CHEN-HAO CHAO

- **Email:** chenhao.chao@mail.utoronto.ca
- **GitHub:** https://github.com/chen-hao-chao
- **Personal Page:** https://chen-hao-chao.github.io

EDUCATION

University of Toronto, Canada Sept. 2024 – Present
Ph.D. in Computer Science, advised by Prof. Rahul G. Krishnan

National Tsing Hua University, Taiwan Sept. 2021 – Jun. 2024
Master of Computer Science, advised by Prof. Chun-Yi Lee, CGPA: 4.30 / 4.30

National Tsing Hua University, Taiwan Sept. 2017 – Jun. 2021
Bachelor of Computer Science, CGPA: 4.17 / 4.30

EXPERIENCES

Research Intern Oct. 2023 – Jul. 2024
NVIDIA AI Technology Center, NVIDIA Corporation
- Conducted a research project on Reinforcement Learning [1].

Visiting Scholar Sept. 2022 – Nov. 2022
Robotics Perception and Learning (RIPL) Lab, Georgia Institute of Technology
- Conducted a research project on generative models [2], accepted by ***NeurIPS 2023***.

Research Intern Mar. 2021 – Mar. 2022
Division of Multimedia Development, MediaTek Inc.
- Conducted a research project on generative models [3], accepted by ***ICLR 2022***.

PUBLICATIONS

(*, †, and ‡ denote equal contribution)

Reinforcement Learning

[1] **C.-H. Chao***, C. Feng*, W.-F. Sun, C.-K. Lee, S. See, and C.-Y. Lee, "Maximum Entropy Reinforcement Learning via Energy-Based Normalizing Flow," 2024. arXiv: 2405.13629. [paper] [github]

Generative Models

[2] **C.-H. Chao**, W.-F. Sun, Y.-C. Hsu, Z. Kira, and C.-Y. Lee, "Training Energy-Based Normalizing Flow with Score-Matching Objectives," in *Proceedings of the Conference on Neural Information Processing Systems (**NeurIPS**)*, 2023. [paper] [github] [video]

[3] **C.-H. Chao**, W.-F. Sun, B.-W. Cheng, Y.-C. Lo, C.-C. Chang, Y.-L. Liu, Y.-L. Chang, C.-P. Chen, and C.-Y. Lee, "Denoising Likelihood Score Matching for Conditional Score-based Data Generation," in *Proceedings of the International Conference on Learning Representations (**ICLR**)*, 2022. **(Top 10% in terms of avg. review rating among the accepted papers)** [paper] [github] [video]

[4] **C.-H. Chao**, W.-F. Sun, B.-W. Cheng, and C.-Y. Lee, "On Investigating the Conservative Property of Score-Based Generative Models," in *Proceedings of the International Conference on Machine Learning (**ICML**)*, 2023. [paper] [github] [video]

Computer Vision

[5] **C.-H. Chao**, B.-W. Cheng, T.-W. Wang*, H.-R. Liao*, and C.-Y. Lee, "Rainbow UDA: Combining Domain Adaptive Models for Semantic Segmentation Tasks," *IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**)*, vol. 45, no. 10, pp. 12 707–12 713, 2023. DOI: 10.1109/TPAMI.2023.3289308. [paper]

[6] T.-H. Liao*, H.-R. Liao*, S.-Y. Yang†, J.-E. Yao†, L.-Y. Tsao†, H.-S. Liu†, **C.-H. Chao**‡, B.-W. Cheng‡, C.-C. Chang‡, Y.-C. Lo‡, and C.-Y. Lee, "ELDA: Using Edges to Have an Edge on Semantic Segmentation Based UDA," in *Proceedings of the British Machine Vision Conference (**BMVC**)*, 2022. [paper] [github] [video]

[7] **C.-H. Chao**, B.-W. Cheng, and C.-Y. Lee, "Rethinking Ensemble-Distillation for Semantic Segmentation Based Unsupervised Domain Adaption," in *Proceedings of the IEEE/CVF Computer Vision and Pattern Recognition Conference Workshop (**CVPRW**) on Learning From Limited or Imperfect Data (L2ID)*, 2021, pp. 2610–2620. **(Also accepted to the GPU Technology Conference (GTC))** [paper] [github] [video]

Graphic Processing Unit Architecture

[8] B.-W. Cheng, E.-M. Huang, **C.-H. Chao**, W.-F. Sun, T.-T. Yeh, and C.-Y. Lee, "COLAB: Collaborative and Efficient Processing of Replicated Cache Requests in GPU," in *Proceedings of the Asia and South Pacific Design Automation Conference (**ASP-DAC**)*, 2023, pp. 314–319. DOI: 10.1145/3566097.3567838. [paper]

[9] B.-W. Cheng, E.-M. Huang, **C.-H. Chao**, W.-F. Sun, T.-T. Yeh, and C.-Y. Lee, "Remote Access Tag Array for Efficient GPU Intra-Cluster Data Sharing," *Workshop on Synthesis And System Integration of Mixed Information Technologies (**SASIMI**)*, 2022. [paper]

SERVICES

- **Reviewer**, the *Conference on Neural Information Processing Systems (NeurIPS 2024)*.
- **Reviewer**, the *International Conference on Machine Learning (ICML 2024)*.
- **Reviewer**, the *International Conference on Learning Representations (ICLR 2024)*.
- **Reviewer**, the *Conference on Neural Information Processing Systems (NeurIPS 2023)*.
- **Reviewer**, *IEEE / CVF Computer Vision and Pattern Recognition Conference Workshop (CVPRW)* on *Learning with Limited Labelled Data for Image and Video Understanding (L3D-IVU 2022)*.
- **Teaching assistant**, *Logic Design Laboratory* – National Tsing Hua University, Fall 2020.
  - Instructor: Prof. Chun-Yi Lee
- **Teaching assistant**, *Digital Logic Design* – National Tsing Hua University, Spring 2019.
  - Instructor: Prof. Youn-Long Lin

AWARDS AND HONORS

- **NeurIPS 2023 Scholar Award** – Oct. 2023.
  - Recipient of financial support as the author of a paper accepted by NeurIPS 2023.
- **Google Conference Scholarship** – Google Inc., Aug. 2023.
  - Awarded to the first author of a top computer science conference paper.
- **Student International Visiting Scholarship** – NTHU, Taiwan, Nov. 2022.
  - Granted to students engaged in short-term research, visits, internships, or competitions at foreign universities or academic institutions.
- **High Distinction Award, Student Paper Contest** – Chinese Institute of Engineers, Taiwan, Jul. 2021.
  - Granted to students with an excellent thesis.
- **Academic Excellence Award** – Dept. of Computer Science, NTHU, Taiwan.
  - Dates: Sept. 2018, Feb. 2019, Feb. 2021.
  - Granted to the top 5% of students in the class every semester.

TECHNICAL SKILLS

- **Programming Languages** — Python, C/C++, C#, Javascript, Verilog
- **Software & Tools** — PyTorch, Tensorflow, LaTeX, Git, Docker, Unity