



# PolyOrbite

2018

2020

## SPONSORSHIP PACKAGE

# Join our journey to space !



Members of the team for the CSDC 2018-2020 edition

PolyOrbite is a technical society from École Polytechnique de Montréal. Within it, **40 qualified students** in undergraduate and graduate levels work to attend a common goal: **build and launch the first CubeSat made by students in Quebec.**

It is also a very experienced organization which has already succeeded in large-scale projects. As a matter of fact, Polyorbite rose **two times** to the podium of the **Canadian Satellite Design Challenge**.

PolyOrbite was officially recognized by Polytechnique Montreal in 2013 and remains the **only technical society** within the university specialized in **space technologies**.

We have developed a significant expertise in the design and production of nano satellites.

### What is a CubeSat ? And why is it beneficial ?

CubeSats are the result of the current **technology miniaturization**; they are made up of **units**, which are cubes measuring  $10 \times 10 \times 10$  cm. Launching multiple CubeSats can achieve missions at a **lower cost** than a traditional satellite.

These small satellites provide an opportunity for the scientific community. Indeed, a CubeSat can be used for a **wide range of tasks**: from terrestrial and meteorological imaging to testing materials' properties in a microgravity environment. The possibilities are countless and so are the potential **economic benefits**.

Future demand for such satellites is estimated to increase at a rate of about 10% per year. CubeSats operations are currently accounting for about **70% of the launches** from **2017 until 2019**, while they represented only 40% between 2009 and 2016. We believe that **developing a solid expertise at Polytechnique in a rapidly growing market is beneficial and relevant to Quebec's aerospace industry**.



# MISSION

---

Our objectives for this mission are:

Launch the **first** student satellite in Quebec

Promote the **interest for science** among young people

Study **plant growth** in a microgravity environment

Implement a new **self-adaptive** onboard computer



**SpaceBean** is an incubator designed to study the viability of plant growth in a **microgravity environment**. This project will test a new soil conditioning and provide data for a model of legumes\* in microgravity. It is a self-sufficient and autonomous system that will be able to determine the best conditions for the growth of the plant.

**Sachs** is an onboard computer with the capacity to reprogram itself autonomously. It provides a new solution to process and store information in space and **avoids data corruption** due to cosmic radiation. It is designed to be more reliable for long journeys in outer space.

To this end, it has the ability to constantly check for errors in its own system and self-correct itself by changing its architecture and key components. This gives the satellite a **faster response time** when malfunction and change in the environment appear making it less susceptible to mission failure.

---

\* A flowering plant, source of protein interesting for spatial journeys.

# Our community engagement has been rewarded by the *Urthecast Educational Outreach* prize.

We take great pride in the educational aspect of our mission, which distinguishes us from others technical societies. We use various forms of discussion to maximize our outreach: conferences, discussion panels, educational activities and scientific workshops:

Montreal Science Centre

10 educational activities on space flight for kids in primary and secondary school using Kerbal Space Program

20 educational activities at Polytechnique in collaboration with the day camp Folie Technique

Scientific workshop at the Laval Cosmodome's Spatial Academy

SEUR Project

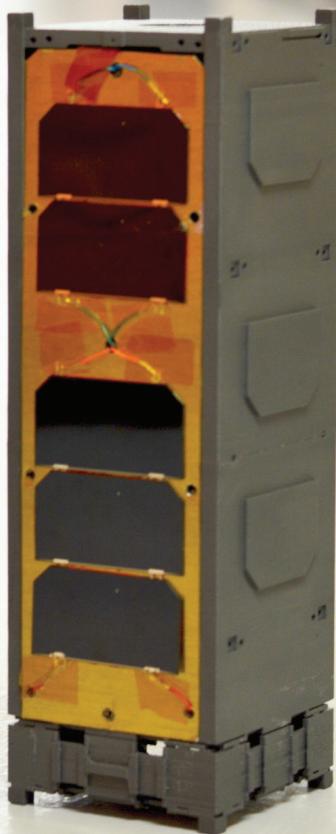
Aerospace discussion panel during the 2016 AeroPortail

Scientific workshop at the Eureka Festival

Discovery activity for annual event Les filles et les sciences, un duo électrisant!

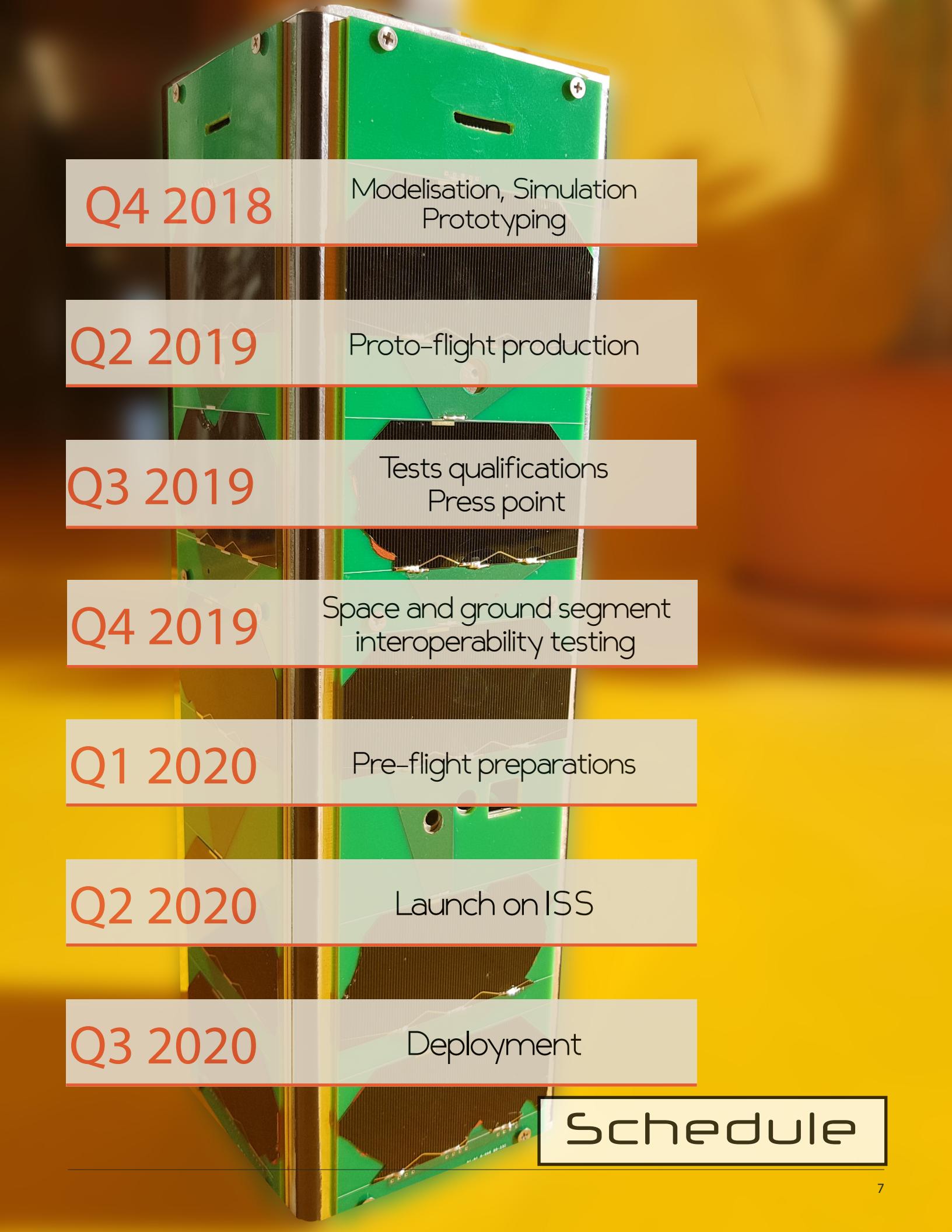
## EDUCATIONAL OUTREACH

# Budget



Components	133 000\$
Certification (test qualifications)	50 000\$
Groundstation access	26 000\$
Software licensing and purchasing	3 000\$
Communication (promotion & administration)	11 000\$
Launch & Permit for spatial activities	332 000\$
IU development	10 000\$
<b>TOTAL</b>	<b>565 000\$ *</b>

\* Price in \$CAD  
For more informations please contact us



**Q4 2018**

Modelisation, Simulation  
Prototyping

**Q2 2019**

Proto-flight production

**Q3 2019**

Tests qualifications  
Press point

**Q4 2019**

Space and ground segment  
interoperability testing

**Q1 2020**

Pre-flight preparations

**Q2 2020**

Launch on ISS

**Q3 2020**

Deployment

**Schedule**

# Visibility



PolyOrbite's delegation in the David Florida Laboratory, Ottawa for the vibration test in June 2016

## CANADA

Third place of CSDC 2012-2014 with our prototype Eleonora.

Participation in the International Astronautical Congress 2014 in Toronto.

Third place of CSDC 2014-2016 with our prototype Hathor.

Publishing of an article in IEEE Communication Magazine in May 2015.

Participation at the Conference on Adaptive Hardware and Systems (AHS) held in Montreal in June 2015.

Participation with Montreal Space Symposium edition 2017 and 2018.

Partnership with the Laval Cosmodome, where the design unveilings are hosted.

## INTERNATIONAL

Participation in the International Astronautical Congress (IAC) from 2013 to 2018 in Beijing, Jerusalem, Guadalajara, Adelaide, Bremen.

Cross-border collaboration with a team of students from the University of Bologna, in Italy. We maintain strong ties with our Italian colleagues.

Participation in European and Canadian space agencies' workshops.

PolyOrbite's students distinguish themselves by publishing articles pertinent to their work and presenting these at international conferences.

# PARTNERSHIP AGREEMENT

Please note that we are always in search of material sponsorships.

For more information, please contact the sponsorship manager.

	PLATINUM	GOLD	SILVER	BRONZE
Amount	\$20 000 and up	\$10 000 and up	\$5 000 and up	\$1 000 and up
Updates on the project				
Social media recognition				
Logo visibility during our events*				
T-Shirt and sweatshirt (logo on the back)				
Invitation to our events				
Presentation of the prototype to the sponsor				
Plaque illustrating your financial support				
Platinum's day				

The value of a material sponsorship will be calculated with the market value of the product and we will use this amount to classify the sponsorship according to the mentioned categories.

The provided logo must be vectorial and have a minimal resolution of 300 DPI.

The monetary values are in Canadian dollars (CAD).

\* For instance: multimedia, invitation cards, banner, etc.



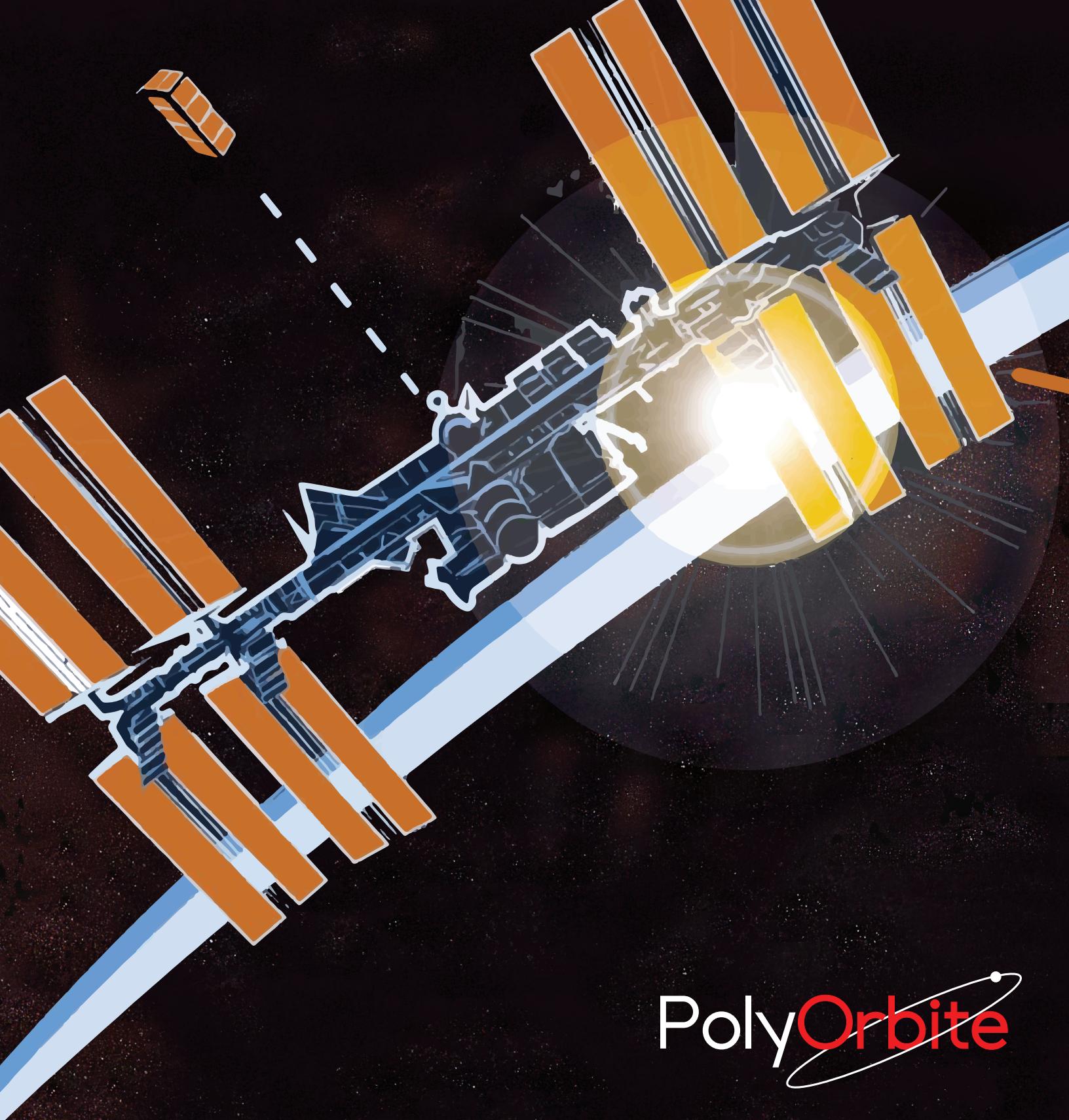
## OUR TEAM

Your contribution is greatly appreciated by our hardworking students. We are proud to bring change in the aerospace sector, and we are grateful for your support!



We have been working relentlessly to become the first students in Quebec to launch a satellite into space. We aim to be a model of innovation, teamwork and collaboration for all the students in the province. Each and every one of us has a deep passion for space technologies and we want to prove to the public such a passion is far from being out of reach.

**FROM THE WHOLE TEAM: THANK YOU !**



PolyOrbite

## CONTACT

Michel Chatmajian  
SPONSORSHIP MANAGER  
[partenariat@polyorbite.ca](mailto:partenariat@polyorbite.ca)

