Brandon Li

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Education

University of Colorado Boulder — Boulder, Colorado
Doctor of Philosophy in Physics - Quantum Information Theory — September 2024 - Now

Cornell University, College of Arts & Sciences — Ithaca, New York
Bachelor of Arts in Physics and Mathematics, *summa cum laude* — May 2024

Honors

Yennie Prize — May 2024
Given to a senior student majoring in physics who shows unusual promise for future contributions to physics research and who intends to earn a doctorate.

Extraordinary Senior Award — May 2024
Selected as one of four physics majors in the class of 2024 by the Physics Director of Undergraduate studies to receive the honors, recognized for outstanding academic achievements.

Phi Beta Kappa — May 2023
Honor society with membership given to students who show academic achievement, intellectual integrity, and a commitment to the pursuit of knowledge.

Cornell First-Year Prize Exam (*2nd place*) — May 2021
Math competition taken by first year undergraduates at Cornell.

Research Experience

JILA Research Assistant, Gao Group — September 2024 - Now

- Researching the connections between quantum chemistry techniques such as Hartree-Fock and Density-functional theory and problems in quantum information such as Hamiltonian learning.

Undergraduate Research Assistant, Arias Group — January 2022 - May 2024

- Developed variational perturbation theory techniques for density-functional theory, with applications to high entropy alloys.
- Developed methods to compute band structures of incommensurate materials.

Teaching Experience

Graduate Teaching Assistant — January 2025 - Now

- Taught PHYS 1140 - Experimental Physics I
- Graded PHYS 2210 - Classical Mechanics and Mathematical Methods 1

Undergraduate Teaching Assistant-Introduction to Quantum Mechanics — September 2023 - December 2023

- Conducted weekly office hours to assist students with problem sets and course material.

Publications

- Li, B. (2022). 2D Microwave Simulation Using Finite Differences. *Cornell Undergraduate Research Journal*, *1*(1), 74–83. https://doi.org/10.37513/curj.v1i1.659
- Li, B. (2024). Novel Approach for Electronic Structure of Non-Periodic Matter [Senior thesis, Cornell University].

Technical Skills

Programming | Java | C++ | Julia | Python | MATLAB | Mathematica | LaTeX
Data Analysis & Computing: High-performance scientific computing
Theoretical Physics | Quantum Field Theory | High Energy Physics | General Relativity | Quantum Information | Density Functional Theory | Statistical Mechanics