Ishan Kalburge

kalburge.github.io

Investigating internal representations of uncertainty during decision-making through probabilistic deep learning.

Education

2024 – **University of Cambridge**, Cambridge, Cambridgeshire, UK
PhD in Information Engineering & Computational Neuroscience
Affiliation: Cambridge Computational & Biological Learning Laboratory

2020 – 2023 **The Johns Hopkins University**, Baltimore, MD
B.S. in Biomedical Engineering, Applied Mathematics & Statistics, and Economics (triple-major)
Concentrations: Biomedical Data Science, Statistical Learning
Thesis: The Shapley Anything Model (ShAM): a generative approach to Shapley-based explanations

Research Experience

Sum. '23 – **Project Lead**, *Gold Lab, Computational Neuroscience*, Perelman School of Medicine
- Understanding information- and reward-maximizing behavior in dynamic contexts with psychophysics.

Spr. '22 – Fall '23 **Researcher**, *Chib Lab, Decision Neuroscience, Johns Hopkins School of Medicine*
- Building a computational framework of perception in motor control tasks.
- Designed an experimental paradigm for assessing the role of psychiatric interventions in promoting effort during fatigue.

Sum. '22 **Research Fellow**, *Camerer Group, Behavioral & Neuroeconomics, Caltech*
- Developed a reinforcement-learning-based computational model of bursty behavior.

Sum. '19, '21 **Research Intern**, *Cellular Imaging & Macromolecular Biophysics Lab, National Institutes of Health*
- Characterized piezoelectric properties of collagen assembly/alignment via atomic force microscopy.

Spr. '21 **Design Engineer**, *Center for Bioengineering Innovation & Design, The Johns Hopkins University*
- Prototyped insole and anklet designs for active Parkinson's Disease symptom tracking using Python & Arduino.

Teaching Experience

Fall '23 **Head Teaching Assistant**, *APPM 311: Intermediate Probability & Statistics (renamed)*

Spr. '23 **Teaching Assistant**, *APPM 480: Numerical Linear Algebra (previously APPM 385)*

Fall '22 **Teaching Assistant**, *APPM 310: Probability & Statistics for Physical Sciences & Engineering*

AY 2021-22 **Teaching Assistant**, *APPM 291: Linear Algebra & Differential Equations*

Spr. '21 **Teaching Assistant**, *APPM 311: Probability & Statistics for Biological Sciences & Engineering*

Extra-curricular

Fall '23 **President**, *Johns Hopkins Biomedical Engineering Society (BMES)*

AY 2022-23 **Executive Treasurer**, *Hopkins Undergraduate Society for Applied Mathematics (HUSAM)*

AY 2021-22 **News & Features Editor**, *The Johns Hopkins News-Letter*

Selected Awards & Honors

2024 **Gates Cambridge Scholar**, *Gates Cambridge Trust*, prestigious full-cost postgraduate scholarship

2022 **Junior Inductee**, *The Tau Beta Pi Association*, awarded to top 1/8th of the engineering class

2022 **Distinguished Service Award**, *Whiting School of Engineering*, for service to the BME department

2022 **Summer Undergraduate Research Fellowship**, *Caltech*

2022 **PRIMO Fellowship**, *Harvard Business School*, declined

2020 **National Merit Scholar**, *National Merit Scholarship Corporation*, awarded to top 0.1% of students