Hailey Joren

Curriculum Vitae — February 2025
haileyjoren.github.io
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Education

University of California San Diego 2021 – Present
Ph.D. Candidate in Computer Science GPA: 4.0/4.0
Advisor: Berk Ustun
Awards & Leadership: Graduate Fellowship for STEM Diversity; Graduate Women in Computing Mentorship Director; Teaching Assistant for CSE258

Harvard University May 2019
B.A. in Computer Science, Cum Laude in Field Major GPA: 3.8/4.0
Awards & Honors: United States Presidential Scholar (2013), Patel Teaching Fellow Award (2018), Horatio Alger State Scholarship (2013-2019), Bill and Melinda Gates Foundation Scholarship (2013)

Research Interests

Areas: Deep Learning, Optimization, Generative Modeling
Topics: Uncertainty Quantification, Interpretability, Human-Interactive Systems, Alignment
Domains: Healthcare, Finance, Physical Sciences

Work Experience

Meta GenAI Dec 2024 –
AI Research Intern
Researching methods for uncertainty, intervention, and interpretability in foundation models for multimodal generation
Related Topics: Text-to-Image (T2I), Uncertainty Quantification, Diffusion Models, Foundation Models, Multimodal Generative Models,

Google Research July 2024 – Dec 2024
Student Researcher
Investigated retrieval augmented generation (RAG) systems and developed autorater for classifying sufficient context. Proposed method productionized as the default reranker setting for Vertex AI
Related Topics: Large Language Models (LLMs), Natural Language Processing (NLP), Retrieval Augmented Generation (RAG), Uncertainty Quantification, Web-scale Information Retrieval

X May 2021 – Oct 2021
Machine Learning Research Engineer, User Modeling
Developed a personalized value-scoring model for improving recommendation interpretability. Investigated methods for deep learning on social graphs.
Related Topics: Deep learning, Intepretability, Influence Graphs

Publications

Google Scholar

1. Sufficient Context: A New Lens on Retrieval Augmented Generation Systems
   Hailey Joren, Jianyi Zhang, Chun-Sung Ferng, Da-Cheng Juan, Ankur Taly, Cyrus Rashtchian
   ICLR – *International Conference on Learning Representations*, 2025
2. Classification with Conceptual Safeguards
   Hailey Joren, Charles T. Marx, Berk Ustun
   ICLR – *International Conference on Learning Representations*, 2024
   Top 10% among submissions
3. Participatory Personalization in Classification
   Hailey Joren, Chirag Nagpal, Katherine Heller, Berk Ustun
   NeurIPS Spotlight – *Neural Information Processing Systems*, 2023

4. DYffusion: A Dynamics-informed Diffusion Model for Spatiotemporal Forecasting
   Salva Rühling Cachay, Bo Zhao, **Hailey Joren**, Rose Yu
   NeurIPS – *Neural Information Processing Systems*, 2023
5. Learning Document Graphs with Attention for Image Manipulation Detection
   Hailey Joren, Otkrist Gupta, Dan Raviv
   ICPRAI – *International Conference on Pattern Recognition and Artificial Intelligence*, 2022
6. MRZ code extraction from visa and passport documents using convolutional neural networks
   Yichuan Liu, **Hailey Joren**, Otkrist Gupta, Dan Raviv
   IJDAR – *International Journal on Document Analysis and Recognition*, 2022
7. Printing and Scanning Investigation for Image Counter Forensics
   Hailey Joren, Otkrist Gupta, Dan Raviv
   EURASIP – *Journal on Image and Video Processing*, 2021

Workshop Papers

1. Participatory Personalization for Personalized Prediction
   Hailey Joren, Chirag Nagpal, Katherine Heller, Berk Ustun
   NeurIPS – *Workshop on Participatory Approaches to AI for Mental Health Workshop*, 2023
   Selected for Oral Presentation
2. Probabilistic Bias Mitigation in Word Embeddings
   Hailey Joren, David Alvarez-Melis
   NeurIPS – *Workshop on Human-Centric Machine Learning*, 2019

Teaching Experience

Teaching Assistant 2023 – Ongoing
University of California San Diego, Harvard University
CSE258: Recommendation Systems and Web Mining for Professor Julian McAuley
Patel Teaching Fellow CS51: Functional Programming for Professor Stuart Shieber

Lecturer and Teaching Assistant 2019
AddisCoder
Created curriculum, gave lectures, and worked individually with students in summer computer science course for 180 top Ethiopian high school students
Led 40 teaching assistants in course planning, curriculum development, and student instruction

Academic Service

Mentorship Director 2023 - 2024
UCSD Graduate Women in Computing
Running mentorship program with over 150 participants, matching experienced students to incoming students from underrepresented backgrounds
Serving on the GradWIC (Graduate Women in Computing) board for 2023-2024

Conference Reviewer 2022 - Ongoing
ICLR 2025, NeurIPS 2023, NeurIPS 2022

Personal

Citizenship: Canada and United States
Languages: Fluent in English and French
Software: Proficient in Python, PyTorch, Tensorflow, & Git
Interests: Open-Water Swimming, Cycling, Triathlon, and Urban Gardening