

LUC BARRETT

Experimental Physicist - Amherst, MA

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EDUCATION

Bachelors of Science - Physics, University of Massachusetts - Amherst Expected 2024

Major GPA: 3.95

Relevant Coursework: Quantum Computation, Quantum Mechanics, Classical Mechanics, Electrodynamics, Statistical Mechanics, Techniques of Theoretical Physics, Computational Physics, Calculus I-III, Differential Equations, Linear Algebra

Bachelors of Science - Computer Science, University of Massachusetts - Amherst Expected 2024

Major GPA: 4.0

Relevant Coursework: Quantum Algorithms, Artificial Intelligence, Computer Systems Principles, Data Structures & Algorithms, Reasoning Under Uncertainty, Intro to Computation

Minor - Mathematics, University of Massachusetts - Amherst Expected 2024

SKILLS

Languages	Python, C, C++, Javascript/Typescript, Julia, Java, Kotlin
Tools & Frameworks	Numpy, Pytorch, Pandas, Docker, ROOT, Geant4, Slurm
Software	Git/Github, Linux, VSCode, Fusion360, Cura, VSCode, PyCharm

EXPERIENCE

Research Assistant May 2022 -
University of Massachusetts - Amherst Department of Physics *Amherst, MA*

Working in Prof. Kumar's lab studying fundamental symmetries, developing the MOLLER experiment.

Projects have included:

- Designing an algorithm to smooth a simulation-generated contour curve without losing critical details
- Writing code to simulate light rays bouncing in the experiment hall and marking impacted objects, currently actively developing visualization tool
- Set up, configure, and manage a high performance compute cluster running Ubuntu and Slurm to run simulations and perform data analysis with Geant4 and ROOT

Teaching Assistant Aug 2021 - May 2022
University of Massachusetts - Amherst Department of Physics *Amherst, MA*

- F21 - PHYS181: Intro to Mechanics - Introduction to the major, students learn calculus based classical mechanics
- S22 - PHYS281: Computational Physics - Python based course for students to learn numerical methods and data analysis

PROJECTS

Twobounce 3D: Built a tool to simulate light bouncing around in a 3D environment and collect data on impact locations and objects. Part of MOLLER

Contour Smoothing: Designed an algorithm to smooth contour curves without losing critical details. Used to generate a 3D profile of the electron signal. Part of MOLLER

Song Jammer: Built a website using React and Flask to connect to the Spotify API and display the current song the user is listening to, along with the key, for musicians without perfect pitch to play along to.

HONORS & AWARDS

LeRoy F. Cook, Jr. Memorial Award: Presented to undergraduate physics majors for academic excellence

Phi Kappa Phi: Invite-only honor society admitting the top 7.5% of the junior class

Extra-Curricular Activities

- Currently a part of the physics Peer Mentoring program, where we are assigned a first-year student to help guide them through the major and provide support
- Ambassador for the Society of Physics Students, a student organization providing social and academic support to physics and astronomy majors across the campus