Avni Kothari

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Google Scholar

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

Bayesian Concept Bottleneck Models with LLM Priors
Jean Feng, Avni Kothari, Lucas Zier, Chandan Singh, Yan Shuo Tan
preprint, 2024

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

Implementing a Predictive Model to Reduce Hospital Readmissions in a Safety Net Healthcare System
Arturo Gasga, Avni Kothari, Seth Goldman, Jim Marks, Jean Feng, Lucas Zier
ML4H - Machine Learning for Health, 2024
Oral Spotlight

Bayesian Priors From Large Language Models Make Clinical Prediction Models More Interpretable
Avni Kothari, Daniel J. Bennett, Seth Goldman, Elizabeth Connelly, James D. Marks, Lucas S. Zier, Jean Feng
AMIA – American Medical Informatics Association, Podium Abstract, 2024

Poster Presentations

NeurIPS Workshop Statistical Foundations of LLMs and Foundation Models; *Vancouver, CA* Dec. 2024

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
AMIA Annual Symposium

Work Experience

University of California, San Francisco; *San Francisco, CA* Sept. 2023 – Present
ML Researcher & 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"

CONTRIBUTIONS TO SOFTWARE PACKAGES

reachml
A package to conduct recourse verification which audits models for fixed predictions

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

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

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

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, Docker
Libraries: Hugging Face, Pytorch, CPLEX, Numpy, Pandas, Sklearn, Redux, React
Interests: Cycling, Gardening, Knitting, Hiking, Swimming, Fiction