Christopher (CJ) O'Neill

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Education

University of Colorado Boulder Aug. 2022 - May 2026

B.S. in Aerospace Engineering, Minor in Planetary Science

- **GPA:** 3.96/4.0
- **Relevant Coursework:** Spacecraft Design (Grad), Radar and Remote Sensing (Grad), Engineering Data Analysis Methods (Grad), Aerospace Electronics, Planets and their Atmospheres, Aerospace Vehicle Design, Attitude Dynamics and Orbital Mechanics, Aircraft Dynamics, Computational Methods

Experience

Spacecraft Systems Engineer May 2023 - Present

Laboratory for Atmospheric and Space Physics (LASP) – Boulder, CO

- Systems engineer for the Emirates Mission to the Asteroid Belt (EMA), planned to launch in Q1 2028.
- 15-20 hours per week during school year and 40 hours per week during summer.
- Contributed to mission through PDR, CDR, and AIT.
- Major projects
  - EMA Spacecraft Design Document
  - Baffle design constraints using SPICE and attitude algorithms (1st place AIAA paper)
  - Optical navigation algorithm verification and validation
  - Designed requirement specifications for component vendors
  - Level 4 requirement creation and tracking in DOORS

Undergraduate Research Assistant - Radar and Remote Sensing Jan. 2025 - Present

University of Colorado Boulder; Advisor - Sean Peters

- Utilized synthetic aperture radar, machine learning, and computer simulations to characterize the spread of Rapid ʻŌhiʻa Death, aiming to protect the cornerstone species of Hawaiian forests by providing key information to disease containment strategists.

Sensor Lead - GNSS-Denied UAS Aug. 2025 - Present

University of Colorado Boulder; Advisors - Dr. Penina Axelrad, Dr. Dennis Akos

- Led team of 10 through design, integration, and test of GNSS-denied fixed-wing aircraft.
- Novel sensor-fusion design included laser rangefinder, camera, tactical-grade IMU, magnetometers, barometers, and pitot tube.

Publications

(*In Preparation*) Characterizing the Spread of Rapid Ohia Death Using Sentinel-1 AlphaEarth, and Deep Learning, *IEEE, The International Geoscience and Remote Sensing Symposium (IGARSS) 2026* Jan. 2026

Benjamin Atkinson, ***Christopher M. O'Neill Jr.***, Morteza Karimzadeh, Sepideh Jalayer, Zhongying Wang, Sean Peters

Tracking the Spread of Rapid Ohia Death Using SAR, *Aerospace Research Central, AIAA SciTech Forum* Jun. 2025

Christopher M. O'Neill Jr., Sean Peters

Modeling Trajectory and Attitude to Optimize Baffle Design for the Optical Navigation System of the Emirates Mission to the Asteroid Belt, *Aerospace Research Central, AIAA SciTech Forum* Jun. 2025

Christopher M. O'Neill Jr., Michael Bonnici

Awards and Honors

American Society for Photogrammetry and Remote Sensing (ASPRS) - Abraham Anson Memorial Scholar (National) Dec. 2025
LASP Charles A. Barth Scholarship in Space Research (University) Aug. 2025
Henry Ogrodzinski Scholarship Recipient - NASAO (National) Jun. 2025
Balance Scholarship - Theta Xi Fraternity (Chapter) Jun. 2025
1st Place - American Institute of Aeronautics and Astronautics (AIAA) Student Conference, Undergraduate Research Category Apr. 2025
Academic Excellence Award - Interfraternity Council (University) Dec. 2024
7x CU Boulder Esteemed Scholar - President Horace M. Hale Award Aug. 2022 - Present
7x Dean's List - College of Engineering and Applied Science Aug. 2022 - Present
Brems Scholar - Tau Beta Pi Engineering Honor Society (National) Jul. 2024
Rudd Scholar - Theta Xi Fraternity (National) Jun. 2024
Balance Scholarship - Theta Xi Fraternity (Chapter) Jun. 2024
1st Place - Freshman Projects Section, Autonomous Soil Rover Dec. 2022
Academic Excellence Award for Calculus III(Top student in the course) Apr. 2022
Academic Excellence Award for Calculus B.C.(Top student in the course) Apr. 2021

Leadership and Teaching Experience

Vice President - Tau Beta Pi Engineering Honor Society May 2024 - May 2025

- Drove engagement up by 10x, having events with >30 members
- Instituted transition documents to ensure smooth leadership transitions
- Select events during term:
  - Blanket making for Children's Hospital
  - Trick-Or-Can for Harvest of Hope ($> 200lb$ of food collected)
  - Creek Cleanup ($> 100lb$ of trash collected)

Teaching Facilitator - Intro to Thermodynamics and Aerodynamics, CU Boulder Aug. 2024 - Dec. 2024

- Accommodations Lead: Selected to manage logistics and testing arrangements for over 20 students requiring academic accommodations, ensuring accessibility and compliance with university policies.

Collegiate Mentor - STEMSCAPE, BAE Systems & CU Boulder Feb 2023, 2024, 2025

- Mentored group of 8 high-school students through aerospace engineering spacecraft design challenge
- Guided student group to win 1st place in 2024 and 2nd place in 2025

Student Ambassador, CU Boulder Sep. 2022 - Oct. 2023

- Guided prospective students and their families on engaging campus tours, providing insights into academics, student life, and campus culture.
- Presented key information and responded to in-depth questions from families during high-profile Admitted Students Day panels attended by hundreds.

Interests (& Favorites)

- Long distance hiking (Rim2Rim2Rim)
- Backcountry Snowboarding (Berthoud Pass)
- Bouldering (Valhalla, Flagstaff Mtn.)
- Guitar (Bob Dylan)
- Birding (Brown-capped Rosy Finch)
- Backpacking (Teton Crest Trail)