

David M. Johnson

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Education

Cornell University, *B.S. Engineering Physics*

3.82 GPA, May 2026

Physics: Quantum Mechanics II; Mathematical Physics II; E&M III; Fusion Energy; Statistical Mechanics

Computing: Numerical Analysis & Differential Equations; OOP & Data Structures; Analog and Digital Circuits

Professional and Project Experience

PUFFIN Pulsed Power Laboratory, Cornell University

Jan 2025 – Present

Undergraduate Researcher, *Paper Submitted for Review*

- Modeled magnetic reconnection within a plasma using an HPC and full magnetohydrodynamics code
- Analyzed results, created publication-quality figures, and helped edit submitted manuscript
- Compared results to existing experimental literature to generate ideas for future work

Plasma Physics Group, Imperial College London

Jun 2025 – Aug 2025

Undergraduate Researcher

- Investigated Sheared-Flow Stabilized Z-Pinches using a radial wire array with an axial target wire
- Tuned precise initial conditions and wrote magnetic boundary conditions, including for cylindrical geometry
- Developed a flexible framework for adding inductance to electrodes to control current division

Laboratory of Plasma Studies, Cornell University

Oct 2023 – Jan 2025 (Full Time: Summer 2024)

Undergraduate Researcher

- Simulated the plasma formed by an exploding gas puff using a snowplow model (non-linear ODE)
- Fabricated gas-release mechanism based on the simulation results with mill, lathe, and other machine tools
- Designed, built, and calibrated magnetic diagnostics, like Rogowski coils and B-dot probes
- Built an 18-inch Helmholtz Coil; wrote capacitor bank safety manual; calibrated current monitor

General Dynamics Electric Boat, New London, CT

Jun 2023 – Aug 2023

Design & Engineering Intern

- Saved over \$500,000 per year by identifying and solving an engineering management inefficiency
- Identified a \$2M+ design timeline issue that was elevated to a VP of the company with 20,000+ employees
- Composed a detailed letter to a VP describing the timeline issue and, as a result, was given a return offer

Leadership & Extracurricular Experience

Cornell Outdoor Education — Instructor

Sept 2022 – Present

800+ hours teaching students & training new staff

Physics Learning Strategies Center — Tutor

Aug 2024 – May 2025

Tutored 15+ physics courses across multiple departments

Skills, Certifications, & Awards

Languages: Python, Java, Fortran, MATLAB, LaTeX, SQL, HTML, CSS

Softwares/Tools: HPC, SSH, CLI, Paraview, FEA (ANSYS), CAD (NX, Fusion, AutoCAD)

Other: OOP, Data Structures, Scientific Computing, Clean Room, Technical Writing

Certifications: DoD SECRET Clearance, Wilderness First Responder (WFR)

Awards/Grants: Dean's List (All Semesters); Cornell Engineering International Summer Research Grant (2025), Caltech Summer Undergraduate Research Fellowship (2025, declined)