RYAN G. SWOPE

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EDUCATION

Villanova University   **Villanova, PA**
Bachelor of Science in Astrophysics and Mathematics   Expected May 2021

- **GPA:** 3.77 / 4.0
- **Minors:** Business, Physics
- **Awards:** Dean's List (all semesters), Sigma Pi Sigma Physics Honor Society, Pi Mu Epsilon Mathematics Honor Society, Phi Beta Kappa Honor Society
- **Relevant Coursework:** Linear Algebra, Statistical Methods, General Relativity, Topology, Scientific Modeling, Math of Financial Derivatives, Abstract Algebra II/Ring Theory, Cryptology, Dynamical Systems

WORK & LEADERSHIP EXPERIENCE

Streamliners Management Consulting   **Wilmington, DE**
Business Analyst   November 2020 – Present

- Specialized in creating mathematical optimization models in Python using techniques such as linear programming and queueing theory.
- Model originally created for one warehouse is now being expanded to incorporate in all their warehouses in the Northeast.

Villanova University   **Villanova, PA**
Research Assistant, Department of Astrophysics   June 2020 – August 2020

- Developed a large data pipeline to classify all public time-series astrophysical data, which involved programming unsupervised neural networks, dimensionality reduction algorithms, and clustering algorithms as part of a pilot study for a larger project seeking KECK or NSF funding

Teaching Assistant, Department of Physics   September 2018 – Present

- Assisted professors with class material and graded and corrected student assignments for Thermodynamics, Modern Physics, Mathematical Physics, and Statistical Mechanics

Kimball Physics   **Wilton, NH**
Intern   June 2017 – August 2019

- Researched 3D printing methods, electron guns, and femtosecond laser physics; individually developed and produced the first original set of 3D printed electron optics

RESEARCH & PROJECTS

Swope, R. & Prsa, A. "Pilot study for the autonomous discovery of unknown unknowns in photometric timeseries data", Presented at AAS 237.

Swope, R., Klein, T., Harmer, K., & Pasles, P. "Rational Powers of Complex Matrices" (Fall 2020). Submitted to the Pi Mu Epsilon Journal.

Trained a TensorFlow based RCNN image recognition neural network to detect knives, investigated chaotic dynamical systems, and implemented linear programming and simulated annealing optimization models, well as several other projects during a semester of scientific modeling projects.

SKILLS, ACTIVITIES & INTERESTS

Programming: Java, Python. Strong knowledge of object-based programming; coded deep learning frameworks built on Pytorch and Tensorflow packages. Familiar with SQL, C++.
Software: Tableau, Excel