

# 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**

GPA: 3.85

Advisor: Rajiv Khanna

*Relevant Coursework:* Foundations of Deep Learning, Randomized Algorithms, Statistical Machine Learning, Computer Networks

**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**

- Assisting with CS240: Programming in C
- Leading lab section to guide students to success
- Holding office hours to assist students with their coursework
- Grading assignments, proctoring 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  
[SIEDD \(Shared Implicit-Encoder with Separate Decoders\)](#) In Preparation
2. **Vikram Rangarajan**, Fereshteh Shahoveisi, Benjamin Waldo, Sadegh Jafari  
[Identification of Plant-Parasitic Nematode Genera in Turfgrass Using Deep Learning Algorithms](#) Accepted 11/25  
Scientific Reports

## 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