OLAWALE SALAUDEEN

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EDUCATION

University of Illinois at Urbana-Champaign   *August 2019 - Present*
Ph.D. Candidate
Department of Computer Science
Advisor: Sanmi Koyejo

Stanford University   *September 2022 - Present*
Visiting Ph.D. Student Researcher
Department of Computer Science
Host: Sanmi Koyejo

Texas A&M University   *August 2015 - May 2019*
Bachelor of Science with Honors, Mechanical Engineering
Minors in Computer Science and Mathematics

RESEARCH INTERESTS

Deep Learning, Transfer Learning (Domain Adaptation/Generalization), Causal Inference/Discovery, Causality-Inspired Machine Learning, Probabilistic Graphical Models

PROFESSIONAL EXPERIENCE

Cruise LLC   May 2023 - August 2023
Machine Learning Intern - San Francisco, CA

Worked on a team to develop, evaluate, and deploy a rich representation space (transformer based multitask/multimodal model) of the perception data of Autonomous Vehicles that is used for real time vehicle behavior decision making

Google Brain   May 2022 - December 2022
Research Intern - Cambridge, MA

Worked on a team to develop a domain adaptation algorithm under latent confounder distribution shift; developed semi-synthetic data for evaluation and implemented state-of-the-art domain adaptation algorithms

Sandia National Laboratories   May 2017 - April 2022
Year-Round R&D Intern - Albuquerque, NM

Developed multimodel deep learning algorithms for threat detection in various contexts including X-ray images, network traffic, and enclosed physical systems

PUBLICATIONS

8. **Olawale Salaudeen**, Oluwasanmi Koyejo. "Towards Accurate Benchmarking of Domain Generalization." *In Preparation, 2023.*

7. **Olawale Salaudeen** et al. "Causal-ICA-AROMA – Motion Denoising in fMRI via Causal Graphical Model Augmentation of ICA-AROMA" *In Preparation, 2023.*

6. **Olawale Salaudeen**, Oluwasanmi Koyejo. "Learning Domain General Predictors" *Under Review, 2023.*

5. Ibrahim Alabdulmohsin, Nicole Chiou, Alexander D'Amour, Arthur Gretton, Sanmi Koyejo, Matt J. Kusner, Stephen R. Pfohl, **<u>Olawale Salaudeen</u>**, Jessica Schrouff, Katherine Tsai. "Adapting to Latent Subgroup Shifts via Concepts and Proxies." The International Conference on Artificial Intelligence and Statistics (AISTATS), 2023.
Authors listed in alphabetical order.

4. Chirag Nagpal, **<u>Olawale Salaudeen</u>**, Sanmi Koyejo, Stephen Pfohl. "Addressing Observational Biases in Algorithmic Fairness Assessments." Conference on Neural Information Processing Systems (NeurIPS), 2022. Workshop on Algorithmic Fairness through the Lens of Causality and Privacy (AFCP) *(extended abstract)*.

3. Matt J. Kusner, Ibrahim Alabdulmohsin, Stephen Pfohl, **<u>Olawale Salaudeen</u>**, Arthur Gretton, Sanmi Koyejo, Jessica Schrouff, Alexander D'Amour.
Adapting to Shifts in Latent Confounders using Observed Concepts and Proxies International Conference on Machine Learning (ICML), 2022. Workshop on Principles of Distribution Shift (PODS)

2. Brad Sutton, Aaron Anderson, Benjamin Zimmerman, Paul Camacho, Riwei Jin, Charles Marchini, **<u>Olawale Salaudeen</u>**, Natalie Ramsy, Davide Boido, Serge Charpak, Andrew Webb, Luisa Ciobanu. "Ultra-fast 3D fMRI to explore cardiac-induced fluctuations in BOLD-based functional imaging." International Society for Magnetic Resonance in Medicine (ISMRM), 2022. *(abstract)*.

1. **<u>Olawale Salaudeen</u>**, Sanmi Koyejo. "Exploiting Causal Chains for Domain Generalization." Conference on Neural Information Processing Systems (NeurIPS), 2021. Workshop on Distribution Shifts – Connecting Methods and Applications (DistShift).

TALKS AND PRESENTATIONS

6. Learning Domain General Predictors
Simons Institute – Information-Theoretic Methods for Trustworthy Machine Learning   2023

5. Separating Neural Encoding and Decoding Pathways in fMRI by Disentangling Causal and Anti-causal Mechanisms
University of Illinois at Urbana-Champaign Minitature Brain Machinery Retreat   2022

4. Denoising fMRI via probabilistic graphical model augmentation of ICA-AROMA
University of Illinois at Urbana-Champaign Beckman Institute Graduate Student Seminar   2022
University of Illinois at Urbana-Champaign Minitature Brain Machinery Retreat   2021

3. Exploiting Causal Chains for Domain Generalization
Conference on Neural Information Processing Systems (NeurIPS), 2021. Workshop on Distribution Shifts – Connecting Methods and Applications (DistShift).   2021

2. Automated Incorporation of Machine Learning (AIM)
Sandia National Laboratories MARTIANS End of Summer Symposia   2020

1. Interpretable Recurrent Convolutional Neural Networks for Cyber Alert Triaging
Sandia National Laboratories MARTIANS End of Summer Symposia   2019

SELECTED FELLOWSHIPS, HONORS, AND AWARDS

Research Trainee, *NSF Miniature Brain Machinery at UIUC*	2021
GEM Associate Fellow, *University of Illinois at Urbana-Champaign*	2021
Beckman Institute Graduate Fellow, *University of Illinois at Urbana-Champaign*	2020
Sloan Scholar, *Alfred P. Sloan Foundation's Minority Ph.D. (MPHD) Program*	2019
Masters Fellowship Program (declined), *Sandia National Laboratories*	2019
Mechanical Engineering Advisory Council Scholarship, *Texas A&M University*	2018

Foundation Excellence Award, *Texas A&M University* 2017
Pi Tau Sigma – Sigma Delta, *National Mechanical Engineering Honors Society* 2016
Craig and Galen Brown Honors College of Engineering, *Texas A&M University* 2015
Regents Scholar Program, *Texas A&M University* 2015

RESEARCH EXPERIENCE

University of Illinois at Urbana-Champaign September 2021 - Present
Miniature Brain Machinery NSF Trainee with Prof. Sanmi Koyejo and Prof. Brad Sutton – Champaign, Illinois

Established causal machine learning algorithms to detect and remove nuisance artifacts, such as the effects of motion , from fMRI scans

University of Illinois at Urbana-Champaign August 2020 - July 2021
Beckman Institute Graduate Research Fellow with Prof. Sanmi Koyejo, Prof. Brad Sutton, and Prof. Aron Barbey – Champaign, Illinois

Developed a causal structure learning framework to isolate and remove motion artifacts in functional Magnetic Resonance Images (fMRI)

University of Illinois at Urbana-Champaign August 2019 - July 2020
Graduate Research Assistant with Prof. Sanmi Koyejo and Prof. Aron Barbey – Champaign, Illinois

Teamed to create a learning framework for estimating multi-modal individual treatment effects, correlated changes, and counterfactuals in the context of human performance optimization

Texas A&M University Multi-Robot Laboratory October 2018 - May 2019
Undergraduate Researcher with Prof. Dylan Shell – College Station, TX

Created and analyzed a novel geometry-based motion planning algorithm for tethered robots

Texas A&M University Energy Systems Laboratory August 2016 - October 2018
Undergraduate Researcher with Prof. Charles Culp – College Station, TX

Developed probabilistic algorithms for fault detection and diagnosis in industrial Heating Ventilation and Air Condition systems

SERVICE

Reviewing

Journal of Machine Learning Research (JMLR) 2023
Neural Information Processing Systems (NeurIPS) 2022-2023
NeurIPS Algorithmic Fairness through the Lens of Causality and Privacy (AFCP) Workshop 2022
International Conference on Machine Learning (ICML) – *Top 10% reviewer award* 2022-2023
NeurIPS Black In AI (BAI) Workshop 2021

University of Illinois at Urbana-Champaign

Directed Reading Program, Mentor 2022
Graduate Study Committee, 1 of 2 Graduate Student Members 2022
Broadening Participation in Computing, Engagement Subcommittee Member 2021 - 2022
Graduates Engineers Diversifying Illinois, Mentor 2020 - 2022
Institute for Inclusion, Diversity, Equity, and Access (IDEA), Affiliate Member 2020 - Present

TEACHING

Data Visualization, Teaching Assistant – University of Illinois at Urbana-Champaign	2023
Foundations of Engineering, Peer Teacher – Texas A&M University	2018-2019
Introduction to Microcontrollers, Co-Instructor – Sandia National Labs HMTech	2018, 2019

MENTORSHIP AND ADVISING

Distributed Research Experiences for Undergraduates (DREU)	2021