Vikram Rangarajan

https://vikramrangarajan.github.io/ | https://github.com/VikramRangarajan/ | https://linkedin.com/in/vikram-rangarajan/
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Education

Purdue University, West Lafayette, IN, 47907   *08/25 - Expected 05/30*
Ph.D. -- Computer Science, AI / ML
Advisor: Rajiv Khanna
Relevant Coursework: Randomized Algorithms, Statistical Machine Learning

University of Maryland, College Park, MD, 20742   *09/22 - 05/25*
B.S. -- Computer Science - Machine Learning Track   GPA: 4.0, Summa Cum Laude
Minor: Statistics
Relevant Coursework: Artificial Intelligence (AI), Machine Learning (ML), Computer Vision (CV), Natural Language Processing (NLP), Data Science (DS), Parallel Computing, Calculus 1, 2 & 3, Statistics, Linear Algebra, Compilers, Algorithms

Technical Skills

- **Programming Languages:** Python, C/C++/CUDA, Rust, Java, OCaml, R, Racket, Assembly (x86, MIPS), SAS
- **Technologies:** PyTorch, TensorFlow, NumPy, scikit-learn, OpenCV, HPC (SLURM), MPI, OpenMP, Git, Linux, Docker, Ray, Azure Cloud Services, SQL, Relational Databases (Postgres, Oracle, SQL Server), Apache Airflow

Experience & Projects

Purdue University, West Lafayette, IN, 47907   *08/25 - Present*
Graduate Teaching Assistant
- Leading lab section to guide students to success
- Holding office hours to assist students with their coursework
- Grading assignments and exams and assisting with course materials

UMIACS, College Park, MD, 20742   *10/24 - 06/25*
Undergraduate Research Assistant
- Created a neural video codec to surpass state of the art compression algorithms for image and video data
- Models were fitted to decode the original video from input pixel coordinates efficiently
- Used methods such as model quantization and meta learning to achieve ideal reconstruction quality with high compression, high encoding, and high decoding speeds

Shahoveisi Lab, College Park, MD, 20742   *02/24 - 11/24*
Undergraduate Research Assistant
- Created manuscripts for machine learning research projects related to identifying and managing turfgrass related diseases
- Used methods such as transfer learning and gradual unfreezing to train highly accurate nematode image classifiers
- Performed automatic hyperparameter optimization using Ray Tune to train sklearn and torch models to achieve highest metrics
- Performed parallelized automatic image dataset preprocessing using OpenCV and NumPy

SimpleTensor   *02/24 - 05/24*
- Created a library which provides Tensors with reverse-mode automatic differentiation capabilities for the Intro to AI class
- Supports many differentiable n-dimensional tensor operations such as matmul, ConvNd, element-wise, reductions, etc.
- Created MNIST demo using convolutional, dense, and softmax layers
- Fully documented using sphinx at https://vikramrangarajan.github.io/SimpleTensor/

A.M. Best Rating Services, Oldwick, NJ, 08858   *06/23 - 01/24*
Data Strategy Engineer
- Gained advanced experience with relational databases, Docker, Linux, Python, and Pandas
- Learned to use Azure Data Factory (ADF) to transform and move data on the Azure Cloud Platform
- Used Apache Airflow to orchestrate ETL pipelines between on-prem databases and Azure
- Accelerated a data pipeline's execution time from 90 minutes down to 6 minutes using ADF

Publications

1. **Vikram Rangarajan,** Shishira Maiya, Max Ehrlich, Abhinav Shrivastava   In Review, May 2025
   SIEDD (Shared Implicit-Encoder with Separate Decoders)
2. **Vikram Rangarajan,** Fereshteh Shahoveisi, Benjamin Waldo, Sadegh Jafari   In Review, December 2024
   Identification of Plant-Parasitic Nematode Genera in Turfgrass Using Deep Learning Algorithms

Awards & Certifications

UMD CMNS Latin Honors - Summa Cum Laude   Spring 25