Ming-Chang Chiu

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EDUCATION

University of Southern California (USC)   Los Angeles, CA
Ph.D. in Computer Science   Aug 2018 – Dec 2019, Aug 2020 – Dec 2024 (Exp.)
• Advisor: Prof. Xuezhe Ma
• Interests: Multimodal Large Language Model, Reliable GenAI, AI4Science
• Invited to pitch at Y Combinator China for a $1M funding

National Tsing Hua University (NTHU)   Hsinchu, Taiwan
B.S. in Computer Science & Electrical Engineering   Sep 2011 – Jun 2015
• Honorary Member of Phi Tau Phi Scholastic Society (**top 1%**)

Tsinghua University   Beijing, China
Summer Exchange Student in Computer Science   Summer 2012

PUBLICATIONS

• VideoPoet: A Large Language Model for Zero-Shot Video Generation, arXiv, Blog, In ***ICML** (Best Paper) **2024***
• ASIDE: Agentically Self-Improve Visual Language Model with Domain Experts, *In Prep*.
• MegaCoin: Medium Granularity Color Annotated Images Improve Instruction Tuning for Vision-Language Models. **M.-C. Chiu**, S. Wen, P.-Y. Chen, X. Ma, arXiv *Submitted to CVPR25*.
• ColorSense: A Comparative Study on Color Vision of Machine Visual Recognition. **M.-C. Chiu**, Y. Wang, D.E. Kim, P.-Y. Chen, X. Ma. *In Secure & Trustworthy ML 2025*. arXiv
• Behavioral Bias of Vision-Language Models: A Behavioral Finance View. Y. Xiao*, Y. Lin, **M.-C. Chiu***, In ***ICML** LLMs and Cognition **2024***. arXiv
• DDI-CoCo: Understanding the Effect of Color Contrast in Machine-Assisted Skin Disease Detection. **M.-C. Chiu***, Y. Wang*, J.-J. Kuo, P.-Y. Chen, *In **ICASSP** 2024. arXiv Long Ver. Submitted to **Nature Machine Intelligence***.
• On Human Visual Contrast Sensitivity and Machine Vision Robustness: A Comparative Study. **M.-C. Chiu**, Y. Wang, D.E. Kim, P.-Y. Chen, X. Ma. arXiv
• Better May Not Be Fairer: A Study on Subgroup Discrepancy in Image Classification **M.-C. Chiu**, P.-Y. Chen, X. Ma. In ***ICCV** 2023*. arXiv
• Robust Representation Learning for Group Shifts and Adversarial Examples. **M.-C. Chiu**, X. Ma. In ***NeurIPS** 2022 ML Safety*. Link
• Screenplay Quality Assessment: Can We Predict Who Gets Nominated? **M.-C. Chiu**, Tiantian Feng, Xiang Ren, Shrikanth Narayanan. In ***ACL NUSE** 2020*.
• Automated Empathy Detection for Oncology Encounters. Z. Chen, J. Gibson, **M.-C. Chiu**, Q. Hu, T. K. Knight, D. Meeker, J. A. Tulsky, K. I. Pollak and S. Narayanan. In *IEEE Int'l Conf. on Healthcare Information (**ICHI**) 2020*.
• A system for the 2019 Sentiment, Emotion and Cognitive State Task of DARPA's LORELEI project. V. Martinez, A. Ramakrishna, **M.-C. Chiu**, K. Singla, and S. Narayanan. In *Proceedings of the International Conference on Affective Computing & Intelligent Interaction (**ACII** 2019 **Oral**)*

RELATED COURSEWORK

Online Optimization, ML Theory, Large Scale Optimization for Machine Learning, Convex Optimization, Advanced Representation Learning for NLP, Knowledge Extraction and Reasoning, Affective Computing, Corporate Finance, Strategy & Competitive Dynamics

SKILLS

Languages: Python, OCaml, Java, HTML/CSS, PHP, SQL, JavaScript
Technologies & API: PyTorch, Pandas, Docker, Scikit Learn, Hadoop, Spark
Transferrable: Strategic Thinking, Collaboration, Public Speaking

WORK **EXPERIENCES**	**NVIDIA**	Santa Clara, CA

Research Intern [Mentors: Andrew Tao, Karan Sapra, Guilin Liu]   May 2024 – Dec 2024
- Enhanced reasoning of GPT4o-like model with an agentic synthetic post-training pipeline for supervised and reinforcement finetuning from scratch: improved MMMU, SciQA, MME, etc. benchmarks by at least 1%

Google Research   Mountain View / Los Angeles, CA

Student Researcher [Host: Rachel Hornung, Marco Andreetto, Benoit Corda]   Oct 2023 – Dec 2023
- Fine-tuned and designed benchmark for text-to-video/text-to-image generative models (VideoPoet & Phenaki)
- Designed out-of-distribution detection safety measures for large vision-language models

Lawrence Livermore National Lab   Livermore, CA

Research Intern [Host: Bhavya Kailkhura, Pin-Yu Chen]   May 2023 – Aug 2023
- Designed instruction-tuning methods to defend against jailbreaking attacks on Vision-Language Models (VLM) like GPT-4
- Evaluated new AirSim-generated context-aware benchmarks for zero-shot domain generalization of multi-modal models like CLIP, GLIP, GroundingDINO, etc.

Lilt, Inc.   San Francisco, CA

Data Science Intern [Host: Geza Kovacs]   May 2020 – Sep 2020
- Initiated and developed a successful defense mechanism against noisy online inputs for machine translation (NMT); 5 BLEU better than the baseline

Illumina, Inc.   San Diego, CA

DevOps Applications Intern   May 2017 – Aug 2017
- Maintained enterprise Atlassian Jira and Confluence for 7k employees

OTHER
ACTIVITIES
- President of Taiwanese PhD Student Association
- California Collegiate Salsa Competition Champion 2018
- Vice President of String Ensemble

INVITED
TALK
- CSRMP gStudent Experience Panel, Google's CS Research Mentorship Program, November 2023
- Google Research Perception Fairness Internal Talk, November 2023

HONORS
& AWARDS

2023 Datumo AI Dataset Sponsorship Program (**$50k**)	2023
USC WiSE Travel Grant * 2	2022, 2023
Kaggle Silver Medal (top 4% out of 5,332 teams), Porto Seguro's Safe Driver Prediction 2017	
Celebrating the Viterbi Algorithm Through Art	2017
Honorary Member of Phi Tau Phi Scholastic Society	2015
Excellent Study Group Award, NTHU	2015
National Tsing Hua University International Exchange Scholarship	2014