

# OLAWALE SALAUDEEN

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## EDUCATION

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### University of Illinois at Urbana-Champaign

*August 2019 - Present*

Ph.D. Candidate

Department of Computer Science

Advisor: 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

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

## PUBLICATIONS

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- [1] **Olawale Salaudeen, Oluwasanmi Koyejo. Exploiting Causal Chains for Domain Generalization**

*Conference on Neural Information Processing Systems (NeurIPS), 2021. Workshop on Distribution Shifts – Connecting Methods and Applications*

## RESEARCH EXPERIENCE

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### University of Illinois at Urbana-Champaign

September 2021 - Present

*Miniature Brain Machinery NSF Trainee – Champaign, Illinois*

- An NSF-funded research traineeship that combines cognitive and behavior studies with brain cell and tissue biology
- Developing machine learning algorithms to detect and remove nuisance artifacts, such as the effects of breathing, from brain scans

### University of Illinois at Urbana-Champaign

August 2020 - August 2021

*Beckman Institute Graduate Research Fellow – 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 - Present

*Graduate Research Assistant – Champaign, Illinois*

- Developed 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-Robotic Laboratory

October 2018 - May 2019

*Undergraduate Researcher under Professor 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 under Professor Charles Culp – College Station, TX*

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

## PROFESSIONAL EXPERIENCE

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### Sandia National Laboratories

May 2017 - Present

*Year-Round R&D Intern - Albuquerque, NM*

- **2021.** Developed a deep set predictor with configurable mean and pairwise errors (Type I/II) for multiclass prediction in the context of contraband detection in images
- **2020.** Working on a team to develop models to classify organic materials in X-ray images
- **2020.** Designed and executed experiments to investigate the effectiveness of Reinforcement Learning in sequence to sequence generation – Deep Q Network in the context of automated code generation
- **2019.** Implemented a rationale generating Recurrent Convolutional Neural Network model for triage classification of triggered network security alerts
- **2019.** Prototyped a Convolutional Neural Network framework for semantic segmentation of X-Ray images of Improvised Explosive Devices and generation of a graphical model of designs of the devices
- **2018.** Developed and implemented a multi-modal deep Recurrent Neural Network framework for classifying safety rules for maintenance tasks from mixed numerical and textual tasks descriptions
- **2018.** Extended a 2D Simultaneous Localization and Mapping (SLAM) algorithm for ground systems to 3D for air systems equipped with 3D-LIDAR, IMU/GPS
- **2017.** Designed and prototyped an intrusion detection and localization system using fiber-optic disturbances
- **2017.** Researched and presented applications of big data analysis to learn physical properties of a configuration space based on electromagnetic disturbances in transmitted wireless signals

## AFFILIATIONS

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- **2020-.** UIUC Graduates Engineers Diversifying Illinois, mentor upperclassmen undergraduate students in goal setting, career planning, and academic development
- **2020-.** UIUC Institute for Inclusion, Diversity, Equity, and Access (IDEA), Affiliate Member
- **2017-2019** HMTech, mentored underrepresented High School students interested in STEM
- **2015-2019.** Regents Scholar Program, mentored first generation college students in Engineering

## HONORS AND AWARDS

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

- **2017.** Texas A&M University Foundation Excellence Award
- **2016-.** Pi Tau Sigma, Sigma Delta (National Mechanical Engineering Honors Society), External VP
- **2015-2019** Craig and Galen Brown Honors College of Engineering, Student Executive Committee Chair
- **2015-2019** Regents Scholar Program, Texas A&M University