# ARJUN VADEHRA

## Spacecraft Mechanical Systems Engineer

@ arjunvadehra@gmail.com  ☎ +1(604)307-6370  ✉ 477 Rimilton Avenue, Etobicoke, Ontario, Canada
in www.linkedin.com/in/arjun-singh-vadehra777

## EXPERIENCE

### Jr. MTS Mechanical - Thermal
**MDA Space, Robotics and Space Operations**

📅 Jan 2024 – Oct 2024          📍 Brampton, Canada

- Thermal designer/analyst Space Station L&SE, SSRMS, and Lunar Gateway - Canadarm3
- Development of thermal models for components of various MDA robotics projects
- Development of system level mechanical-thermal requirements
- Design and selection of active and passive control for various L&SE projects
- Reduced thermal modelling and model conversion on various FEA analysis platforms including Nx and Thermal Desktop

### Spacecraft Mechanical Systems Engineer
**UTIAS Space Flight Laboratory**

📅 August 2021 – September 2023          📍 U of T, Canada

- Developed thermal and mechanical models for LEO microsatellite missions to ensure alignment of technical requirements and deliverables
- Operated as thermal control lead on microsatellite missions including for Telesat's LEO3 spacecraft - defining and analyzing thermal scenarios using tools such as Nx FEA and STK
- Contributed to various aspects of design and development including structural/deployable design, assembly, and testing of several missions including 4 iterations of the Hawkeye 360 clusters - American RF satellites
- Designed, conducted and analyzed TVAC and thermal balance tests
- Created fuel budgets and orbital analysis for de-orbiting spacecraft
- Liaised with international customers, subcontractors, and payload providers

### Mechanical Systems Designer
**Hackspace for Immersive Virtual Experiences (HIVE)**

📅 January 2020 – October 2020          📍 UBC, Canada

- Collaborated in a team of two to solve engineering design problems in various HIVE education projects
- Prime examples of design solutions include: an artificial pulse generator for medical mannequins, a turn-table to improve 3d scanning
- Created and modified various 3d models for printing and scanning

### Mechanical Systems Team Member
**Pixxel Aviation and Aerospace**

📅 June 2018 – October 2018          📍 Bangalore, India

- Developed base thermo-structural design requirements with 3 subsystem members by modelling mechanical systems of CubeSats for the Pixxel constellation 'Firefly' to be entered in the IBM Watson AI XPRIZE
- Utilized software's such as Solidworks and Ansys to model thermal behavior
- Conducted literature research to optimize design and communicated with various simulation software companies to improve analysis techniques and procure modelling software

## EDUCATION

### MASc. Aerospace Eng.
**University of Toronto - SFL**

📅 Sept 2021 – Oct 2023

GPA 3.9/4.0

### BASc. Mechanical Eng.
**University of British Columbia**

📅 Sept 2016 – June 2021

Graduate with Distinction
GPA 3.8/4.0

## SPECIALIZED COURSES

**AER1520/1521** - Microsatellite Design
**MIE1129** - Nuclear Engineering
**MECH410I** - Radiation
**MECH479** - CFD
**PHYS301** - Electrodynamics

## SKILLS

Electrical & Mechanical

- Circuit Analysis/Design
- 3D Printing & Scanning
- Soldering
- Oscilloscope & Multimeter Operation
- Milling and Lathe Work

Software & Coding

- Nx, Nx Space Systems Thermal
- Thermal Desktop
- Ansys, Ansys FLUENT | STK
- SolidWorks, Blender, SolidEdge
- MATLAB, Python | C, C++
- Latex, Microsoft Office

## PUBLICATIONS

### Thermal Control for a 1000 km Microsatellite
**SFL**

📅 Sep 2021 – Sep 2023

https://hdl.handle.net/1807/130123