spring 2017

## PROFESSIONAL SERVICE AND SKILLS

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**Committee:** CMU MLD Graduate Admissions Committee (2021, 2022, 2023, 2024)

**Reviewer:** Neurips 2023/2024/2025, ICLR 2025, ICML 2024, AISTATS 2022/2023/2024/2025, JMLR

**Selected Coursework:** Intermediate Stats (A-), advanced statistical theory (A), convex optimization (A+), probabilistic graphical models (A), advanced ML theory and methods (A), and advanced intro to ML (A), operating systems (A+)

**Programming Language:** Python, PyTorch, Git, Transformers, Distributed Training, LaTeX, Bash Scripts

**Language** Mandarin (native), English (fluent)