Ishan Kalburge

kalburge.github.io

Studying the neural basis of decision-making through computational neuroscience, statistical theory, & experimental economics.

Education

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

Work & Research Experience

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

Mar. '22 – **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.

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

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

Spring '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)*
Spring '23 **Teaching Assistant**, *APPM 485: 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*
Spring '21 **Teaching Assistant**, *APPM 311: Probability & Statistics for Biological Sciences & Engineering*

Extra-curricular

Summer '23 – **President**, *Johns Hopkins Biomedical Engineering Society (BMES)*
Fall '22 – **Executive Treasurer**, *Hopkins Undergraduate Society for Applied Mathematics (HUSAM)*
AY 2021-22 **News & Features Editor**, *The Johns Hopkins News-Letter*

Selected Awards & Honors

2022 **Junior Inductee**, *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

Skills

General Experimental Design, AI/ML, Public Speaking, Leadership, Relationship Management
Languages MATLAB, Python, Java, STATA, R, Excel, LaTeX, CSS/HTML, JavaScript
Coursework (ongoing*) Optimization I, Numerical Linear Algebra, Honors Probability, Statistics, Dynamical Systems & Nonlinear Dynamics, Statistical Physics, Models & Simulations, Signals, Systems, Controls, Data Structures, Data Science, Econometrics, Bayesian Statistics*, Applied Statistics*, Market Design*