Vishesh Kumar

Vishesh.Kumar@rice.edu • kumar-vishesh

Education

Rice University — **Houston, TX**
PhD, Applied Physics — *Aug 2024 – Present*
Advisors: Ashok Veeraraghavan, Vivek Boominathan
Projects: Tailored INRs for Time-of-Flight Data; Compressive Sensing for Photoacoustic Imaging

Arizona State University — **Tempe, AZ**
B.S., Computational Mathematics; B.S., Physics — *Aug 2020 – May 2024*
Honors: *summa cum laude* (GPA 4.0/4.0)
Relevant coursework: Numerical Analysis; Deep Neural Networks; Probability Theory; Stochastic Processes

Experience

Pressé Lab, Arizona State University — **Tempe, AZ**
Undergraduate Researcher — *Aug 2021 – Aug 2024*
Improving Biophysical Data Inference techniques using Bayesian and Deep Learning architectures

Prudential — **Virtual**
Actuarial Summer Intern — *Jun 2022 – Aug 2022*
Assisted in daily activities of full-time actuaries; developed innovative insurance products in team settings

School of Information, University of Michigan — **Virtual**
Summer Intern — *May 2021 – Aug 2021*
Developed interactive statistical models in R for educational purposes on the 1Cademy platform

Mathnasium — **Phoenix, AZ**
Lead Instructor — *Sep 2017 – Aug 2021*
Led training for instructors; managed instructor-student interactions

Skills

Programming: C++, Python, R, MATLAB, Java

Languages: English, French, Hindi

Presentations

2025: Asilomar Conference on Signals, Systems, and Computers —

2025: Innovation & Responsibility in AI-Supported Education Workshop at AAAI — Poster Session

2024: Biophysical Society Annual Meeting — Poster Session

2023: Rice University, Gulf Coast Undergraduate Research Symposium — Oral Session

2022: UT Southwestern, Bioinformatics Retreat — Poster Session

Awards

2023: ASU Department of Physics — Undergraduate Research Award

2023: ASU College of Liberal Arts and Sciences — The College Student Leader

2022: DataFest at ASU — Best Use of External Data

Publications

Vishesh Kumar, Jingyi Miao, Shunyao Zhang, Huan-Cheng Liao, Kaiyuan Yang, Lei Li, Ashok Veeraraghavan, Vishwanath Saragadam, and Vivek Boominathan. NEWER: Neural Estimation of Wavelet-Embedded Representations. In *Proceedings of the 59th Asilomar Conference on Signals, Systems, and Computers*, 2025. to appear.

Vishesh Kumar, J. Shepard Bryan, Alex Rojewski, Carlo Manzo, and Steve Pressé. DiffMAP-GP: Continuous 2D Diffusion Maps from Particle Trajectories ithout Data Binning using Gaussian Processes. *Biophysical Reports*, 5(1):100194, 2025.

Juan Segundo Hevia, Facundo Arredondo, and Vishesh Kumar. Towards an Efficient, Customizable, and Accessible AI Tutor. In *Proceedings of the Innovation and Responsibility in AI-Supported Education Workshop*, volume 273 of *Proceedings of Machine Learning Research*, pages 250–254. PMLR, March 2025.