

# I-HUNG HSU

📍 4676 Admiralty Way #1061, Marina Del Rey, CA, USA

🌐 [github.com/ihungalexhsu](https://github.com/ihungalexhsu) ✉ [ihunghsu@usc.edu](mailto:ihunghsu@usc.edu)

🐦 IHung\_Hsu 🌐 [ihungalexhsu.github.io/](https://ihungalexhsu.github.io/)

## EDUCATION

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**University of Southern California**, Los Angeles, California, USA

*Aug. 2018 - May. 2024*

Ph.D. in Computer Science

Advised by: Dr. Premkumar Natarajan & Dr. Nanyun Peng

**National Taiwan University**, Taipei, Taiwan

*Sep. 2013 - Jan. 2018*

B.S. in Electrical Engineering

## RESEARCH INTERESTS

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**Information Extraction:** Improving model generalization on relation and event extraction

**Text Grounding:** Knowledge grounding, evidence retrieval, and verification on grounded evidences

**Multilingualism:** (Zero-shot) Cross-lingual transfer

## RESEARCH EXPERIENCE

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**University of Southern California**, CA, USA

*Aug. 2018 - May. 2024*

Graduate Student Researcher, *Advisors: Dr. Premkumar Natarajan & Dr. Nanyun Peng*

*Selected Contributions:*

- Recast event extraction as **language generation** tasks, enhancing the capture of event structures, leveraging dependencies among predictions, and enabling generalization in **zero/few-shot** and **cross-lingual** scenarios.
- Enhanced the generation-based event extraction model by incorporating cross-domain robust graphical features via **prefix learning**, thus improving generalization in low-resource settings.
- Developed a **multi-hop evidence retrieval** method to advance cross-document relation extraction.
- Introduced **unified frameworks** to facilitate cross-task learning and accelerate **indirect supervision** in weakly supervised information extraction.

**University of California, Los Angeles**, CA, USA

*Sep. 2020 - May. 2024*

Visiting Student Researcher, *Advisor: Dr. Nanyun Peng*

*Selected Contributions:*

- Developed an advanced methodology that exploits **cross-lingual capabilities from large language models** (LLMs), resulting in improved performance for zero-shot cross-lingual structure prediction tasks.
- Proposed event-argument-aware techniques for **generating high-quality out-of-knowledge-base event linking query examples using LLMs**, improving model performance for event linking (the process of **grounding** event mentions with knowledge base entries).

**Google Cloud AI Research**, CA, USA

*Sep. 2023 - Mar. 2024*

Research Intern, *Managers: Dr. Chen-Yu Lee & Dr. Chun-Liang Li*

- Proposed an unsupervised **verification** algorithm for **grounded generation** using **LLMs**.
- Studies **retrieval-augmented generation** behaviors of language models (LMs) from different LM series, including Yi, Vicuna, Llama, WizardLM, Tulu, etc.
- Paper accepted to ACL 2024 as a finding paper.

**Microsoft Research**, WA, USA

*May. 2023 - Aug. 2023*

Research Intern, *Manager: Dr. Silviu Cucerzan; Mentor: Dr. Sujay Jauhar*

- Investigated the ability of LLMs to answer open-domain questions with **emerging factual knowledge**.

**Alexa Conversations at Amazon Alexa AI**, CA, USA

May. 2022 - Aug. 2022

Applied Scientist Intern, *Managers: Dr. Avik Ray & Dr. Jing Huang*

- Generalized **code-switched** text synthesis to multiple language pairs.
- Paper accepted to ACL 2023 as a finding paper.

**Alexa Conversations at Amazon Alexa AI**, CA, USA

May. 2020 - Aug. 2020

Applied Scientist Intern, *Manager: Dr. Abhay Jha*

- Leveraged negative learning mechanism to improve conversational agents.

**National Taiwan University**, Taipei, Taiwan

Sep. 2016 - Dec. 2017

Undergraduate Student Researcher, *Advisor: Dr. Hung-Yi Lee*

- Mitigated automatic speech recognition errors in dialogue systems.

## PUBLICATIONS

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- [18] **I-Hung Hsu**, Zifeng Wang, Long Le, Lesly Miculicich, Nanyun Peng, Chen-Yu Lee, Tomas Pfister. CaLM: Contrasting Large and Small Language Models to Verify Grounded Generation. In *Findings of the Association for Computational Linguistics: ACL (ACL-findings)*, 2024.
- [17] **I-Hung Hsu\***, Zihan Xue\*, Nilay Pochhi, Sahil Bansal, Premkumar Natarajan, Jayanth Srinivasa, Nanyun Peng. Argument-Aware Approach To Event Linking. In *Findings of the Association for Computational Linguistics: ACL (ACL-findings)*, 2024.
- [16] Kuan-Hao Huang, **I-Hung Hsu**, Tanmay Parekh, Zhiyu Xie, Zixuan Zhang, Premkumar Natarajan, Kai-Wei Chang, Nanyun Peng, Heng Ji. TextEE: Benchmark, Reevaluation, Reflections, and Future Challenges in Event Extraction. In *Findings of the Association for Computational Linguistics: ACL (ACL-findings)*, 2024.
- [15] Tanmay Parekh, **I-Hung Hsu**, Kuan-Hao Huang, Kai-Wei Chang, Nanyun Peng. Contextual Label Projection for Cross-Lingual Structure Extraction. In *Proceedings of the 2024 Annual Conference of the North American Chapter of the Association for Computational Linguistics (NAACL-HLT)*, 2024.
- [14] **I-Hung Hsu\***, Zhiyu Xie\*, Kuan-Hao Huang, Premkumar Natarajan, Nanyun Peng. AMPERE: AMR-Aware Prefix for Generation-Based Event Argument Extraction Model. In *Proceedings of the 61st Annual Meeting of the Association for Computational Linguistics (ACL)*, 2023.
- [13] **I-Hung Hsu\***, Kuan-Hao Huang\*, Shuning Zhang, Wenxin Cheng, Premkumar Natarajan, Kai-Wei Chang, Nanyun Peng. TAGPRIME: A Unified Framework for Relational Structure Extraction. In *Proceedings of the 61st Annual Meeting of the Association for Computational Linguistics (ACL)*, 2023. [Oral.]
- [12] Kuan-Hao Huang, Varun Iyer, **I-Hung Hsu**, Anoop Kumar, Kai-Wei Chang, Aram Galstyan. ParaAMR: A Large-Scale Syntactically Diverse Paraphrase Dataset by AMR Back-Translation. In *Proceedings of the 61st Annual Meeting of the Association for Computational Linguistics (ACL)*, 2023. [Area Chair Awards.]
- [11] Tanmay Parekh, **I-Hung Hsu**, Kuan-Hao Huang, Kai-Wei Chang, Nanyun Peng. GENEVA: Benchmarking Generalizability for Event Argument Extraction with Hundreds of Event Types and Argument Roles. In *Proceedings of the 61st Annual Meeting of the Association for Computational Linguistics (ACL)*, 2023.
- [10] Keming Lu, **I-Hung Hsu**, Wenxuan Zhou, Minyu Derek Ma, Muhao Chen. Multi-hop Evidence Retrieval for Cross-document Relation Extraction. In *Findings of the Association for Computational Linguistics: ACL (ACL-findings)*, 2023.
- [9] **I-Hung Hsu**, Avik Ray, Shubham Garg, Nanyun Peng, Jing Huang. Code-Switched Text Synthesis in Unseen Language Pairs. In *Findings of the Association for Computational Linguistics: ACL (ACL-findings)*, 2023.
- [8] Keming Lu, **I-Hung Hsu**, Wenxuan Zhou, Minyu Derek Ma, Muhao Chen. Summarization as Indirect Supervision for Relation Extraction. In *Findings of the Association for Computational Linguistics: EMNLP (EMNLP-findings)*, 2022.

- [7] **I-Hung Hsu\***, Kuan-Hao Huang\*, Elizabeth Boschee, Scott Miller, Premkumar Natarajan, Kai-Wei Chang, Nanyun Peng. DEGREE: A Data-Efficient Generation-Based Event Extraction Model. In *Proceedings of the 2022 Annual Conference of the North American Chapter of the Association for Computational Linguistics (NAACL-HLT)*, 2022. [Oral.]
- [6] Kuan-Hao Huang\*, **I-Hung Hsu\***, Premkumar Natarajan, Kai-Wei Chang, Nanyun Peng. Multilingual Generative Language Models for Zero-Shot Cross-Lingual Event Argument Extraction. In *Proceedings of the 60th Annual Meeting of the Association for Computational Linguistics (ACL)*, 2022. [Oral.]
- [5] **I-Hung Hsu**, Xiao Guo, Premkumar Natarajan, Nanyun Peng. Discourse-level Relation Extraction via Graph Pooling. In *The Thirty-Sixth AAAI Conference on Artificial Intelligence Workshop on Deep Learning on Graphs: Methods and Applications (DLG-AAAI'22)*, 2022. [[Best Paper Award.](#)]
- [4] Rujun Han, **I-Hung Hsu**, Jiao Sun, Julia Baylon, Qiang Ning, Dan Roth, Nanyun Peng. ESTER: A Machine Reading Comprehension Dataset for Reasoning about Event Semantic Relations. In *Proceedings of the 2021 Conference on Empirical Methods in Natural Language Processing (EMNLP)*, 2021. [Oral.]
- [3] Rujun Han\*, **I-Hung Hsu\***, Mu Yang, Aram Galstyan, Ralph Weischedel, Nanyun Peng. Deep Structured Neural Network for Event Temporal Relation Extraction. In *Proceedings of the 23rd Conference on Computational Natural Language Learning (CoNLL)*, 2019.
- [2] **I-Hung Hsu**, Ayush Jaiswal, Premkumar Natarajan. NIESR: Nuisance Invariant End-to-end Speech Recognition. In *Proceedings of Interspeech (Interspeech)*, 2019.
- [1] Pin-Jung Chen\*, **I-Hung Hsu\***, Yi-Yao Huang\*, Hung-Yi Lee. Mitigating the Impact of Speech Recognition Errors on Chatbot using Sequence-to-sequence Model. In *Proceedings of IEEE Automatic Speech Recognition and Understanding (ASRU)*, 2017.

(\*: Equal Contribution)

## SELECTED AWARDS

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**Area Chair Award in ACL 2023** [[Link](#)]

– One out of papers in the track of Semantics: Sentence-level Semantics and Textual Inference. 2023

**Best Paper Award in DLG-AAAI'22 Workshop** [[Link](#)] 2022

**Amazon Alexa Graduate Fellowship** [[Link](#)] 2018 - 2019

## PROFESSIONAL SERVICES

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### Area Chair/Action Editor

- Natural Language Processing: ACL Rolling Review (2024)

### Program Committee/Reviewer

- Natural Language Processing: COLM (2024), ACL Rolling Review (2021-2023), ACL (2021-2023), EMNLP (2021-2023), NAACL (2022-2024), EACL (2023-2024), NLPCC (2022-2023)
- Machine Learning: AAAI (2021-2025), AISTATS (2024), Neurips (2024)
- Journal: TKDE (2024)
- Miscs: CogSci (2023-2024), Transfer Learning for NLP workshop@NeurIPS (2022), RCQA@AAAI (2020)

## TEACHING EXPERIENCE

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**Teaching Assistant**, University of Southern California, CA, USA

- CSCI 567: Machine Learning Fall 2022
- CSCI 544: Applied Natural Language Processing Fall 2021

**Teaching Assistant**, National Taiwan University, Taipei, Taiwan

**SKILLS**

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<b>Programming:</b>	Python, PyTorch, Tensorflow, Keras, MySQL, Django, Docker, Git, L <sup>A</sup> T <sub>E</sub> X, C++, Matlab
<b>Languages:</b>	Mandarin (native), English (fluent), Taiwanese (fluent)