

Ting-Rui (Ray) Chiang

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Research Interests

Natural Language Processing, Machine Learning

Education

- 2022 - Now **University of Southern California**
Ph.D. of Computer Science
Advisor: Dani Yogatama
(Anticipated graduation date: May 2026)
- 2020 - 2022 **Carnegie Mellon University**
Master of Language Technology
- 2018 - 2020 **National Taiwan University**
Master of Computer Science and Information Engineering
Advisor: Yun-Nung (Vivian) Chen
- 2014 - 2018 **National Taiwan University**
Bachelor of Computer Science and Information Engineering

Working Experiences

- 2025 Research Intern at DeepMind (Host: Hao Fang & Elizabeth Clark)**
Developed a decoding algorithm that revealed how RLVR may elicit the intrinsic reasoning capabilities of base LLMs.
- 2024 Applied Scientist Intern at Amazon Seattle (Host: Kevin Small)**
Developed a reward model that encourages the informativeness of RAG systems, consistently improving the performance on three QA datasets.
- 2023 Summer Intern at Reka AI Inc. (Host: Mikel Artetxe)**
Enhanced the training pipeline of large language models.
- 2022 Applied Scientist Intern at Amazon Seattle (Host: Markus Dreyer)**
Studied the domain transferability of summarization models.

Teaching Experiences

- 2023 Teaching Assistant of CSCI-567 Machine Learning at USC
- 2022 Teaching Assistant of CS-11737 Multilingual NLP at CMU
- 2020,2019 Teaching Assistant of CSIE-5431 Applied Deep Learning at NTU
- 2017,2018 Teaching Assistant of CSIE-2311 Network/System Admin. at NTU

Publications

- Ting-Rui Chiang**, Dani Yogatama, “Pelican Soup Framework: A Theoretical Framework for Language Model Capabilities,” Findings of the Association for Computational Linguistics: EACL 2026 (EACL 2026, Findings).
- Ting-Rui Chiang**, Dani Yogatama, “The Rotary Position Embedding May Cause Dimension Inefficiency in Attention Heads for Long-Distance Retrieval,” in *Findings of the Association for Computational Linguistics: ACL 2025* (ACL 2025, Findings).

3. **Ting-Rui Chiang**, Xinyan Velocity Yu, Joshua Robinson, Ollie Liu, Isabelle G Lee, Dani Yogatama, “On Retrieval Augmentation and the Limitations of Language Model Training,” in Proceedings of the 2024 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL 2024).
4. **Ting-Rui Chiang**, Dani Yogatama, “The Distributional Hypothesis Does Not Fully Explain the Benefits of Masked Language Model Pretraining,” in *Proceedings of the 2023 Conference on Empirical Methods in Natural Language Processing* (EMNLP 2023, full paper).
5. **Ting-Rui Chiang**, “On a Benefit of Mask Language Modeling: The Robustness to Simplicity Bias,” in *Proceedings of the 3rd Conference of the Asia-Pacific Chapter of the Association for Computational Linguistics and the 13th International Joint Conference on Natural Language Processing* (IJCNLP-AAACL 2023, full paper, oral).
6. **Ting-Rui Chiang**, Yi-Pei Chen, Yi-Ting Yeh, and Graham Neubig, “Breaking Down Multilingual Machine Translation,” in *Findings of the Association for Computational Linguistics: ACL 2022* (ACL 2022, Findings, full paper).
7. Jessica Huynh, **Ting-Rui Chiang**, Jeffrey Bigham, Maxine Eskenazi, “DialCrowd 2.0: A Quality-Focused Dialog System Crowdsourcing Toolkit,” in *Proceedings of the Thirteenth Language Resources and Evaluation Conference* (LREC 2022).
8. **Ting-Rui Chiang**, and Yun-Nung Chen, “Relating Neural Text Degeneration to Exposure Bias,” in *Proceedings of the Fourth BlackboxNLP Workshop on Analyzing and Interpreting Neural Networks for NLP* (BlackboxNLP@EMNLP 2021).
9. **Ting-Rui Chiang**, and Yi-Ting Yeh, “Improving Dialogue State Tracking by Joint Slot Modeling,” in *Proceedings of the 3rd Workshop on Natural Language Processing for Conversational AI* (NLP for ConvAI@EMNLP 2021).
10. **Ting-Rui Chiang***, Yi-Ting Yeh*, Ta-Chun Chi and Yao-Shian Wang, “Are you doing what I say? On modalities alignment in ALFRED,” in *Proceedings of the 1st Workshop on Novel Ideas in Learning-to-Learn through Interaction*. (NILLI@EMNLP 2021).
11. **Ting-Rui Chiang**, Hao-Tong Ye and Yun-Nung Chen, “An Empirical Study of Content Understanding in Conversational Question Answering,” in *Proceedings of Thirty-Forth AAAI Conference on Artificial Intelligence* (AAAI 2020, full paper, oral), New York, New York, USA, 2020.
12. **Ting-Rui Chiang** and Yun-Nung Chen, “Semantically-Aligned Equation Generation for Solving and Reasoning Math Word Problems,” in *Proceedings of The 17th Annual Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies* (NAACL-HLT 2019, full paper, oral), Minneapolis, USA, June 2-7, 2019.
13. **Ting-Rui Chiang**, Chao-Wei Huang, Shang-Yu Su, Yun-Nung Chen, “Learning Multi-Level Information for Dialogue Response Selection by Highway Recurrent Transformer,” in *The 7th Dialog System Technology Challenge (DSTC7) in Proceedings of Thirty-Third AAAI Conference on Artificial Intelligence* (AAAI 2019), Honolulu, Hawaii, USA, 2019.
14. **Ting-Rui Chiang***, Chao-Wei Huang*, Shang-Yu Su, Yun-Nung Chen, “RAP-Net: Recurrent Attention Pooling Networks for Dialogue Response Selection,” in *The 7th Dialog*

System Technology Challenge (DSTC7) in Proceedings of Thirty-Third AAAI Conference on Artificial Intelligence (AAAI 2019), Honolulu, Hawaii, USA, 2019.