

JAMES KIRWAN

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Education

University of California, Santa Barbara

College of Letters and Science, Bachelor of Science Degree in Physics, Degree expected June 2025

UCSB Courses Related to Intended Research Area:

- PHYS 150: Quantum information theory
 - PHYS 115C: Time dependent/independent perturbation theory
 - PHYS 119B : Quantum based statistical mechanics
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Professional Experience

- 5 years, F-22 Raptor Crew Chief in United States Air Force
- Performed inspections and maintenance of F-22 hydraulic, engine and flight control systems.
- Deployed to United Arab Emirates during operation Inherent Resolve
- Selected by commander for USAF officer corps commissioning board
- Described by commander as “truly the best of the best”

Research Experience

Position: Undergraduate researcher

Research group: **UC Santa Barbara, Andrew Jayich Lab**, April, 2024 – Present, [Jayich lab website](#)

Academic research work:

- Used USAF mechanical background to design and constructed three full clouds out of unistrut to house supporting equipment above optics experiment tables.
- Managed software and hardware for an environment monitoring program to track temperature, humidity and pressure in three separate lab spaces.

Knowledge gained from lab projects:

- Design and construction of experimental infrastructure
 - Network and programming skills from connecting the environment monitors with our servers
 - Knowledge of AMO physics: AC Stark Shift, Laser population dynamics, Atomic clocks, etc.
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Skills

Leadership:

- Selected by commander to commission from enlisted to officer ranks
- Lead undergraduates on the cloud construction project in the Andrew Jayich Lab.

Hands-on skills:

- Excellent mechanical skills from USAF experience. Adept at using a wide variety of hand tools and power tools to solve complex mechanical problems.
- Highly organized, able to navigate planning complicated projects with confidence.

Programming Languages:

- Python
 - Matlab
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Graduate Education Funding

- United States Air Force Graduate Fellowship For PhD in physics
- Full tuition, books and a living stipend fully funded by Veterans Affairs for the entire duration of graduate studies (six years)
- No financial support required from the department or institution