

Yung-Sung Chuang

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RESEARCH INTERESTS

- **Multimodal & Pre-training**: scaling CLIP pre-training to multilingual/worldwide web data (MetaCLIP 2) [[arXiv'25](#)]
- **LLM Alignment & Factuality**: self-supervised alignment (SelfCite) [[ICML'25](#)], decoding strategies for factuality (DoLa) [[ICLR'24](#)], hallucination detection (Lookback Lens) [[EMNLP'24](#)]
- **Retrieval**: retrieval-augmented LLMs (SAIL) [[EMNLP'23](#)], query reranking [[ACL'23](#)], sentence embeddings (DiffCSE) [[NAACL'22](#)]
- **Reinforcement Learning for VLMs**: RL for text-image interleaved reasoning (Meta FAIR internship, ongoing)

Education

Massachusetts Institute of Technology (MIT)

Sep. 2021 - PRESENT

PH.D. CANDIDATE IN COMPUTER SCIENCE

- **GPA: 5.0/5.0** (up-to-date)
- Computer Science & Artificial Intelligence Laboratory (CSAIL), Advisor: Dr. James Glass

National Taiwan University (NTU)

Sep. 2016 - Jun. 2020

B.S. IN ELECTRICAL ENGINEERING

- **GPA**: overall: **4.18/4.30**, major: **4.22/4.30**
- **Honors**: Presidential Award * 4 (S '18, S '19, F '19, S '20), Irving T. Ho Memorial Scholarship (F '18, F '19)

Research Experiences

Meta FAIR, Seattle Advisor: [Luke Zettlemoyer](#)

May 2025 – Present

RESEARCH SCIENTIST INTERN

- Designing **reinforcement learning** methods for visual reasoning in multimodal LLMs, enabling better **text-image interleaved reasoning** (ongoing project).

Meta FAIR, Seattle Advisors: [Hu Xu](#), [Shang-Wen \(Daniel\) Li](#), and [Wen-tau \(Scott\) Yih](#)

May 2024 – Jan. 2025

RESEARCH SCIENTIST INTERN

- Pre-trained **MetaCLIP 2** [[arXiv'25](#)], a large-scale CLIP (ViT-H/14), by building worldwide **data curation** pipeline from scratch, beating **SoTA on multilingual tasks** by around 5%, with around 1% **boost on English tasks**, breaking the “curse of multilinguality”.
- Proposed **SelfCite** [[ICML'25](#)], a **self-supervised alignment** method for generating **accurate citations**, with up to 5.3% boost.

Microsoft, Redmond Advisor: [Pengcheng He](#)

Jun. 2023 – Sep. 2023

RESEARCH SCIENTIST INTERN

- Developed **DoLa** [[ICLR'24](#)], a decoding strategy improving **factual accuracy** in LLM outputs by 12-17%, integrated into HuggingFace Transformers library as one of the generation strategies [[HF Transformers Docs](#)].

Spoken Language Systems Group, CSAIL, MIT Advisor: [James Glass](#)

Sep. 2021 – Present

RESEARCH ASSISTANT

- Led multiple projects on **factuality and hallucinations in LLMs**: SelfCite [[ICML'25](#)], DoLa [[ICLR'24](#)], Lookback Lens [[EMNLP'24](#)].
- Developed **retrieval-based** and **sentence embeddings** methods: SAIL [[EMNLP'23](#)], Query Reranking [[ACL'23](#)], DiffCSE [[NAACL'22](#)].
- Published **5 first-author papers** at top conferences.

National Taiwan University Advisors: [Hung-yi Lee](#), [Yun-Nung \(Vivian\) Chen](#), and [Lin-shan Lee](#)

2018 – 2021

UNDERGRADUATE RESEARCHER

- Built benchmarks and models for **speech representation learning**, **speech-to-text translation (ST)**, and **spoken language understanding (SLU)**: *SUPERB* benchmark [[Interspeech'21](#)], non-autoregressive ST [[ACL'21](#)], and SLU without ASR [[ICASSP'21](#)].
- Improved **continual learning** with GPT-2 and explored **NLU/NLG duality**: *L2KD* [[EMNLP'20](#)], and *dual inference* [[EMNLP'20](#)].
- Developed *SpeechBERT* [[Interspeech'20](#)], a joint speech-text pretrained model for spoken QA.

Selected Publications († indicates equal contribution.)

- [1] **Yung-Sung Chuang**, Yang Li, Dong Wang, Ching-Feng Yeh, Kehan Lyu, Ramya Raghavendra, James Glass, Lifei Huang, Jason Weston, Luke Zettlemoyer, Xinlei Chen, Zhuang Liu, Saining Xie, Wen-tau Yih, Shang-Wen Li, Hu Xu. “MetaCLIP 2: A Worldwide Scaling Recipe”. *arXiv 2025 (under review)*.
- [2] **Yung-Sung Chuang**, Benjamin Cohen-Wang, Shannon Shen, Zhaofeng Wu, Hu Xu, Xi Victoria Lin, James Glass, Shang-Wen Li, Wen-tau Yih. “SelfCite: Self-Supervised Alignment for Context Attribution in Large Language Models”. In *ICML 2025*.
- [3] **Yung-Sung Chuang**, Linlu Qiu, Cheng-Yu Hsieh, Ranjay Krishna, Yoon Kim, James Glass. “Lookback Lens: Detecting and Mitigating Contextual Hallucinations in Large Language Models Using Only Attention Maps”. In *EMNLP 2024*.

- [4] **Yung-Sung Chuang**, Yujia Xie, Hongyin Luo, Yoon Kim, James Glass, Pengcheng He. “DoLa: Decoding by Contrasting Layers Improves Factuality in Large Language Models”. In *ICLR 2024*.
- [5] Hongyin Luo, **Yung-Sung Chuang**, Yuan Gong, Tianhua Zhang, Yoon Kim, Xixin Wu, Danny Fox, Helen Meng, James Glass. “SAIL: Search-Augmented Instruction Learning”. In *EMNLP 2023*.
- [6] **Yung-Sung Chuang**, Wei Fang, Shang-Wen Li, Wen-tau Yih, James Glass. “Expand, Rerank, and Retrieve: Query Reranking for Open-Domain Question Answering”. In *ACL 2023*.
- [7] **Yung-Sung Chuang**, Rumen Dangovski, Hongyin Luo, Yang Zhang, Shiyu Chang, Marin Soljačić, Shang-Wen Li, Wen-tau Yih, Yoon Kim, James Glass. “DiffCSE: Difference-based Contrastive Learning for Sentence Embeddings”. In *NAACL 2022*.
- [8] Shu-wen Yang, Po-Han Chi[†], **Yung-Sung Chuang[†]**, Cheng-I Jeff Lai[†], Kushal Lakhotia[†], Yist Y. Lin[†], Andy T. Liu[†], Jiatong Shi[†], Xuankai Chang, Guan-Ting Lin, Tzu-Hsien Huang, Wei-Cheng Tseng, Ko-tik Lee, Da-Rong Liu, Zili Huang, Shuyan Dong, Shang-Wen Li, Shinji Watanabe, Abdelrahman Mohamed, Hung-Yi Lee. “SUPERB: Speech processing Universal PERFORMANCE Benchmark”. In *Interspeech 2021*.
- [9] **Yung-Sung Chuang**, Shang-Yu Su, Yun-Nung Chen. “Lifelong Language Knowledge Distillation”. In *EMNLP 2020*.
- [10] **Yung-Sung Chuang[†]**, Shang-Yu Su[†], Yun-Nung Chen. “Dual Inference for Improving Language Understanding and Generation”. In *EMNLP 2020*.
- [11] **Yung-Sung Chuang**, Chi-Liang Liu, Hung-Yi Lee, Lin-shan Lee. “SpeechBERT: An Audio-and-text Jointly Learned Language Model for End-to-end Spoken Question Answering”. In *Interspeech 2020*.

Teachings & Talks

Speaker at Embodied Intelligence Seminar 2025, MIT CSAIL

Apr. 2025

- Topic: Reducing Hallucinations in LLMs via Decoding, Detection, and Citation. [\[YouTube Link\]](#)

Teaching Assistant on Natural Language Processing 2023 Fall @ MIT

Sep. 2023 - Dec. 2023

- Worked with Prof. Jacob Andreas, Yoon Kim, and Chris Tanner. [\[Course Website\]](#)

Tutorial Speaker at AACL-IJCNLP 2022

Nov. 2022

- Co-hosted a tutorial: **Recent Advances in Pre-trained Language Models: Why Do They Work and How to Use Them** with Prof. Hung-yi Lee and Cheng-Han Chiang at AACL-IJCNLP 2022. [\[Slide Link\]](#) [\[YouTube Link\]](#)
- Introduced the topic of **Contrastive Learning for Pre-trained Language Models**.

Honors & Awards

Reviewers, NeurIPS (2021, 2022, 2023, 2024, 2025), ICLR (2021, 2022, 2023, 2024, 2025), ICML (2022, 2023, 2024, 2025), AAAI (2023), EMNLP (2022, 2023), ICASSP (2021, 2022, 2023), Interspeech (2021)

Apr. 2021 - PRESENT

Presidential Award - for top 5% students (4 times), Electrical Engineering Dept. at NTU

Spring '18, Spring '19, Fall '19, Spring '20

Irving T. Ho Memorial Scholarship (2 times), EECS at NTU

Fall '18, Fall '19

Skills

Languages Python, C++, Go, MATLAB, Shell Scripting

Libraries&Toolkits PyTorch, Huggingface Transformers, MetaCLIP, TRL, VeRL, DeepSpeed, Ray, Slurm