

Keerthana Gurushankar

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EDUCATION

Carnegie Mellon University

PhD Student, Computer Science

Aug 2022 – Present

Research focus: *Performance Modeling for Machine Learning Systems*

B.S., M.S., Mathematics, GPA: 3.80

Aug 2017 – May 2021

WORK EXPERIENCE

• Machine Learning Intern, CapSen Robotics

May 2023 - Aug 2023

Computer Vision models and software for robotics applications

- Built and tuned segmentation-based ML models for detecting known objects in 3D images for robot applications
- Contributed performance improvements to production-level project, reducing failure rate from 1/1000 to 1/3000
- Designed & developed new calibration method, eliminating hardware changes & reducing calibration time 6-fold

• Pre-doctoral Researcher, CMU

May 2021 – May 2022

Neural modeling with Information theoretic decompositions

- Performed research project modeling neural data with information theory, leading to publication in top conference
- Deduced tractability results using probability, linear algebra, algorithmic methods & data visualization
- Collaborated with and presented work to researchers of diverse technical backgrounds

RESEARCH PROJECTS

• Data Integrity in Clinical Trials - Citadel Global PhD Datathon 3rd Place Winner

Nov 2024 - Nov 2024

- Produced a novel large-scale statistical analysis for data integrity in clinical trials (using Python/pandas/scipy)
- Identified 1k trials with low integrity data among 22k published in 2014-24, using chi-square/Benford's law tests
- Best among 30 submissions, 200+ applicants worldwide, awarded \$2.5k for "rigorous & highly practical insights"

• Deep Learning Library Implementations

Aug 2022 – Dec 2022

- Built a complete deep learning library from scratch, with basic implementations of PyTorch and Numpy
- Wrote efficient CPU/GPU backends using C++/CUDA, autodiff support, modules for optimizers & data loaders

• Statistical Detector for Cortical Spreading Depressions

Aug 2018 – Apr 2019

- Designed & implemented (in MATLAB) a statistical detector for anomalous brain waves using ECoG data
- Modeled & tested Maximum Likelihood Detection, to automate work currently done by expert inspection

SKILLS

Programming Languages: Python, C/C++, SML, MATLAB/Mathematica

SELECTED COURSEWORK

Graduate Artificial Intelligence

Deep Learning Systems

Performance Modeling

Computer Networks

Stochastic Calculus

Probability & Computing

Game Theory

Programming Languages

HONORS/AWARDS

2022 Irwin Mark Jacobs & Joan Klein Jacobs Presidential Fellowship - presented prestigious fellowship/funding at MIT

2019 D. E. Shaw Discovery Fellowship - top 30 from over 200 applicants to attend prestigious fellowship programme

2019 CMU Quantathon - member of winning team solving quantitative finance problem in university-wide competition

2018 Putnam Competition - ranked in top 500 nationally

2017 International Physics Olympiad Selection Camp - top 35 students in Physics nationally

2017 NIOS Senior Secondary Board Examination - Highest score among 300,000 students