

Isabelle Lee

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Research Interests

Interpretability, (Pre-)Training Dynamics, Training Methods, Emergence, Reasoning.

Education

Ph.D., Computer Science, University of Southern California Area: Natural Language Processing, Machine Learning Advisor: Dani Yogatama	2023 -
M.S., Aeronautics and Astronautics, University of Washington	2017
B.S., Physics and Math, College of William & Mary	2014

Employment

Research Engineer Language Technologies Institute, Carnegie Mellon University	2021 - 2023
Research Scientist Amazon Alexa, Natural Language Understanding	2018 - 2021

Publications

Google Scholar: <https://scholar.google.com/citations?user=yg2UZjwAAAAJ>
Semantic Scholar: <https://www.semanticscholar.org/author/Isabelle-G.-Lee/50044788>

** denotes equal contributions.*

Preprints

2024 [1] (Pre-)training Dynamics: Scaling Generalization with First-Order Logic. **Isabelle Lee**, Daanish Shabbir, Nina Panickssery, Dani Yogatama. Under review.

Conference Publications

2024 [6] Self-contradictory reasoning evaluation and detection. Ziyi Liu, Soumya Sanyal, **Isabelle Lee**, Yongkang Du, Rahul Gupta, Yang Liu, Jieyu Zhao. Findings of EMNLP 2024.

- 2024 [5] On Retrieval Augmentation and the Limitations of Language Model Training. Ting-Rui Chiang, Xinyan Velocity Yu, Joshua Robinson, Ollie Liu, **Isabelle Lee**, Dani Yogatama. NAACL 2024.
- 2021 [4] GupShup: An Annotated Corpus for Abstractive Summarization of Open-Domain Code-Switched Conversations. Mehnaz, Laiba*, Debanjan Mahata*, Rakesh Gosangi*, Uma Sushmitha Gunturi*, Riya Jain, Gauri Gupta, Amardeep Kumar, **Isabelle Lee**, Anish Acharya, and Rajiv Ratn Shah. EMNLP, 2021.
- 2020 [3] Converting the Point of View of Messages Spoken to Virtual Assistants. **Isabelle Lee**, Vera Zu, S. Buddi, D. Liang and Jack G. M. FitzGerald. Findings of EMNLP, 2020.
- 2013 [2] Feshbach Resonances in Ultracold Atoms. **Isabelle Lee**. American Physical Society, 2013.
- 2013 [1] Minimal ad-hoc screening coefficient from RMP x-point lobe structures in MAST. **Isabelle Lee**, Saskia Mordijck, Andrew Kirk, James Harrison. American Physical Society, 2013.

Symposia and Workshops

- 2024 [3] Causal Interventions on Causal Paths: Mapping GPT-2's Reasoning From Syntax to Semantics. **Isabelle Lee**, Joshua Lum, Ziyi Liu, Dani Yogatama. To appear at C \heartsuit LM: First Workshop on Causality and Large Models at NeurIPS 2024.
- 2023 [2] Does LLM reasoning support prediction? A case study on self-contradictory reasoning. Ziyi Liu, Yongkang Du, **Isabelle Lee**, Soumya Sanyal, Jieyu Zhao. SoCal NLP 2023.
- 2020 [1] Converting the Point of View of Messages Spoken to Virtual Assistants. **Isabelle Lee**. First Workshop on Computational Approaches to Discourse at EMNLP 2020.

Awards & Honors

- 2023 - 2027 Viterbi School of Engineering Fellowship
- 2014 - 2015 Theodore and Marie Sarchin Endowed Fellowship
- 2013 SUNY Stony Brook Research Travel Grant
- 2013 William & Mary Student Leadership Travel Grant

Academic Service

Reviewer/Program Committee

Main Conferences

ICLR 2025

Workshops

HiLD: High-dimensional Learning Dynamics Workshop (ICML 2024)

Community Organizing

Organizer at Fatima Fellowship 2024 -

Teaching

Teaching Assistant

Machine Learning (Graduate, USC)
Engineering Statics (Undergraduate, UW)

Fall 2024
2014 - 2015

Research Mentorship

Sarah Liaw, Caltech Undergraduate
Joshua Lum, USC Undergraduate

2024 -
2024 -

Skills

Programming Languages

Proficient in: Python, Matlab, Fortran
Familiar with: Java, C++

Tools

ML: PyTorch, TensorFlow, JAX
Deployment: AWS, Docker
Database: SQL, MongoDB, LMDB
General: Bash

Languages

English (bilingual), Korean (bilingual),
Spanish (intermediate), German (intermediate)