SUNAY BHAT

PhD Student in Causal AI | Data Scientist | ML/Systems Engineer

✉ sunaybhat1@gmail.com | 👤 www.sunaybhat.me | SunayBhat1 | 🎓 Google Scholar | 🌐 Los Angeles, CA

EDUCATION

UNIVERSITY OF CALIFORNIA, LOS ANGELES (UCLA)
PhD Electrical Engineering
Expected June 2024 | GPA: 3.77

MS Electrical Engineering
2020-2021 | GPA: 3.62

UNIVERSITY OF TENNESSEE, KNOXVILLE (UTK)
BS Electrical Engineering
2013-2017 | GPA: 3.91

COURSES/PROJECTS

PROJECTS
• Structural Causal Neural Networks
• Reinforcement Learning Causal Discovery
• Second-Order Optimizer Comparisons
• Double Cart-Pole Reinforcement Learning
• Speaker Recognition

SELECTED COURSES
• Convex Optimization
• Information Theory
• Deep Learning and RL
• Causal Inference
• Network and Graph Theory
• Computational Imaging
• Digital Speech Processing
• Choice Architecture
• Clean Tech Entrepreneurship

SKILLS

LANGUAGES
• **Python** (ML/PyTorch, Data Science, Graph Theory)
• **MATLAB** (SciComp, Image Processing)
• **R** (data analysis, graph theory)
• **HTML/CSS** (Basic WebDev)
• **C++** (embedded systems)

WRITING
• WSJ Future View Contributor
• Medium Data Science Blog

CLEARANCES
• Active *Secret* Security Clearance (from September 2018)

HONORS

• STEM solutions policy finalist (2021)
• Lockheed Martin Performance Excellence award (2018)
• UTK Varsity Tennis Team Captain (2015-2017)
• Numerous community service and leadership roles
• UTK Chancellor's Honors for Outstanding Academic Achievement and Scholar Athlete (2017)

RESEARCH AND TEACHING EXPERIENCE

Dept. of Electrical and Computer Engineering, UCLA | Los Angeles, CA

GRADUATE RESEARCHER | Sept 2020 – June 2024 (Expected)
• Research and publications in novel AI architectures and methods for causal discovery, utilization of causal priors in deep learning, causal generative models, latent space interpretability, and optimization for causal models
• Masters project in reinforcement learning using structural causal priors

GRADUATE TEACHING ASSISTANT | Sept 2021 – Current
• Three academic quarters in writing and ethics courses leading weekly discussions, course planning, and grading for topics in technology & society
• Developed curriculum to integrate writing instruction into engineering capstone senior design courses (*serving as TA Jan - June 2023*)

INDUSTRY EXPERIENCE

STREET METRICS, INC.
Data Scientist | Oct 2022-Current, Birmingham, AL (remote)
• Implementing statistical processes and AI algorithms on geo-spatial datasets for out-of-home advertising measure

STREET SIMPLIFIED, LLC
Machine Learning Engineer | Summer 2022, Pasadena, CA
• Applied state-of-the-art AI algorithms and methods on a trajectory prediction model to enable real-time traffic intersection safety analytics and interventions

LOCKHEED MARTIN - SANTA BARBARA FOCALPLANE
Electro - Optical Systems and Test Engineer | 2017-2020, Goleta, CA
• Lead engineer on site's largest production program manufacturing cryo-cooled, mid-wave infrared photodetector systems
• Led major R&D project to implement state-of-art detector material
• Published multiple white papers and a company glossary on focal plane array process improvements, radiometric defects, system characterization methods, and image processing algorithms

ADDITIONAL EXPERIENCES
• Nano Terra, Inc.: Electrical Engineering Intern | Summer 2016
Designed an embedded system chemical sensor prototype using PCB CAD tools and C++ embedded software
• Red Ribbon Recruiting, LLC: Co-Founder | 2018-2019
Analyzed track & field competition data to deliver advanced evaluation tools and interactive reports on team performance and recruiting opportunities
• Oak Ridge National Laboratory: Research Intern | Summer 2014
Assisted research with 3-D printers on graded composition microstructure as a function of thermal cycling

SELECTED PUBLICATIONS

• Paper: "Causal Structural Hypothesis Testing and Data Generation Models"
Dec 2022 | NeuraIPS SyntheticData4ML Workshop | New Orleans, LA
• Paper: "De-Biasing Generative Models using Counterfactual Methods"
Apr 2022 | Information Theory and Applications Workshop | San Diego, CA