

Peter Hase

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EDUCATION

The University of North Carolina at Chapel Hill

Fifth-year PhD student in Computer Science

Research Area: Interpretable ML and NLP | Advisor: [Mohit Bansal](#)

Fall 2019 – Present

Chapel Hill, NC

Duke University

BS in Statistical Science | Minor in Mathematics

Fall 2015 – Spring 2019

Durham, NC

RESEARCH INTERESTS

Interpretable machine learning, language models, AI safety, model editing, mechanistic interpretability, multi-agent communication, algorithmic recourse

PUBLICATIONS

[Google Scholar](#): citations = 724. h-index = 10. i10-index = 12

Can Sensitive Information Be Deleted From LLMs? Objectives for Defending Against Extraction Attacks

Vaidehi Patel,* Peter Hase,* Mohit Bansal

Preprint on arXiv. [\[pdf\]](#) [\[code\]](#)

Open Problems and Fundamental Limitations of Reinforcement Learning from Human Feedback

Stephen Casper, Xander Davies, and 30 others including Peter Hase

Preprint on arXiv. [\[pdf\]](#)

Can Language Models Teach Weaker Agents? Teacher Explanations Improve Students via Theory of Mind

Swarnadeep Saha, Peter Hase, Mohit Bansal

NeurIPS 2023. [\[pdf\]](#) [\[code\]](#)

Adaptive Contextual Perception: How to Generalize to New Backgrounds and Ambiguous Objects

Zhuofan Ying, Peter Hase, Mohit Bansal

NeurIPS 2023. [\[pdf\]](#) [\[code\]](#)

Does Localization Inform Editing? Surprising Differences in Causality-Based Localization vs. Knowledge Editing in Language Models

Peter Hase, Mohit Bansal, Been Kim, Asma Ghandeharioun

NeurIPS 2023 (Spotlight). [\[pdf\]](#) [\[code\]](#)

Summarization Programs: Interpretable Abstractive Summarization with Neural Modular Trees

Swarnadeep Saha, Shiyue Zhang, Peter Hase, Mohit Bansal

ICLR 2023. [\[pdf\]](#) [\[code\]](#)

Do Language Models Have Beliefs? Methods for Detecting, Updating, and Visualizing Model Beliefs

Peter Hase, Mona Diab, Asli Celikyilmaz, Xian Li, Zornitsa Kozareva, Veselin Stoyanov, Mohit Bansal, Srinivasan Iyer

EACL 2023. [\[pdf\]](#) [\[code\]](#)

GRIPS: Gradient-free, Edit-based Instruction Search for Prompting Large Language Models

Archiki Prasad, Peter Hase, Xiang Zhou, Mohit Bansal

EACL 2023. [\[pdf\]](#) [\[code\]](#)

Are Hard Examples Also Harder to Explain? A Study with Human and Model-Generated Explanations

Swarnadeep Saha, Peter Hase, Nazneen Rajani, Mohit Bansal
EMNLP 2022. [[pdf](#)] [[code](#)]

VisFIS: Visual Feature Importance Supervision with Right-for-the-Right-Reason Objectives

Zhuofan Ying,* Peter Hase,* Mohit Bansal
NeurIPS 2022. [[pdf](#)] [[code](#)]

When Can Models Learn From Explanations? A Formal Framework for Understanding the Roles of Explanation Data

Peter Hase, Mohit Bansal
ACL 2022 Workshop on Natural Language Supervision. [[pdf v2](#)] [[pdf v1](#)] [[code](#)]

Low-Cost Algorithmic Recourse for Users with Uncertain Cost Functions

Prateek Yadav, Peter Hase, Mohit Bansal
Preprint on arXiv. [[pdf](#)] [[code](#)]

The Out-of-Distribution Problem in Explainability and Search Methods for Feature Importance Explanations

Peter Hase, Harry Xie, Mohit Bansal
NeurIPS 2021. [[pdf](#)] [[code](#)]

FastIF: Scalable Influence Functions for Efficient Model Interpretation and Debugging

Han Guo, Nazneen Fatema Rajani, Peter Hase, Mohit Bansal, Caiming Xiong
EMNLP 2021. [[pdf](#)] [[code](#)]

Leakage-Adjusted Simulatability: Can Models Generate Non-Trivial Explanations of Their Behavior in Natural Language?

Peter Hase, Shiyue Zhang, Harry Xie, Mohit Bansal
Findings of EMNLP 2020. [[pdf](#)] [[code](#)]

Evaluating Explainable AI: Which Algorithmic Explanations Help Users Predict Model Behavior?

Peter Hase, Mohit Bansal
ACL 2020. [[pdf](#)] [[code](#)]

Interpretable Image Recognition with Hierarchical Prototypes

Peter Hase, Chaofan Chen, Oscar Li, Cynthia Rudin
AAAI-HCOMP 2019. [[pdf](#)] [[code](#)]

Shall I Compare Thee to a Machine-Written Sonnet? An Approach to Algorithmic Sonnet Generation

John Benhardt, Peter Hase, Liuyi Zhu, Cynthia Rudin
Preprint on arXiv. [[pdf](#)] [[code](#)]

AWARDS

Outstanding Area Chair (ACL 2023), Association for Computational Linguistics 2023
Recognition for metareviews for the ACL 2023 conference, “comparable in scope to the best paper awards policy (1-1.5% of the pool of reviewers and chairs)”

Google PhD Fellowship (Natural Language Processing), Google 2021
Fellowship awarded to six students globally for research in Natural Language Processing, providing up to three years of full funding

Royster PhD Fellowship, UNC Chapel Hill 2019
University fellowship awarded to one student in the 2019 cohort of UNC Chapel Hill computer science students, providing three years of full funding

First Prize in the PoetiX Literary Turing Test, Neukom Institute, Dartmouth College 2018
 Awarded to the top submission in an open competition for algorithmic sonnet generation hosted by Dartmouth's Neukom Institute

Nomination for Undergrad TA of the Year, Dept. of Statistical Science, Duke University 2018
 One of five undergrad nominations from faculty for the department's TA of the year award

A.J. Tannenbaum Trinity Scholarship, Duke University 2015
 A full academic merit scholarship awarded to one student from Guilford County, NC

INVITED TALKS

Brown University Spring 2023
 "Interpretable and Controllable Language Models" [[slides](#)]

Princeton University Spring 2023
 "Interpretable and Controllable Language Models" [[slides](#)]

New York University Spring 2023
 "Interpretable and Controllable Language Models" [[slides](#)]

University of Pennsylvania Spring 2023
 "Interpretable and Controllable Language Models" [[slides](#)]

University of Oxford Spring 2022
 "Explainable Machine Learning in NLP: Methods and Evaluation" [[slides](#)]

NEC Laboratories Europe Spring 2022
 "Explainable Machine Learning in NLP: Methods and Evaluation" [[slides](#)]

National Institute for Standards and Technology (NIST) Spring 2022
 "Evaluating Explainable AI: Which Algorithmic Explanations Help Users Predict Model Behavior?" [[slides](#)]

Allen Institute for AI Spring 2022
 "Do Language Models Have Beliefs? Methods for Detecting, Updating, and Visualizing Model Beliefs?" [[slides](#)]

Uber AI Spring 2022
 "The Out-of-Distribution Problem in Explainability and Search Methods for Feature Importance Explanations" [[slides](#)]

Center for Human Compatible AI, UC Berkeley Fall 2021
 "Evaluating Explainable AI: Which Algorithmic Explanations Help Users Predict Model Behavior?" [[slides](#)]

RESEARCH INTERNSHIPS

Allen Institute for AI Summer 2023
 Research Intern | *Supervisors:* Drs. Sarah Wiegrefe and Peter Clark Seattle, WA
 • Studying topics at the intersection of interpretability and large language models

Google Research Summer 2022
 Student Researcher | *Supervisors:* Drs. Asma Ghandeharioun and Been Kim New York, NY
 • Studied methods for localizing knowledge in large language models
 • Produced paper: "Does Localization Inform Editing? Surprising Differences in Causality-Based Localization vs. Knowledge Editing in Language Models"

Meta AI Research*Summer 2021*Research Intern | *Supervisor:* Dr. Srinivasan Iyer*Seattle, WA*

- Studied methods for detecting and updating knowledge in language models
- Produced paper: “Do Language Models Have Beliefs? Methods for Detecting, Updating, and Visualizing Model Beliefs”

**PROFESSIONAL
SERVICE****Program Committees***Summer 2020 – Present*

Area Chair

- EACL 2024 - Interpretability and Analysis of Models for NLP
- ACL 2023 - Interpretability and Analysis of Models for NLP
(*Outstanding Area Chair*)
- AAAI 2023 Workshop on Representation Learning for Responsible Human-Centric AI
(*Top Area Chair*)
- EMNLP 2022 - Interpretability, Interactivity and Analysis of Models for NLP

Reviewer

- ICLR 2024
- AAAI 2024
- ACL Rolling Review, August 2023
- EMNLP 2023
- NeurIPS 2023
- CVPR XAI4CV Workshop 2023
- AAAI 2023
- ACL Rolling Review, October 2022
- ACL Rolling Review, February 2022
- ACL Rolling Review, January 2022
- EMNLP 2022
- ACL Rolling Review, December 2021
- ACL Rolling Review, October 2021
- ACL Rolling Review, September 2021
- NeurIPS DistShift Workshop 2021
- EMNLP BlackboxNLP Workshop 2021
- EMNLP 2021
- ACL-IJCNLP 2021 (*Outstanding Reviewer*)
- ICLR RobustML Workshop 2021
- NAACL-HLT 2021
- EACL 2021
- EMNLP 2020 (*Outstanding Reviewer*)

TEACHING

Probabilistic Machine Learning (Graduate), Teaching Assistant
Dept. of Statistical Science, Duke University

Spring 2019

Intro to AI, Teaching Assistant
Dept. of Computer Science, Duke University

Spring 2019

Elements of Machine Learning, Teaching Assistant
Dept. of Computer Science, Duke University

Fall 2018

Intro to Data Science, Teaching Assistant
Dept. of Statistical Science, Duke University

Spring 2018

LEADERSHIP

Research Mentoring

Spring 2020 – Summer 2023

- Mentored Zhuofan Ying, now a PhD student at Columbia, on two projects published in NeurIPS
- Mentored Harry Xie, now a PhD student at CMU, on two projects published in Findings of EMNLP and NeurIPS

Computer Science Student Association

Summer 2020 – Summer 2022

Officer

Chapel Hill, NC

- Organized social events for grad students including tea times, bar nights, and shared meals
- Observed faculty teaching to provide feedback in tenure review
- Recorded meeting minutes for CS faculty meetings to share with graduate students

Startup Technical Advising

Fall 2019 – Fall 2021

- curalens.ai: advised Curalens on text generation strategies for a therapeutic chat-bot (note: Curalens also advised by domain experts)
- [Acta](#): advised Acta on approaches to automatically summarizing crowdsourced constituent feedback for efficient communication to local governments

Effective Altruism: Duke

Spring 2016 – Spring 2019

Co-President

Durham, NC

- Moderated weekly discussions related to Effective Altruism, the social movement centered on maximizing the good you can do for the world
- Recorded over 15 Giving What We Can pledges (10% of all future income) in pledge drives and over 30 One For the World pledges (1% of future income)
- Organized lectures and reading groups on AI safety for Duke and UNC Chapel Hill students
- Led club from 9 to 30+ active members over my tenure as Co-President