

Juan Felipe Posada

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SUMMARY

Aerospace Master's Student with leadership and design experience in the development of structures for rovers and satellites. Experience with product design from a systems engineering perspective, effectively defining mission requirements and successfully integrating multiple subsystems to achieve a coherent CubeSat configuration. Extensive practice with iterative equipment design based on parametric studies of mathematical models as a primary component of the Master's thesis.

EDUCATION

Master of Applied Science, Aerospace Engineering 2016 - Present
Carleton University, Ottawa, ON

- Research topic focused on the use of two-phase heat transfer devices as the main thermal control systems for spacecraft payloads
- Thesis work primarily experimental with the study and development of mathematical models for validation

Bachelor of Engineering, Aerospace - Space Systems Design, Co-op Option 2011 - 2016
Carleton University, Ottawa, ON

- Graduated with High Distinction (GPA of 11.32/12)
- Deans Honours List (2012 – 2016)

WORK EXPERIENCE

Teaching Assistant September 2012 – Present
Carleton University, Ottawa, ON

- Prepare and conduct problem analysis sessions in Fluid Mechanics and various areas of Mathematics including differential equations and linear algebra
- Instruct, supervise and guide students during laboratory session in Fluid Mechanics and Introduction to Engineering
- Help students become familiar with the engineering design process through tutorials in Introduction to Engineering. Topics include the importance of proper documentation and communication, statistics and data manipulation, 2D and 3D CAD modeling using Creo Parametric, and Matlab
- Grade and assess the progress of students, while keeping a clean record of their attendance and marks

Mechanical Engineering Coop May 2014 – September 2015
MDS Aero Support Corp., Ottawa, ON

- Design mechanical systems for the testing of gas turbine engines, working through all stages of the design process, from conceptual design through fabrication and product delivery
- Execute detailed structural analysis (static, dynamic, and vibrations) of mechanical systems using FEA software such as ANSYS Workbench
- Generate 3D models and engineering drawings according to ASME Y14.5M-1994 for the fabrication of mechanical structures
- Chair design reviews at the preliminary design and final design stages in front of audiences comprised of senior engineers, system engineers, project managers, and department managers

- Write documents relevant to the designing of mechanical test systems including design briefs, installation manuals, operation procedures, interface control documents, acceptance test procedures, and purchasing specifications
- Hold periodic meetings and reviews with vendors to ensure adherence to requirements during the design and fabrication process, ensuring proper traceability of all design changes, issues, and actions
- Work effectively in large project teams to ensure proper interfacing and compatibility of various mechanical test systems, and to quickly communicate design restrictions between interfacing systems

APPLIED PROJECTS

Carleton Planetary Robotics Team

September 2013 – Present

Founder, Former President, and Mechanical Team Lead (Current)

Objective: Design and build a terrestrial rover to compete in the University Rover Challenge placing 4th in 2016.

- Oversee the design of all structural components of the rover while ensuring proper integration with electrical and software aspects of the design
- Effectively guide members through the design cycle while taking on the major design aspects of the vehicle frame and the more complex Finite Element Analysis of the frame, chassis, and wheels
- Deliver training sessions to teach members how to correctly use Solidworks and ANSYS Workbench
- Review and approve calculation and designs submitted by various members of the mechanical team for the different rover subsystems
- Plan and organize activities including welding and machining workshops, as well as high school visits to promote engineering, mathematics, science, and technology
- Manage and organize the team by scheduling meetings, designating weekly goals, dividing tasks amongst members and keeping the team on track with the project's timeline

Carleton Satellite Design Project “CuSAT”

September 2015 – Present

Structures Lead, Lead System Integrator, and Structures Subsystem Advisor (Current)

Objective: Design, test, build, and launch a 3 Unit CubeSat with the mission to “Discover anomalous hot spots for the purpose of determining the location of forest fires.”

- Develop the CubeSat structure while meeting requirements simultaneously being defined by other subsystems
- Design a CubeSat test rig in order to accurately simulate the launch environment during vibration and shock testing
- Define system functional, operational, and derived requirements to ensure a consistent and cohesive overall design
- Keep track of system level mass, volume, and power budgets involving components from all subsystems
- Conduct tutorials to teach proper practices for the generation of 3D CAD models using Autodesk Inventor and how to use properly use ANSYS Workbench to conduct vibration and static structural FEA of the CubeSat Structure
- Advise, supervise, and evaluate undergraduate students under the structures subsystem

ADDED QUALIFICATIONS AND INTERESTS

- Fluent in Spanish and English
- Completed courses in ANSYS Workbench
- Attended training sessions on Weld Inspection and industry level 3D modeling practices
- Active volunteer for the Canadian Aeronautics and Space Institute (CASI)
- Colour Photography
- 8 years practicing Taekwondo

Further references, information, and details and examples of project work available at www.juanfposada.com