Avni Kothari

avni510.github.io
avni510@gmail.com

EDUCATION	**University of California, San Diego** 2021 – 2023

M.S. in Computer Science
Thesis: Foundations for Model-Agnostic Recourse Verification
Advisors: Berk Ustun & Lily Weng
Coursework: Machine Learning; Recommender Systems; Neural Networks & Pattern Recognition; Convex Optimization; Statistical NLP; Probabilistic Reasoning & Learning; Networking Systems

University of Texas at Austin 2011 – 2016

B.A. in Mathematics & B.A. in Economics
Minor in Computer Science
Coursework: Databases; Programming Languages; Software Design; Real Analysis; Number Theory; Discrete Mathematics; Differential Equations; Linear Algebra & Matrix Theory; Econometrics

RESEARCH INTERESTS

Machine Learning, Algorithmic Fairness, Algorithmic Recourse, Interpretability, Natural Language Processing, Deep Learning, ML for Healthcare, Responsibly Deploying ML models in Safety Critical Settings

PAPERS

Prediction without Preclusion: Recourse Verification with Reachable Sets
Avni Kothari*, Bogdan Kulynych*, Lily Weng, Berk Ustun
ICLR – International Conference on Learning Representations, Top 5% among submissions, 2024
* denotes equal contribution

POSTER PRESENTATIONS

UCSF Retreat, AI Convergence: Preparing for the Age of AI; *San Francisco, CA*   FEB. 2024

ICML Workshop on Data-centric Machine Learning Research; *Honolulu, HI*   JULY 2023

ICML Workshop on Spurious Correlations, Invariance and Stability; *Honolulu, HI*   JULY 2023

ICML Workshop on Artificial Intelligence & Human Computer Interaction; *Honolulu, HI*   JULY 2023

AWARDS

DeepMind Fellow (Article)   2021 – 2023
University Honors   2011 – 2014

CONTRIBUTED TALKS

Bayesian Priors From LLMs Make Clinical Prediction Models More Interpretable   NOV. 2024
(Scheduled)
AMIA Annual Symposium

WORK EXPERIENCE

University of California at San Francisco; *San Francisco, CA*   SEPT. 2023 – PRESENT
Data Scientist
- Researching and deploying healthcare ML models at San Francisco General Hospital under Jean Feng
- Researching and implementing methods with LLMs to align tabular machine learning models with clinical intuition for model interpretability and reliability
- Researching and evaluating using LLMs in conjunction with Bayesian methods to extract concepts from clinical notes
- Creating, evaluating, and deploying a 30-day all cause readmissions model for use at the hospital
- Building a data pipeline to process electronic health records from thousands of patients to make data compatible with machine learning algorithms

Edovo; *Chicago, IL*   JAN. 2020 – MAY 2021
Software Engineer
- Designed and developed an educational content platform to handle 700K+ requests per day
- Created a pipeline and nightly job to merge 4 billion rows of user event data in PostgreSQL
- Spearheaded team sessions to improve software development practices and adopt new frameworks

8th Light; *Chicago, IL*   AUG. 2017 – MAR. 2019
Lead Software Engineer
- Developed a diabetes management iOS app to connect patients with diabetic nurse specialists

- Enhanced a Java-based continuous deployment pipeline, seamlessly integrating with internal tools
- Mentored peers and residents through pair programming sessions and code reviews

Resident Apprentice   Jan. 2017 – Aug. 2017
- Created games and applications with a focus on Test Driven Development and SOLID Design
- Created an HTTP Server in Java without libraries for app deployment
- Gave company-wide talks on "Hashing Functions" and "Fun with Prime Numbers"

Teaching Experience

Interpretability & Explainability in Machine Learning; *UC San Diego*   Sept. 2022 – Dec. 2022
Course taught by: Berk Ustun
Supported instruction for 30+ MS/PhD students in an introductory research course

Differential Calculus Tutor; *UT Austin*   May 2011 – Aug. 2013
Tutored undergraduates on limits, Riemann sum, continuity, derivatives, and differentiation rules

Academic Service

Reviewing: JAMA '24

Service

UCSF AI4All   July 2024 – July 2024
Teaching assistant for machine learning assignments for high school students

Vision 1948   May 2023 – Present
Guest speaker in AI to educate young girls interested in STEM fields

PenPal for the Incarcerated   Sept. 2020 – Present
Correspond biweekly through letters and video chats with an incarcerated individual

The Recyclery; *Chicago, IL*   Aug. 2018 – May 2021
Drafted annual budget for a bike shop with 200+ customers, and assisted with repairs

Skills & Interests

Software: Python, Java, Swift, Javascript, AWS, Elasticsearch, Elixir, SQL, Terraform
Libraries: Hugging Face, Pytorch, CPLEX, Numpy, Pandas, Sklearn, Redux, React
Interests: Cycling, Gardening, Knitting, Hiking, Swimming, Fiction