

KETAN VASUDEVA

Engineering Science Student

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EDUCATION

Engineering Science - Robotics Major - BASc

University of Toronto

📅 September 2018 – Present

- Minor in **Business**
- Dean's List

EXPERIENCE

Science Software Engineering Intern

GHGSat

📅 May 2021 – May 2022 📍 Montreal, Quebec

- Working in R&D to deliver industry-level greenhouse gas density maps by implementing scientific software to process raw satellite data.
- Created R&D solutions to speed up data processing by a **factor of 4**, reduce image **artifacts by 50%**, and calibrate optical instrument characterization data. Created and reported KPI to track company performance.
- Independently developed and maintained a command-line tool which allows team to visually analyze and plot satellite retrieval data.

Software Team Lead

UTDL Robodog Design Team - University of Toronto

📅 January 2022 – August 2022 📍 Toronto, Ontario

- Leading software development of a team of over 10 students creating an autonomous robotic dog and manipulator, specifically leveraging **ROS**. Challenges include computer vision, path planning, and hardware control.

Space Systems Team Member

University of Toronto Aerospace Team (UTAT)

📅 March 2019 – June 2021 📍 Toronto, Ontario

- Worked towards deploying a satellite **by 2023** to measure **Anthropogenic CH4** levels across the GTA through hyperspectral imaging. Worked in the **Firmware**, **Payload-Electronics**, and **Systems Engineering** teams.
- **Inclusion (Chair)**: created a space within UTAT to discuss and implement **Equity, Diversity, and Inclusion** goals.

Praxis 3 Research Assistant

University of Toronto

📅 September 2020 – March 2021 📍 Toronto, Ontario

- Researching with the faculty to build a fresh and innovative Engineering Science design course focusing on global community collaboration.
- Created literature review which was used as foundation for creation of course partnerships and materials.

Full Stack Software Engineer

Manulife - Canadian Architecture

📅 May 2020 – August 2020 📍 Waterloo, Ontario

- Developed and deployed a web tool, using **Agile** methodology, to **auto-mate** security threat analysis reports for Security Architecture. **Increased productivity by 30%** by decreasing average report creation time.

PUBLICATIONS/RESEARCH

Thesis Research

- Investigating Markov Brain Techniques for Robotic Swarm Control in Space Exploration

EUCASS Conference

- **A Concept of Operations for a Sustainable Human-Centred Lunar Settlement by Integration State-of-the-Art ISRU Technologies** - DOI: 10.13009/EUCASS2022-6167

Small Satellite Conference

- **FINCH: A Blueprint for Accessible and Scientifically Valuable Remote Sensing Satellite Missions** - Code: SSC22-WKVII-04
- **Inspiring the Next Generation: Challenges and Strategies for Onboarding and Retention in an Undergraduate CubeSat Design Team** - Code: SSC21-P2-37

PERSONAL PROJECTS

NASA SpaceApps 2020 Hackathon - Toronto and Canada CSA Winner

- Created an educational sandbox tool to simulate the challenges of communicating with people on Mars using **NASA/CSA** data sets, **React.js**, **Node.js/Express.js**, and **Python**.

The Sound of Space Podcast Host (UTAT)

- Co-host a podcast dedicated to creating, sharing, and explaining the wonders, dangers, and practical applications of space with space enthusiasts.

Engineers Without Borders Canada (EWB) - Policy and Advocacy Team

- Met with Members of Parliament in order to advocate for the 2030 EWB's sustainable development goals.

UTDL Designathon

- Designed, prototyped, built, and tested a pin-locked fully-integrated safety box to prevent home delivery package thefts using **Arduino**, **CAD**, and various **motors**.

ACHIEVEMENTS

- **Paula Burke Bursary** recipient - University of Toronto
- **University of Toronto Scholar** and **AIA Canada Scholarship** recipient
- UofT Varsity Ultimate Team **Rookie of the Year**