Mohit Srivastav
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Objective

Seeking a career to utilize my experience/knowledge of machine learning, computer algorithms, computational physics, and programming skills.

Education

- UVA (University of Virginia) Class of 2022 Echols Scholar (3.86/4 GPA); B.S. in Physics and a Distinguished Major B.A. in Computer Science
- South Lakes High School, Virginia – class of 2018 (4.34/4 weighted GPA, IB Diploma and Advanced Diploma recipient)

Thesis, Presentations, and Awards

- Wrote a distinguished major thesis for my research on using machine learning to improve the performance of the Mu2e Cosmic Ray Veto (CRV)
- Scheduled to present at NASA Langley Research Center for the Virginia Space Grant Consortium student research conference on my thesis (March 2022)
- **Presented** at the Division of Particles and Fields (DPF) of the American Physics Society on work for the Mu2e Collaboration (July 2021)
- Mitchell Undergraduate Research Scholarship (June 2021)
- **Virginia Space Grant Consortium Undergraduate Research Scholarship** (April 2021)
- Intermediate Honors (November 2020)
- Dean's List (Fall 2018, Spring 2019, Fall 2019, discontinued during COVID)

Experience

Undergraduate Researcher for the Mu2e Collaboration
(June 2019 – Present)
Mu2e is a collaborative experiment beginning in 2025 with Fermilab, alongside many other institutions throughout the United States and Europe, looking to find neutrino-less Muon to Electron conversion.

- Designing, implementing, and using Sklearn/Keras/Tensorflow to improve the performance of the Mu2e Cosmic Ray Veto using machine learning (ML)
- Analyzing ML models using methods like Monte Carlo Dropout to determine robustness
- **Presented** findings at the Division of Particles and Fields (DPF) of the American Physics Society
- Created a Jupyter notebook to analyze temperature-corrected aging rates of counters
- Presented progress updates at 3 CRV Workshop meetings to senior researchers and professors
- Analyzed efficiencies for Mu2e modules with C++ and Python over 500,000+ data points

Teaching Assistant for Introductory Computer Science in Python
(January 2019 – Present)

- Grading assignments and exams
- Proctoring exams each semester
- Leading programming lab sections of up to 50 students
- Holding office hours to help 500+ students each semester with programming assignments

Teaching Assistant for Computer Algorithms
(June 2020 – June 2021)

- Holding office hours for a class of around 200 students 3-4 times a week
- Grading assignments and exams on topics such as dynamic programming, divide and conquer, and graph algorithms

Teaching Assistant for Quantum Physics
(August 2021 – December 2021)
- Grading assignments for quantum physics students over the course of the semester
- Holding office hours twice a week to help students with their problem sets

Graduate-Level Teaching Assistant for Pre-Health Physics
(July 2021)
- Working with the professor to manage course logistics and ensure student success
- Grading daily assignments and quizzes for a summer session
- Holding daily office hours to help students with their assignments and questions

International Relations Organization at UVA (IRO) Treasurer
(November 2019 – January 2022)
Managed club finances for the five branches of IRO, reelected November 2020
- Managed club finances of around $30,000
- Detailed expenses for end-of-semester reports and taxation purposes
- Resolved monetary conflicts between, and delegated funds to, different branches of IRO
- Created a **system** that displays data collected from the IRO bank account

Technical Skills

- Experienced in rasterizing, raytracing, and simulating physical systems graphically
- Experienced in using Machine Learning algorithms such as neural nets and random forests
- Experienced in Python, Java, Mathematica, C++, C, CERN ROOT, Prolog, HTML, JavaScript, CSS, PHP, MySQL, Bash Scripting, and a UNIX Environment
- Experienced in data analysis and visualization in Python using Pandas/NumPy
- Experienced in the creation/usage of structures such as Linked Lists, AVL Trees, and hashtables
- Proficient in the usage of Vim, Emacs, and LaTeX
- Certified for Microsoft Office Excel, Word, and PowerPoint

Extracurricular Activities

- 2nd Dan Black Belt; on the UVA Club Taekwondo team (January 2019 – Present)
- International Relations Organization at UVA member (September 2018 – Present)
- Verbal commendation for performance at Columbia and UCLA Model UN Conferences (2019)

Key Accomplishments in High School

- Virginia Space Grant Summer Academies at NASA Langley Research Center
  - VESSS (Virginia Earth System Science Scholars) (July 2018)
  - VASTS (Virginia Aerospace Science and Technology Scholars) (June 2017)
- Virginia Summer Residential Governor's School for Math, Science, and Technology (July 2017)
- Peer tutoring for Math and Science

Languages spoken

- English, Hindi, and Spanish