MYSON C. BURCH

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EXPERIENCE

May 2023 – Present
Research Scientist – IBM Research
Address high dimensional genomics-related questions through mathematical modeling, statistical methodologies, combinatorics and scalable algorithms.

May 2021 – August 2021
Data Science Intern – Cummins IT Analytics and AI
Contribute to the company's ability to perform real time condition monitoring, enable process improvement, and maintain machine health using deep learning, big data analytics, computer vision and NLP methods.

Design strategic tools, prototypes, and software to mitigate costs of reactive repairs, repetitive inspections, and unscheduled issues in manufacturing and product development using a proactive monitoring system. Implement solutions and communicate feedback to key stakeholders during regulatory meetings.

August 2017 – August 2023
Research Fellow & Teaching Assistant – Purdue University
Develop innovative techniques at the intersection of technology and life sciences using biobank scale data from GWAS studies and machine learning as an effort to better understand human health and disease.

Collaborate with an interdisciplinary lab to engineer technical solutions and analysis for complex quantitative genomics problems involving large datasets that contribute to precision medicine and advance the healthcare industry.

Teach 400+ undergraduates and aid in developing their programming, statistics, and analytical skills. Demonstrated written, communication and conflict resolution skills as a teacher. Work collaboratively with other RAs.

PUBLICATIONS

- *CluStrat: a structure informed clustering strategy for population stratification, RECOMB (2020), BMC Bioinformatics (2023) under review*
- *MaSk-LMM: a matrix sketching-based fast and scalable linear mixed model for association studies in large biobanks, ASHG (2022), under review (2023)*
- *Can polygenic risk scores help explain disease prevalence differences around the world? A worldwide investigation, Human Genetics (2023) under review*
- *Mentoring Black Teens During National Pandemics: Mutually Beneficial Service, PJSL and International Engagement, 2021*
- *Modeling Acute Blood Flow Responses to a Major Arterial Occlusion, Microcirculation, 2020*

LEADERSHIP

Purdue SROP & Bridge, Graduate Coordinator
Purdue Black Graduate Student Association, Vice President

EDUCATION

Purdue University
PhD in Computer Science
August 2017 – August 2023

Indiana University-Purdue University of Indianapolis
B.S. in Computer Science
B.S. in Applied Mathematics
August 2013 – May 2017

INTERESTS

- DATA SCIENCE
- STATISTICAL GENETICS
- AI
- QUANTUM
- BIOINFORMATICS

COMPUTATIONAL SKILLS

- PYTHON, R, SAS
- JAVA
- C, C++
- JULIA, MATLAB
- SQL
- OFFICE, DATABRICKS, JUPYTER NOTEBOOK

GRANT WRITING

- NSF GRADUATE FELLOWSHIP
- FACEBOOK FELLOWSHIP
- BLOOMBERG FELLOWSHIP
- NIH PREDOC. FELLOWSHIP