

HAN LIU

🌐 <https://HanLiuAI.github.io>

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RESEARCH INTERESTS

My research focuses on Human-AI collaboration in decision making tasks. Using techniques in the field of explainable AI and machine teaching, I study how to use AI to empower humans and how humans can learn from AI.

EDUCATION

The University of Chicago

September 2020 - Present

Ph.D. student in Computer Science

Advisor: Prof. Chenhao Tan

University of Colorado Boulder (transferred out)

August 2019 - July 2020

Ph.D. student in Computer Science

Advisor: Prof. Chenhao Tan

Washington University in St. Louis

August 2015 - May 2019

B.A. in Mathematics, Computer Science

Minor in Linguistics

RESERACH EXPERIENCE

Chicago Human+AI Lab

August 2019 - Present

Research Assistant (Advisor: Prof. Chenhao Tan)

Chicago, IL

- Designing protocols for human-AI collaboration and building AI-driven tutorials for the training of radiology residents on medical image classification.
- Exploring state-of-the-art machine teaching algorithm and data summarization techniques to design example selection algorithms for AI-driven tutorials.
- Designing and building interactive interface for radiologists and trainees to annotate or study important examples selected in AI-driven tutorials.

NLP+CSS Lab

August 2019 - August 2020

Research Assistant (Advisor: Prof. Chenhao Tan)

Boulder, CO

- Studied how human and AI collaborate under the effect of distribution shift in various decision making tasks such as deceptive review detection, profession classification, and recidivism prediction.
- Designed interactive interface for different types of explanations of machine learning models.
- Conducted large-scale human experiments and ran analysis to study how humans behave with different data distributions and different model explanations in decision making tasks.

PUBLICATIONS

Understanding the Effect of Out-of-distribution Examples and Interactive Explanations on Human-AI Decision Making

Han Liu, Vivian Lai and Chenhao Tan. *In Proceedings of the ACM on Human-Computer Interaction, Volume 5, Issue CSCW2 (CSCW 2021)*.

“Why is ‘Chicago’ deceptive?” Towards Building Model-Driven Tutorials for Humans

Vivian Lai, **Han Liu**, and Chenhao Tan. *In Proceedings of the 2020 ACM CHI Conference on Human Factors in Computing Systems (CHI 2020)*.

Morphology Matters: A Multilingual Language Modeling Analysis

Hyunji Hayley Park, Katherine J. Zhang, Coleman Haley, Kenneth Steimel, **Han Liu**, Lane Schwartz
Transactions of the Association for Computational Linguistics, 9. (TACL 2021)

Neural Polysynthetic Language Modelling (Technical Report)

Lane Schwartz, Francis Tyers, Lori Levin, Christo Kirov, Patrick Littell, Chi-kiu Lo, Emily Prud'hommeaux, Hyunji Hayley Park, Kenneth Steimel, Rebecca Knowles, Jeffrey Micher, Lonny Strunk, **Han Liu**, Coleman Haley, Katherine J. Zhang, Robbie Jimmerson, Vasilisa Andriyanets, Aldrian Obaja Muis, Naoki Otani, Jong Hyuk Park, and Zhisong Zhang. *Final report of the Sixth Frederick Jelinek Memorial Summer Workshop*. *arXiv preprint arXiv:2005.05477*.

Quantifying the polymerization dynamics of plant cortical microtubules using kymograph analysis

Benjamin Zhou, **Han Liu**, Tao Ju, and Ram Dixit. *Methods in Cell Biology*, 160. (2020)

TEACHING EXPERIENCE

Teaching assistant for the following courses:

CMSC 15200: Introduction to Computer Science II (UChicago, Fall 2020)

CSCI 5622: Machine Learning (CU Boulder, Fall 2019)

CSE 559A: Computer Vision (WUSTL, Fall 2018)

CSE 511A: Introduction to Artificial Intelligence (WUSTL, Fall 2018)

CSE 247: Data Structures and Algorithms (WUSTL, Fall 2017)

AWARDS

NAACL Scholarship for The Undergraduate Summer School at The 2019 Annual Jelinek Memorial Workshop On Speech And Language Technology (JSALT) Top 12.5%, Summer 2019

TECHNICAL SKILLS

Programming: Python(6 years), R(3 years), Java, C/C++, MATLAB

Software & Package: PyTorch, TensorFlow, Scikit-learn, NumPy, Pandas