

Kevin I. Alvarado

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Education

Ph.D. Aerospace Engineering | Rensselaer Polytechnic Institute

Troy, NY

Expected May 2026

✚ First Year; GPA 3.71

B.S. Aerospace Engineering | Clarkson University

Potsdam, NY

May 05, 2022

✚ Honors Program, Senior; GPA 3.87

✚ McNair Scholar

- Presidential Scholar List, (> 3.8 GPA) 4 Semesters
- Dean's List, (>3.5) 1 Semester

Aviation Maintenance Technology | Aviation High School

Long Island City, NY

July 11, 2018

- Licensed Aircraft Maintenance Technician in Airframe and Powerplant

June 28, 2017

- Graduated High School, GPA 97

Work Experiences

Teaching Assistant | Clarkson University

Potsdam, NY

August 2021 – December 2021

Teaching Assistant for Mechanical Vibrations and Control at Clarkson University

- Graded the homework's submitted by the students taking the course
- Taught the students about the topics unclear in the class
- Tutored on the way in which the tests were conducted and how to approach the problem

Engineering Student Co-op | General Electric Aviation

Cincinnati, OH

August 2019 – December 2019

Product Support Engineer for the LEAP-1A/B/C Engine

- Analyzed engine deterioration data to determine trends for varying environments and airlines
- Categorized and cataloged various types of fuel nozzle deterioration
- Presented observations made to engineering leads throughout the company
- Acted as a liaison for different groups within the engineering department

Research

ER3BP Station Keeping Strategies Researcher | RPI

Troy, NY

January 2023 – Present

- Generated a database of periodic orbits in the ER3BP for different systems using continuation techniques
- Analyzed impulse-based station-keeping maneuvers at the plane crossings
- Expected to present work at the AAS/AIAA Astrodynamics Specialist Conference

Asteroid Resource Potential Researcher | Clarkson University

Potsdam, NY

January 2021 – May 2022

- Developing a code that estimates the resources that can be extracted from asteroids
- Using a Genetic Algorithm and Lambert's problem to make a realistic flight calculation for each asteroid
- Presented the work at the IEEE Aerospace conference

Publications

K.I. Alvarado, S.K. Singh, "Orbit Maintenance via Homeomorphic, Periodic Orbit revs in the Elliptic Restricted Three Body Problem," *AAS/AIAA Astrodynamics Specialist Conference*, Big Sky, USA, Aug 13 - 17, 2023. (Accepted)

K.I. Alvarado, M.C.F. Bazzocchi, "Quantification Method for Assessment of Asteroid Resource Accessibility," *IEEE Aerospace Conference*, Big Sky, USA, Mar 5 - 12, 2022.

University Projects

Octocopter Control System Analysis | RPI

Troy, NY

January 2023 – May 2023

- ❖ Assisted in creating a basic control system for a novel octocopter
- ❖ Generated an order list of components necessary for the system to function
- ❖ Collaborated with different subsystem groups to integrate all the components together
- ❖ Presented weekly on new findings and progress of the system

Gloster Meteor F.8 Aircraft Performance Analysis | Clarkson University

Potsdam, NY

March 2021 – April 2020

- ❖ Determined the conditions at steady level flight, climbing, gliding, and level turns
- ❖ Obtained the range and endurance from the empty and gross weights
- ❖ Predicted the takeoff and landing distances for the aircraft
- ❖ Compared the estimated and actual flight parameters; Results were within a margin of 5% due to compressibility factors

Grumman F6F Hellcat Structural Analysis | Clarkson University

Potsdam, NY

January 2021 – April 2020

- ❖ Determined the structural limits on the aircraft fuselage from all the aerodynamic forces
- ❖ Performed beam bending, web-stringer analysis and shell model of the fuselage during a dive
- ❖ Tested the rectangular and circular plate models on a bulkhead and skin panel for failure
- ❖ Constructed 3-D models of the simplified fuselage components
- ❖ Contacted the Cradle of Aviation Museum to report the findings for their airplane

Douglas SBD-1 Dauntless Structural Analysis | Clarkson University

Potsdam, NY

August 2020 – November 2020

- ❖ Performed beam bending and web-stringer analysis of the wing during a dive
- ❖ Determined the buckling limits of the wing skin and structure
- ❖ Constructed 3-D models of the wing and vertical stabilizer
- ❖ Contacted the Flying Leatherneck Aviation Museum at San Diego to report the findings for their airplane

Organizations

Secretary | Clarkson University AIAA Chapter

Potsdam, NY

September 2021 – Present

- Inform the people about the events occurring under the Clarkson University chapter
- Co-operate with guest speakers at the University
- Make entertaining activities for the members to enjoy

Member | Clarkson University RASC-AL Team

Potsdam, NY

September 2021 – Present

- Working in cooperation with HKUST, Kyushu, Khalifa and RMIT Universities
- Assisting in the development of a proposed Portable Utility Pallet for the RASC-AL competition
- Developing a preliminary design and requirements of the device

Member | Tau Beta Pi: The Engineering Honor Society

September 2021 – Present

Member | Sigma Gamma Tau: National Aerospace Engineering Honor Society

January 2020 – Present

Member | Sigma Alpha Pi: National Society of Leadership and Success

January 2020 – Present

Member | Clarkson University Concrete Canoe Speed Team

Potsdam, NY

September 2018 – May 2020

- Constructed concrete canoe that satisfied requirements and restrictions imposed
- Participated in the competition between the different northeastern universities at RIT

Leadership Volunteering

Informer | Clarkson University Open House

Potsdam, NY

September 2021 – November 2021

- Discussed about the aerospace program change at Clarkson University
- Explained what the AIAA chapter at Clarkson University does
- Answered questions related to the experiences I've had during my undergraduate time

Peer Mentor | Student Space Exploration Program

Potsdam, NY

September 2021 – October 2021

- Educated elementary middle and high schoolers about the NASA SSEP program
- Helped teach the students about various ideas and topics in the STEM field
- Guided the students on writing the abstract and proposals for their projects

Laboratory Tour | IGNITE Program

Potsdam, NY

July 2021

- Explained the research that I conducted to High Schoolers
- Introduced the students to the robotics within the laboratory
- Discussed about being a student at Clarkson University and reasons for my decisions

Peer Mentor | IMPETUS Program

Potsdam, NY

September 2018

- Educated middle and high schoolers about STEM using fun activities
- Examples include Balloon rockets, straw rockets, recycling
- Managed a group of children in-person and online

Relevant Skills

Vocational Work

September 2013-June 2018

- Went to a vocational school specialized in aircraft maintenance for 5 years with hands-on experience.

Computer Programs

- ANSYS
- MATLAB
- Microsoft Office
- Solid Works
- Systems Tool Kit
- Zoom/Webex

Bilingual

- English
- Spanish

Vocational Courses

Airframe

- 1) Avionics
- 2) Composites
- 3) Electrical Systems
- 4) Ground Operations
- 5) Hydraulics
- 6) Materials and Processing (Non-Destructive Testing)
- 7) Sheet Metal Works
- 8) Welding
- 9) Woodshop

Powerplant

- 1) Engine Accessories (Carburetors and Magnetos)
- 2) Fuel Systems
- 3) Jet Engines
- 4) Line Maintenance
- 5) Overhaul
- 6) Propellers
- 7) Reciprocating Engines

University Courses

Previously Taken

- 1) Aerodynamics
- 2) Aircraft Design I & II
- 3) Aircraft Performance and Flight Mechanics
- 4) Aircraft Structures
- 5) Design of Aircraft Structures
- 6) Design of Propulsion Systems
- 7) Elementary Astronomy
- 8) Fluid Mechanics
- 9) Gas Dynamics
- 10) Introduction to Numerical Methods
- 11) Material Science
- 12) Mechanical Vibrations & Control
- 13) Modular Control of Dynamical Systems
- 14) Numerical Computation (ODES & PDES)
- 15) Orbital Mechanics
- 16) Rigid Body Dynamics
- 17) Spaceflight Mechanics
- 18) Stability and Control of Aerospace Vehicles
- 19) Statics
- 20) Strength of Materials
- 21) Thermodynamics