

# **THE LAUNCH CANADA CHALLENGE 2022**

Inaugural Rocket Launch Competition



## **Volunteer Package**

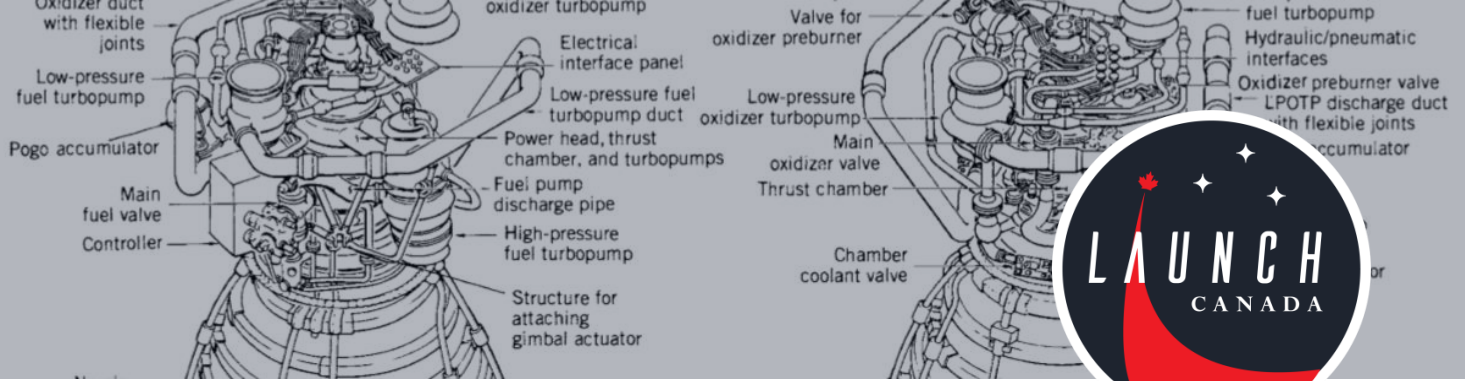


## **Our Mission**

Launch Canada's mission is to support and advance the science, engineering and business of rocketry and space launch in Canada, and to use the excitement of rocketry to educate students and the general public in science, technology, engineering and mathematics. We seek to unite Canadian academia, industry and government to help unlock their full innovative potential and expand international space community collaboration.

## **What is the Launch Canada Challenge?**

The Launch Canada Challenge is Canada's first-ever major national rocketry competition. It will bring together Canada's passionate and rapidly growing amateur and student rocketry community with academia, industry and government to facilitate the development of national talent in the interdisciplinary field of rocket engineering, while fostering a strong culture of safety.



## Message from the President



On behalf of our whole team, I'd like to thank you for your interest in volunteering for the inaugural Launch Canada Challenge

The aerospace industry is experiencing unprecedented and rapid change. In Canada, there is a surge of grassroots interest in rocketry. Today there are over 22 university rocket teams across the country, with **more than 1,000 active student members**. These student teams are in many cases **the largest engineering design teams at their schools**, and are pushing the envelope in the multidisciplinary field of rocketry like never before: innovating in everything from aerostructures, composite materials and advanced manufacturing, to avionics and even liquid and hybrid propulsion. Traditionally, this has not been an area of technological focus in Canada and so far, these students have received little support or acknowledgement in their home country, even as they win top honours abroad at international competitions.

Now is the time to help Canadian students soar to new heights, right here at home. The Launch Canada Challenge is the first engineering competition of its kind in this country. This competition will support and advance the science, engineering and business of rocketry, space launch and their related fields while fostering collaboration and building a strong culture of safety.

With the support of bold, visionary volunteers like yourself, we will combine the excitement of advanced rocketry with real, industry-driven challenges. We will unite the diverse, highly motivated and rapidly growing group of students, unlock their full innovative potential, and help them become the aerospace leaders of tomorrow.

We hope you'll join us!

A handwritten signature in black ink, appearing to read 'Adam Trumpour'.

Adam Trumpour  
President, Launch Canada Challenge



# Meet Our Team



**Ademir Vrolijk**  
PhD Candidate at George Washington University specializing in innovation and incentive challenges



**Michel Wander**  
Integration and test systems engineer at the Canadian Space Agency for over 20 years



**David LeFrancois**  
Nuclear and aerospace professional



**Paul Shepherdson**  
High power rocketeer and mechanical designer



**Ariyanna Kresnyak**  
Space systems engineering student, co-founder, Arbalest Suborbitals



**Robert Bernard**  
Structural engineer in the aerospace and defense industry



**Christopher Hobbs**  
Avid high-powered rocketry and laminate structure enthusiast



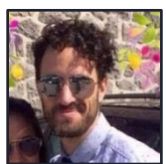
**Ryan Anderson**  
Space systems consultant, President, Canadian Space Society



**Karina Sapelnikova**  
Propulsion engineer at Rocket Factory Augsburg, Germany



**Simon Moffatt**  
Responsible Engineer for upper stage propulsion at Rocket Lab



**Marc-Andre Chartrand**  
Enthusiast of all things space and Test & Certification engineer



**Mitchell Passarelli**  
PhD candidate in thermoacoustic combustion instability at Georgia Tech



**Jason Michaud**  
CEO at Stardust Technologies, advocate for STEM education, northern and First Nations communities



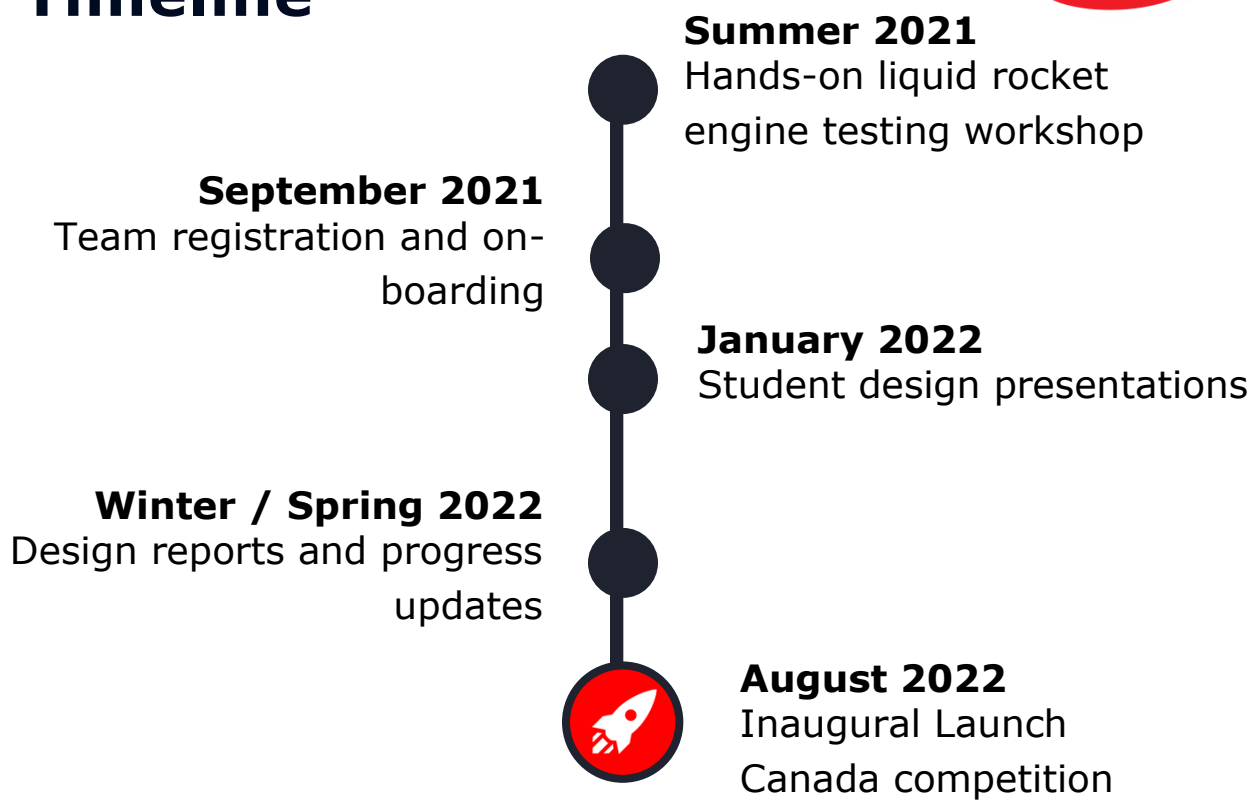
**Zak Harrison**  
Gas turbine and rocket propulsion engineering professional



**Adam Trumpour**  
Gas Turbine and Rocket Propulsion Professional, President of Launch Canada



# Timeline



# The Road to the Competition

Ongoing events to build momentum:

- Design Reviews**  
Winter / Spring 2022
- Student presentations, report submissions and progress updates
  - Opportunity for Launch Canada members to critique student projects, provide feedback and guidance

- Rocket Testing Workshop**  
Summer 2021
- Intensive hands-on learning experience covering the practical side of rocket propulsion testing and safety
  - Showcasing professional hardware and practices
  - Culminated in firing of 1000 lbf thrust liquid oxygen / kerosene rocket engine



# Launch Canada Lecture Series

## Education and Inspiration

- Major initiative to support students through Covid-19 and beyond
- Fireside chats with industry leaders
- Info sessions and “tech talks” from industry and partner organizations
- Talks on rocket safety, systems engineering, entrepreneurship, and a broad range of technical subjects

*A few of our past speakers:*



**Peter Beck**  
Founder, President & CEO,  
Rocket Lab



**Tom Mueller**  
Co-founder & head of  
propulsion, SpaceX



**Tory Bruno**  
President & CEO,  
United Launch Alliance



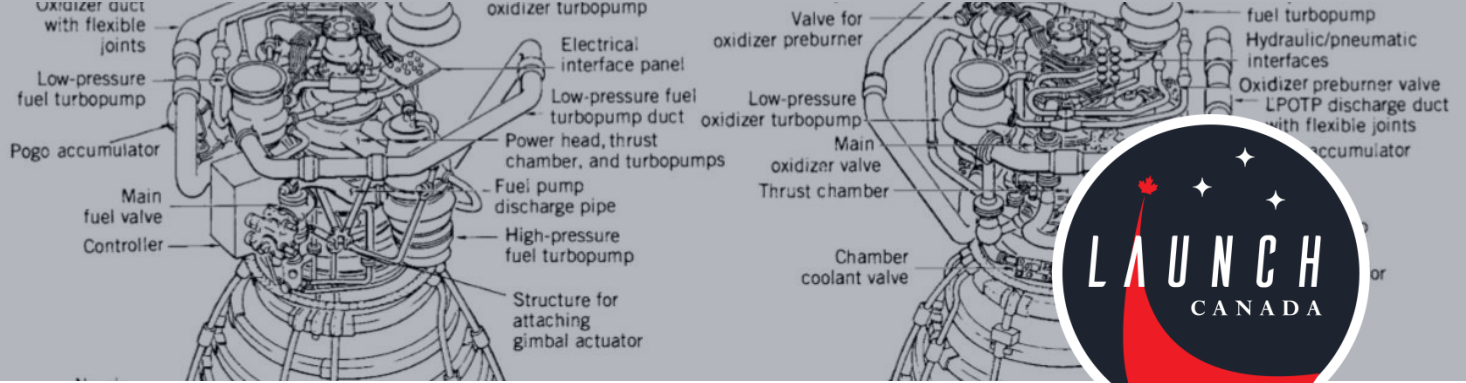
**George T.  
Whitesides**  
Ex CEO, Virgin Galactic &  
The Spaceship Company



**Dr. Justin Hardi**  
Head, Rocket Propulsion  
Technology Dept, DLR  
Institute of Space Propulsion



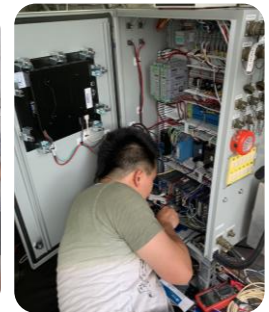
**Mike Mullane**  
Veteran space shuttle  
astronaut, author



# Rocket Engine Testing Workshop

## Intense Real-World Engineering Education

- A learning experience unlike any other, covering the practical side of rocket propulsion testing and safety... ***they don't teach this in school!***
- Showcasing professional hardware, equipment & practices
- Integration of complex, safety-critical systems, and the planning and execution of large field operations
- Multiple weekends in the field, taking the students through:
  - Familiarization and safety training
  - Setup, logistics, development of procedures & checklists
  - Instrumentation
  - Cold flow testing
  - Successful firing of a 1000 lbf thrust, LOX-kerosene engine





## Launch Challenges

### Beginner

- Entry-level challenge for less experienced teams
- Build and launch a rocket to 10,000 feet
- COTS rocket motors permitted
- Additional “payload challenge” for innovative payload design.

### Advanced

- Successful launch of sophisticated vehicles
- Student-developed hybrid or liquid propulsion
- Altitudes above 15,000 feet
- Emphasizes overall systems engineering
- Incentivizes the use of innovative technologies and concepts

## Tech Challenge

### Technology Development

- Unique feature of the Canadian competition
- Creative component and subsystem-level design to solve real technical challenges facing the industry
- Emphasis on entrepreneurialism
- Opportunity for partner organizations to sponsor specific challenges





## Why Volunteer for Us?

### Experience

This initiative is the largest space-focused engineering event and the first of its kind in this country, and we want to take every opportunity to include more Canadians in it. Come experience Canadian aerospace innovation and watch rockets soar to the skies!

**Simply put, there's nothing else like it in Canada.**

### Support

At launch Canada, we recognise the work of our volunteers and in consequence think it's important to support your involvement with us. As such, Launch Canada will provide subsidized housing and free meals throughout your stay with us at the competition in Cochrane.

**As you support us, we will support you.**

### Community

We know that when diverse Canadians come together, there is no limit to what we can achieve. The participants in this competition represent exceptional talent and drive. Now we need your help to bring this community together for the first time in Canada. This collaboration will allow the field to rise to new heights! As volunteers, we encourage you to actively participate in every part of the competition: as judges, mentors, challenge designers, advisors, and supporters of the innovation ecosystem that the participants are joining.

**Let's show the world what we can accomplish... together!**



## Current Available Positions

Volunteer Positions		
Division	Personnel Required	Role
Conference	1-2	MC
Judging	6	Judge
Launch Ops	16-20	Setup Team
Launch Ops	8-16	Recovery Team
Launch Ops	2	RSO
Launch Ops	6	Pad Managers & Inspectors
Launch Ops	2	LCO/Mission Control
Logistics	2	Shuttle - Site to Parking
Logistics	2	Town Runner
Logistics	2	Site Check-In / Info
Logistics	1	Vendor Point of Contact

### General Volunteers

These are not the only positions available to help out! More places are open for general tasks which revolve around ensuring the smooth operation of the competition itself. We encourage everyone interested to reach out and we'll find you a suitable position!



# Supporters

“ Space will be one of the important drivers of the 21st century economy. This made-in-Canada competition will spur on innovation and act as a springboard for new opportunities and collaboration in rocketry and propulsion. I wish to put my full support behind the Launch Canada Challenge. ”

— Professor Jean-Pierre Hickey, University of Waterloo



“ We believe the Launch Canada Challenge will stimulate the advancement of rocket technologies and the development of related skills in the Canadian space sector. We are pleased to join forces with this Launch Canada to educate and inspire Canadian youth who dream of taking rocketry to the next level. ”

—Geoffrey Languedoc, Executive Director of CASI



## Contact

The Launch Canada Challenge will be one the biggest events this year in the Canadian space industry, and represents the most dedicated, resourceful up-and-coming students in the field.

Register directly through the following volunteer form:

<https://tinyurl.com/yck34ea2>

Contact us today!

Matthew Ho

Deputy Logistics Lead, Launch Canada

[events@launchcanada.org](mailto:events@launchcanada.org)

Madalina Patron

Volunteer Coordinator, Launch Canada

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Cyril Mani

Volunteer Coordinator, Launch Canada

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