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
MS Electrical Engineering
2020-2021

UNIVERSITY OF TENNESSEE, KNOXVILLE (UTK)
BS Electrical Engineering
2013-2017

SKILLS

RESEARCH PROJECTS

- Causal Optimization and Disentanglement
- Structural Causal Neural Networks
- Reinforcement Learning Causal Discovery
- Second-Order Optimizer Comparison
- Double Cart-Pole Reinforcement Learning
- Speaker Recognition
- Investor Pitch for Emerging Carbon Sequestration Company

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 (1000+ views)

CLEARANCES

- Active *Secret* Security Clearance (from September 2018)

HONORS

AWARDS

- STEM solutions policy finalist, helped draft legislation (2021)
- Lockheed Martin Performance Excellence award (2018)
- UTK Varsity Tennis Team Captain (2015-2017)
- UTK Chancellor's Honors for Outstanding Academic Achievement and Scholar Athlete (2017)

COMMUNITY SERVICE

- Member of Student-Athlete Advisory Committee with 100+ hours of community service
- Lead STEM Engineering Week Outreach (2018)
- Mentor and volunteer for non-profit organizations Chibo and T'ena Foundation (2020-Current)

ACADEMIC 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 | 2022

- Implementing statistical processes and AI algorithms on geo-spatial datasets for out-of-home advertising measure
- Exploring deep learning predictive and probabilistic modeling for advertisement impression sampling

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
- Performed exploratory data-analysis and implemented data-cleaning pipeline for trajectory prediction model

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
- Red Ribbon Recruiting, LLC: Co-Founder | 2018-2019
- Oak Ridge National Laboratory: Research Intern | Summer 2014

SELECTED PUBLICATIONS

Jiang, J., Pooladzandi, O., **Bhat, S.**, & Pottie, G. (2022). **Hypothesis Testing using Causal and Causal Variational Generative Models.** *NeuralPS SyntheticData4ML Workshop*, New Orleans, LA

Bhat, S., Jiang, J., Pooladzandi, O., & Pottie, G. (2022). **De-Biasing Generative Models using Counterfactual Methods.** *Information Theory and Applications Workshop*, San Diego, CA

Azari, H., Bhat, G., Hiremath, N. **Bhat, S.** (2017) **Structure and Properties of Polypropylene Graphene Composite Filaments.** *Proceedings of the Fiber Society 2017 Fall Meeting and Technical Conference*, Athens, GA