

Yung-Sung Chuang

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TL;DR: SUMMARY OF MY RESEARCH

Large-scale CLIP pretraining (MetaCLIP 2) [arXiv'25]; LLM post-training: self-supervised alignment (SelfCite) [ICML'25], decoding for factuality (DoLa) [ICLR'24], and detecting hallucinations (Lookback Lens) [EMNLP'24]; Retrieval-augmented LLMs (SAIL) [EMNLP'23], passage retrieval (Query Reranking) [ACL'23], and sentence embeddings (DiffCSE) [NAACL'22]; RL for VLM reasoning (in progress)

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

Spoken Language Systems Group, CSAIL, MIT, Advisor: James Glass

Sep. 2021 - PRESENT

RESEARCH ASSISTANT

- **Aligning LLMs** to generate high-quality **citations** via **self-supervision**: SelfCite [ICML'25]
- Detecting **context hallucinations** with only **attention maps**: Lookback Lens [EMNLP'24]
- Reducing **hallucinations** and improving **factuality** in **LLM decoding**: DoLa [ICLR'24]
- Improving **passage retrieval** for **open-domain QA** by **LLMs-reranked query expansions**: Query Reranking [ACL'23]
- Proposing **difference-based contrastive learning** for unsupervised sentence embedding: DiffCSE [NAACL'22]
- Building a comprehensive and reproducible benchmark for **self-supervised speech representation learning**. [Interspeech'21]

Meta, FAIR, Seattle, Advisor: Luke Zettlemoyer

May 2025 - PRESENT

RESEARCH INTERN

- Researching on **reinforcement learning** for **visual reasoning** (in progress).

Meta, FAIR, Seattle, Advisors: Hu Xu & Daniel Li & Scott Yih

May 2024 - Jan 2025

RESEARCH INTERN

- Scaling **CLIP pretraining** to multilingual web data by building **data curation** pipeline from scratch: MetaCLIP 2 [arXiv'25]
- **Aligning LLMs** to generate high-quality **citations** via **self-supervision**: SelfCite [ICML'25]

Microsoft, Redmond, Advisor: Pengcheng He

Jun. 2023 - Sep. 2023

RESEARCH INTERN

- Reducing **hallucinations** and improving **factuality** in **LLM decoding**: DoLa [ICLR'24]

Machine Intelligence and Understanding Lab, NTU, Advisor: Prof. Yun-Nung (Vivian) Chen

Feb. 2019 - Aug. 2020

UNDERGRADUATE RESEARCHER

- Proposing **knowledge distillation** to improve **continual (lifelong) learning** for language tasks: L2KD [EMNLP'20]
- Investigating **cycle consistency** and duality of **NLU** and **NLG** to improve both tasks [EMNLP'20]
- Enabling **GPT-2** to generate conclusions from medical RCT papers [LOUHI 2019@EMNLP]

Speech Processing Lab, NTU, Advisor: Prof. Hung-yi Lee & Lin-shan Lee

Aug. 2018 - Aug. 2021

UNDERGRADUATE RESEARCHER

- Investigating **non-autoregressive** speech-to-text translation with CTC [ACL'21]
- Proposing framework for **end-to-end** spoken language understanding **without ASR** [ICASSP'21]
- **Pre-training** BERT with speech-text jointly for **spoken question answering** tasks: SpeechBERT [Interspeech'20]

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.

[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, 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: <https://mit-6861.github.io/>

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