Christian Bunker

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Computational physicist with two years of experience developing scientific code.

Education

Ph.D. in Physics, University of Florida: 3.92 GPA 08/2020−Present

- **Honors**: Graduate Student Fellowship.
- **Relevant courses**: Machine Learning.

B.S. in Physics, University of Notre Dame: 3.925 GPA 08/2016−01/2020

- **Honors**: magna cum laude, Outstanding Undergraduate Research Award.
- **Relevant courses**: Computational Methods in Physics, Computational Particle Physics, Computational Lab in Quantum Mechanics (audited).

Skills

Programming: Excellent grasp of Python, especially using Numpy, Matplotlib, and PySCF packages. Basic knowledge of C++. Competent using bash, git, Anaconda, and Jupyter notebooks.

Scientific communication: Experienced in presenting research at scientific conferences and teaching science to non-technical audiences.

Experience

Research Assistant, University of Florida, Gainesville, FL 05/2021−Present

- Developed Python code to simulate an electron scattering from magnetic molecules, and prepared a paper on the results.
- Constructed computational tools that interface with the PySCF quantum chemistry package to simulate electronic transport processes.

Teaching Assistant, University of Florida, Gainesville, FL 08/2020−04/2021

- Instructed Physics 2 students in key concepts and problem solving skills, reinforcing scientific communication abilities.
- Reviewed and provided feedback on lab reports for Physics 2 students.

Research Assistant, University of Notre Dame, Notre Dame, IN 01/2020−05/2020

- Developed Python code to calculate the bound states of quantum well heterostructures using perturbative methods, contributing to a paper on the design of topological insulators.
- Created a Python-based interface to record data from Oxford Instruments high magnetic field system.
- Conducted low temperature magnetotransport experiments on α-Sn thin films to investigate superconductivity.

Physics Tutor, University of Notre Dame, Notre Dame, IN 08/2019−12/2019

- Individually tutored Engineering Physics I and II students, refining scientific communication abilities.

Research Assistant, CERN, Geneva, Switzerland 01/2019−06/2019

- Developed Python code to efficiently analyze Monte Carlo simulated W boson decay events.
- Bootstrapped the simulated decay data to evaluate the efficacy of uncertainty reduction techniques.

Research Assistant, University of North Florida, Jacksonville, FL 05/2018−08/2018

- Simulated exotic circuit elements using AWR Design Environment circuit design software to investigate improvements to superconducting nanowire single photon detectors.