Hailey Joren

Curriculum Vitae — October 2023

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EDUCATION

University of California San Diego   2020 – Present
Ph.D. in Computer Science   GPA: 4.0/4.0
Advisor: Berk Ustun
Research Topics: Interpretability, Uncertainty Quantification, Generative Modeling
Awards & Honors: Graduate Fellowship for STEM Diversity (2021)

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 Fellowship (2018), John. V. Kelleher Book Prize (2019), Horatio Alger State Scholarship (2013-2019), Bill and Melinda Gates Foundation Scholarship (2013-2019), Oracle Computing Research Scholarship (2017),

WORK EXPERIENCE

Twitter Cortex   May 2021 – Oct 2021
Machine Learning Research Engineer, User Modeling
Developed a scalable personalized value scoring pipeline for user recommendations using Python, BigQuery, and GCP
Investigated social graph properties using large deep neural networks
Curated and cleaned large datasets (10B+ samples)

Lendbuzz   Oct 2019 – May 2021
Machine Learning Engineer
Developed and deployed computer vision models for detecting manipulations in digital documents using Pytorch, and Tensorflow, improving upon current state-of-the-art methods
Explored methods for explainability in risk-score approximation models

Meta   Jun 2018 – Sep 2018
Software Engineering Intern
Built reviewing interface for human reviewers to measure model performance Investigated content moderation for financial fraud and scam using human-AI cooperation

PUBLICATIONS

[Google Scholar]

1. Participatory Personalization in Classification
   Hailey Joren, Chirag Nagpal, Katherine Heller, Berk Ustun
   NeurIPS, 2023
   Spotlight – Top 10% of Accepted Papers

2. DYffusion: A Dynamics-informed Diffusion Model for Spatiotemporal Forecasting
   Salva Rühling Cachay, Bo Zhao, **Hailey Joren**, Rose Yu
   NeurIPS, 2023

3. Classification with Conceptual Safeguards
   Hailey Joren, Charles T. Marx, Berk Ustun
   Preprint, 2024

4. Probabilistic Bias Mitigation in Word Embeddings
   Hailey Joren, David Alvarez-Melis
   NeurIPS Workshop on Human–Centric Machine Learning, 2019

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

TEACHING EXPERIENCE

AddisCoder   2019

Lecturer and Teaching Assistant

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

Was promoted to lecturer part-way through the program

Harvard Patel Fellow   2018

Teaching Fellowship

Led teaching staff in implementing pedagogical practices to support students of diverse backgrounds

Taught functional programming to students in individual and small-group sessions 5-7 days per week

Employed data management practices to track student progress and validate pedagogical choices

LEADERSHIP & SERVICE

Graduate Women in Computing   2023 - ONGOING

Mentorship Director

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

Harvard Women in Computer Science (WiCS)   2017

Community Director

Planned and coordinated events for Harvard Women in Computer Science (WiCS)

Supported community-building activities and outreach efforts with faculty and other affinity groups

PERSONAL

Citizenship: United States and Canada

Languages: Fluent in English and French

Software: Proficient in Python, PyTorch, Tensorflow, OCaml & SQL. Familiar with Java & PHP.

Interests: Open-Water Swimming, Cycling, Triathlon, and Urban Gardening