

Vivek Anand

MASTERS STUDENT IN COMPUTER SCIENCE

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Education

Georgia Institute of Technology

MASTER OF SCIENCE IN **COMPUTER SCIENCE**

- **GPA: 4.0/4.0**
- Specialization: **Machine Learning**

Atlanta, GA

August 2021- May 2023

The Pennsylvania State University

BACHELOR OF SCIENCE (HONORS) IN **COMPUTER SCIENCE** AND **BIOLOGY**. MINOR: **STATISTICS**

- **GPA: 3.88/4.0**
- **Millennium Scholar** - Research scholarship with fully funded tuition, room and board (40 students yearly)
- **Schreyer Honors Scholar** - top 2% of PSU undergraduate students

University Park, PA

June 2017 - May 2021

Relevant Experience

Netomi

APPLIED AI INTERN - **SUPERVISER: DR. PARTHO NATH**

- Developed novel Seeded Clustering Algorithm for discovery of customer service ticket categories reducing human intervention time by 80 %
- Empirically showed 50% more coverage on ESPN and Disney customer service ticket datasets

Remote

May 2022 - August 2022

Georgia Institute of Technology

GRADUATE RESEARCH ASSISTANT - **PI: PROF. ADITYA PRAKASH**

- Formulated Hypergraph based mechanistic model for healthcare acquired infections.
- Accelerated hypergraph model 3xs using sparse optimizations

Atlanta, GA

October 2021 - PRESENT

The Pennsylvania State University

UNDERGRADUATE RESEARCH ASSISTANT - **PI: PROF. DANIEL KIFER**

- Accelerated adversarial robustness framework for deep neural networks PixelDP, by at least 9x using adaptive sampling.
- Scalably and efficiently implemented the framework by extending Tensorflow 2 source code.

University Park, PA

August 2020 - April 2021

California Institute of Technology

SUMMER RESEARCH INTERN - **PI: PROF. ADAM WIERMAN**

- Developed learning augmented energy aware heterogeneous scheduling algorithms for machine learning jobs in the cloud with theoretical guarantees.
- Evaluated algorithm performance on self-made test bench comprising of both real life and synthetic workflows.

Pasadena, CA

April 2020 - February 2021

Publications

- [1] V. Anand and B. A. Prakash, "Modelling healthcare associated infections with hypergraphs," in *EpiDAMIK 5.0: The 5th International workshop on Epidemiology meets Data Mining and Knowledge discovery at KDD 2022*, 2022.
- [2] V. Anand, M. Yang, and Z. Zhao, *Mitigating filter bubbles within deep recommender systems*, 2022. DOI: **10.48550/ARXIV.2209.08180**. [Online]. Available: <https://arxiv.org/abs/2209.08180>.
- [3] Y. Su, J. Yu, V. Anand, and A. Wierman, "Learning-augmented energy-aware scheduling of precedence-constrained tasks," *ACM SIGMETRICS Performance Evaluation Review*, vol. 49, no. 2, pp. 3–5, 2022.
- [4] V. Anand, "Generating certifiably adversarial robust deep neural networks with minimal prediction overhead," Bachelor's Thesis, Pennsylvania State University, 2021.

Teaching

Teaching Assistant

CS-3510 UNDERGRADUATE ALGORITHMS

Atlanta, GA

Spring & Fall 2022

Teaching Assistant

CSE-8803 EPI DATA SCIENCE FOR EPIDEMIOLOGY

Atlanta, GA

Fall 2021

Projects

Quantifying Filter Bubble Effect in Deep Recommender Systems

- Formulated and accelerated influence function to quantify the filter bubble effect in deep recommender systems.
- Empirically showed that training points that break the filter bubble are most influential in reducing the filter bubble effect.
- Implemented Influence Function for tracing influence of training points on the test data from the original paper ([Link](#))

Reed Frost HIV epidemics on networks

- Simulated HIV epidemics on real life sexual partner networks to identify superspreaders as vaccination candidates
- Implemented simulations and visualizations in R which demonstrated that initial seeds largely determine epidemic coverage. [\(Link\)](#)

Fast Youtuber Identification

- Developed innovative method based on neighborhood sampling to identify highly influential Youtubers in dynamic graphs.
- Empirically evaluated algorithm in R which showed that method is 3x faster than Depth First Search. [\(Link\)](#)

Skills

Languages: Python, R, C, D3, Pytorch, Tensorflow, SQLite, Scala, Gurobi, Latex, Javascript, Verilog, HTML, HBase, CSS
Frameworks: Apache Spark, AWS, Azure, Databricks Docker, Flask, OpenCV, GCP, Git, GNU Linux, Microsoft Office Suite, OpenRefine, Windows

Relevant Courses

Graduate Algorithms	Data Science for Social Networks	Machine Learning	Data and Visual Analytics	Network Science
Computational Statistics	Stochastic Modeling	Nonlinear Optimization	Mathematical Statistics	Regression Analysis
Artificial Intelligence	Theory of Computation	Randomized Algorithms	Programming Languages	Operating Systems

Extracurriculars

Operations Manager

GEORGIA TECH CRICKET CLUB

Atlanta, GA

Spring 2022 -