Noah L. Donald, Ph.D.

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Professional Summary

Researcher with extensive experience developing and computationally implementing theoretical models to solve complex problems. Experience with Python, C++, Mathematica, and Excel for data analysis, algorithm development, and modeling. Strong track record in applying numerical methods, statistical analysis, and optimization techniques to deliver actionable insights. Adept at collaborating with cross-functional teams, managing multiple priorities, and communicating technical results to diverse stakeholders. Seeking to leverage analytical expertise and programming skills in finance.

Education

CFA Program: I am enrolled and preparing to take the level 1 exam.

William and Mary, Williamsburg, VA
Ph.D., Physics (Theoretical Focus) | 2020 – 2025
M.S., Physics | 2020 – 2022
GPA 3.92/4.00

Ohio State University, Columbus, OH
B.S., Physics (Honors, Magna Cum Laude) | 2016 – 2020
B.S., Mathematics (Honors, Magna Cum Laude) | 2016 – 2020
GPA 3.74/4.00

Skills

Programming: Python, Jupyter Notebook, C++, Mathematica, Excel (personal finance), LaTeX

Analytical: Statistical Analysis, Numerical Modeling, Optimization, Graph Theory, Probability Theory

Soft Skills: Collaboration, Communication, Time Management, Organization, Scientific Writing

Language: English (Native), German (Intermediate)

Relevant Experience

William and Mary, Williamsburg, VA
Graduate Researcher | 2020 – 2025

- Developed a theoretical model with emergent hierarchical relationships in a complex physical system, utilizing Mathematica/Python software for numerical study and optimization, achieving a predictive framework, potentially applicable to financial risk modeling. (2024 – 2025)
- Designed and implemented algorithms to evaluate propagation in defective physical systems, leveraging Mathematica/Python for simulations to generate large data sets and statistical methods to quantify uncertainty, potentially relevant to asset pricing and market forecasting. (2023)
- Built a predictive physical model with enhanced system stability using C++-based PyR@TE3 software and Mathematica/Python, integrating statistical analysis and scenario testing to assess outcomes, potential applications for derivatives pricing and market forecasting. (2021 – 2022)
- Served as a Teaching Assistant and Grader, delivering lectures on quantitative methods, mentoring students in computational problem-solving, and managing data-driven assignments, enhancing communication and leadership skills. (2020 – 2022, 2024 – 2025)

Ohio State University, Columbus, OH
Undergraduate Researcher | 2016 – 2020

- Utilized C++, Mathematica, and Python-based algorithms to compute topological properties of a complex physical system, optimizing computational efficiency for large datasets, potentially applicable to high-frequency trading algorithms. (2019 – 2020)
- Conducted combinatorial analysis of graph structures using advanced mathematical techniques, relevant to financial network analysis. (2019)
- Coursework: Probability Theory, Combinatorics, Abstract Algebra, Computational Physics, C++, Linear Algebra & Differential Equations, Differential Geometry, Microeconomics

Selected Journal Publications

- C.D. Carone and N.L. Donald, "Tuning towards the edge of a dark abyss: Implications of a tuning paradigm on the hierarchy between the weak and dark scales", Phys. Rev. D 111, no. 3, 035021 (2025). [Demonstrates theoretical modeling and data analysis]
- C.D. Carone and N.L. Donald, "Towards a quantum field theory description of nonlocal spacetime defects", Class. Quantum Grav. 41, 095003 (2024). [Highlights algorithm design]
- J. Boos, C.D. Carone, N.L. Donald, and M.R. Musser, "Asymptotically safe dark matter with gauged baryon number," Phys. Rev. D 107, no. 3, 035018 (2023). [Shows predictive modeling]

Awards & Accomplishments

Roy L. Champion Award | 2024

- Recognized for outstanding research in physics.

DAAD RISE Fellowship | 2018

- Conducted experimental research in Germany and analyzed data, enhancing quantitative skills.

Germany for STEM Students | 2015

- Engineered a water filtration device to improve resource optimization in third-world countries. Traveled to Germany to explore scientific institutions.

Professional Presentations

- *"Towards a Quantum Field Theory Description of Nonlocal Spacetime Defects"*. Graduate & Honors Research Symposium, College of William & Mary, Williamsburg VA, March 2024.
- *"Asymptotically Safe Dark Matter with Gauged Baryon Number"*. Phenomenology 2023 Symposium, University of Pittsburgh, Pittsburgh PA, May 2023.
- *"A Symmetric Chromatic Function for Voltage Graphs*". The 62nd Midwest Graph Theory Conference, Marion OH, October 2019.

Activities

- Sports: Soccer, Weightlifting, Running, Climbing