

# Vikram Rangarajan

Website: <https://vikramrangarajan.github.io/>

LinkedIn: <https://linkedin.com/in/vikram-rangarajan/>

Scholar: <https://scholar.google.com/citations?user=tDot38sAAAAJ>

GitHub: <https://github.com/VikramRangarajan/>

X: <https://x.com/VikramRang95234>

Email: [rangarav@purdue.edu](mailto:rangarav@purdue.edu)

## Education

---

### Ph.D. -- Computer Science, AI / ML

09/25 - Expected 05/30

Purdue University, West Lafayette, IN, 47907

Advisor: Rajiv Khanna

Relevant Coursework: Randomized Algorithms, Statistical Machine Learning

### B.S. -- Computer Science - Machine Learning Track

09/22 - 05/25

University of Maryland, College Park, MD, 20742

Minor: Statistics

GPA: 4.0, Summa Cum Laude

Relevant Coursework: Artificial Intelligence, Machine Learning, Computer Vision, Natural Language Processing, Data Science, Parallel Computing, Calculus 1, 2 & 3, Statistics, Linear Algebra, Compilers, Computer Systems, Algorithms, Organization of Programming Languages, Object-Oriented Programming 1 & 2, Discrete Math

## Experience & Projects

---

### Purdue University, West Lafayette, IN, 47907

08/25 - Present

Graduate Teaching Assistant

- 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 scikit-learn and PyTorch 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 using only numpy arrays for the Intro to Artificial Intelligence (CMSC421) class
- Supports many differentiable n-dimensional tensor operations such as matrix multiplication, convolution, element-wise functions, aggregate functions, and arithmetic operations, with support for operations along any axes
- Created MNIST demo using convolutional, dense, and normalization layers and used techniques such as Xavier/Glorot initialization and residual connections

- 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  
[SIEDD \(Shared Implicit-Encoder with Separate Decoders\)](#)  
In Review, May 2025
2. **Vikram Rangarajan**, Fereshteh Shahoveisi, Benjamin Waldo, Sadegh Jafari  
[Identification of Plant-Parasitic Nematode Genera in Turfgrass Using Deep Learning Algorithms](#)  
In Review, December 2024

## 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

## Awards & Certifications

---

UMD CMNS Latin Honors - Summa Cum Laude

Spring 25

UMD Computer Science Semester Academic Honors

Fall 22 - Spring 25

[Astronomer Certification for Apache Airflow Fundamentals](#)

02/24