Matthew R. **Walker**

PHYSICS PHD CANDIDATE

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Education

University of Virginia
Charlottesville, Virginia

PHD IN PHYSICS
Aug. 2019 – May. 2025

- Computational physics and stochastic systems under the supervision of Prof. Marija Vucelja
- 3 first author publications, 1 equal author publication

University of Virginia
Charlottesville, Virginia

B.S. IN PHYSICS
Aug. 2016 - May. 2018

3.2 GPA.

Experience

Department of Defense(DoD) High Performance Computing intern 2024
Washington DC

NAVY RESEARCH LAB(NRL)
Jun. 2024 –Aug. 2024

- Developed a ML model for estimating the position of an image while undergoing supersonic flow.

Undergraduate and Graduate Researcher
Charlottesville, Virginia

UNIVERSITY OF VIRGINIA
Aug. 2016 –

- Computational physics and stochastic processes
  4 publications
- 5 years experience in programming in Python and C++ with an emphasis on simulating stochastic equations and Hydrodynamics

Publications

PUBLISHED

[1] **M. R. Walker** and M. Vucelja. Anomalous Thermal Relaxation of Langevin Particles in a Piecewise Constant Potential. *J. Stat. Mech. 2021 (11), 113105* arXiv:2105.10656.

SUBMITTED

[2] **M. R. Walker**, and M. Vucelja. Mpemba effect in terms of mean first passage time *arXiv preprint arXiv:2212.07496, 2022* arXiv:2212.07496

[3] **M. R. Walker**, S. Bera and M. Vucelja. Optimal transport and anomalous thermal relaxations *arXiv preprint arXiv:2307.16103, 2023* arXiv:2307.16103

[4] S. Bera, **M. R. Walker**, and M. Vucelja. Effect of dynamics on anomalous thermal relaxations and information exchange *arXiv preprint arXiv:2308.04557, 2023* arXiv:2308.04557

Honors & Awards

2017 **Outstanding Undergraduate Research project** *Charlottesville, VA*
Sigma Pi Sigma research symposium

2024 **2nd place for most outstanding research project** *Charlottesville, VA*
UVA physics poster competition

Skills

Programming Python, C++, Matlab, Mathematica, Pandas, data mining, data analysis