
SPACE APPS
OTTAWA
WELCOME TO THE
NASA International
Space Apps Challenge
2017 (“Earth”)

Disclaimer

- **My presentations are not usually this "WORDY"**
- **Not all the Space Apps Hackers can make it tonight**
- **We'll provide these slides to everyone**
- **It's much more useful to have the information in them, rather than pretty pictures and animations**

- **Also allows me to whip through a little quicker**

About Me

- **10 Years as Satellite & Systems Engineer at Telesat**
- **~1 year contracted to DND and Urthecast**
- **4 Years Chapter Chair of CSS-Ottawa**
- **3 Months as VP of CSS National**
- **2 Years Advisory Board of SEDS-Canada**
- **1st Year as Co-lead for Space Apps Ottawa**
  - **Canadian Aeronautics and Space Institute Astro Board**
  - **Cdn Federation for the International Space University**
  - **Mars Society**

Space Apps Ottawa Bootcamp

- **Tonight is intended to provide**
  - **Introduction to Space Apps and how it works**
  - **Answers to some questions about Space Apps**
  - **Introduction to programming & Qlik Playground**
  - **A little inspiration from some career “Hackers”**
  - **Tips and strategies about problem solving**
  - **Tips and strategies about presenting the pitch**
  - **Insight into the emerging space commerce world**
  - **Socializing and networking with Hackers and Mentors**

Tonight's Agenda

- **Intro to Space Apps**
  - **Me, Ryan Anderson**
- **Qlik Playground**
  - **Rey Riel**
- **SpeedyRails**
  - **Maykel Rodriguez**
- **Specific Range Solution & AutoAdvisory**
  - **Omer Majeed**
- **Mission Control Space Systems**
  - **Kaizad Raimalwala**
  - **Ewan Reid**


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NASA Space Apps

Agenda

- **NASA International Space Apps Challenge**
- **Challenges**
- **Before the Hackathon**
- **During the Hackathon**
- **Awards Selection**
- **Ottawa Mentors**
- **Wrap up and Pass on**


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NASA Space Apps Challenge

International Space Apps Challenge

- **"The International Space Apps Challenge is an international mass collaboration focused on space exploration that takes place over 48-hours in cities around the world. The event embraces collaborative problem solving with a goal of producing relevant open-source solutions to address global needs applicable to both life on Earth and life in space.” [2015]**
- **Key terms:**
  - **International**
  - **Collaboration**
  - **Open-Source**
  - **Applicable to life in Earth and Space**

International Space Apps Challenge

- **NASA invites local teams to organize events in their cities.**
- **NASA issues a number of Challenges and makes their data sets available for teams to use to solve them.**
- **Local events offer a place for participants to meet, form teams, and to work on the Challenges. Local teams will also provide mentors and support to the Hacker teams.**
- **On the Sunday of the event, teams present their solutions locally. 3 local teams are selected to move up to the Global Judging: 2 selected by local judges, and 1 People's Choice selected by the participants.**
- **NASA evaluates Global entries & bestows the final Awards**

Space Apps 2016

- **160 Events**
- **6 Continents**
- **15,000 Participants**
- **Largest Hackathon in the World?**
- **Largest Local Event was Kathmandu, Nepal**
- **Kid on the Moon, a team from Space Apps Toronto**
  - **An interactive app that inspires children 4-8 years old and their families to become passionate about space travel through self-guided exploration of the moon both on and offline.**
- **Won the Global Award for Most Inspirational!**

Registration

- **NASA signup:**
  - **In order to receive a participation certificate, you must register with NASA Space Apps Challenge, at the Ottawa location**
  - **All members of selected teams must be registered before submitting to NASA for Global Judging**
  - **https://2017.spaceappschallenge.org/locations/ottawa-on/**


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Challenges

Challenge Themes 2017

- **This year's theme: "Earth" (Earth Science)**
- **Five Challenge Categories:**
  1. **The Earth and Us**
  2. **Planetary Blues**
  3. **Warning! Danger Ahead!**
  4. **Our ecological Neighbourhood**
  5. **Ideate and Create**
- **NASA assigns a difficulty level for each Challenge**
  - **Easy – Intermediate – Advanced**

The Earth and Us

- **NASA Earth Science uses space-borne and aircraft measurements to help us characterize, understand, and predict variability and trends in Earth's system for both research and specific applications. As our only known habitat, this planet — including its phenomena like climate and weather, and natural resources like forests and oceans — influences all aspects of our lives. NASA Earth Science data and products allow us to understand our home planet and its response to natural or human-induced changes, which helps us make informed decisions to enhance our lives.**

- **Challenges in this category will ask you to combine NASA Earth Science data with sociological and economic information to generate new understanding and perspectives on human-environment interactions.**

Planetary Blues

- **Making up roughly 60% of the mass of our bodies and over 70% percent of the surface of the Earth, liquid and frozen water are naturally of interest to NASA as we search for water and life on other planets, and try to meet the increasing demands for freshwater here on Earth. NASA Earth Science data and products allow us to better manage water quality and quantity, and to predict processes of the global water cycle.**

- **Challenges in this category will ask you to analyze and visualize NASA's data on the hydrosphere (surface and groundwater, etc.) and the cryosphere (sea ice and ice sheets, etc.).**

Warning! Danger Ahead!

- **Natural disasters, like wildfires, earthquakes, and landslides, wreak havoc on the lives of people all over the world every year. Additionally, many natural phenomena bring with them increased risks of deaths and illnesses from exposure to hazardous chemicals and pollutants, and the spread of communicable diseases. NASA's Earth observations allow improved understanding and forecasting, and thus, better preparation for and response to these threats.**

- **Challenges in this category will ask you to analyze NASA data to assist in monitoring natural disasters and phenomena associated with health risks, and to assess their impacts on life and property.**

Our Ecological Neighbourhood

- **NASA conducts explorations in search of life not only on other planets, but also to understand life right here on our home planet. The 18 Earth Science missions that orbit the Earth reveal clues about the environments and species that make up our ecological neighborhood, and help us answer questions about our biosphere.**

- **Challenges in this category will ask you to use NASA Earth Science data to study ecological systems and generate solutions to understand life here on Earth better.**

Ideate and Create!

- **Reaching out to the farthest expanses of our universe and diving deep to understand the mysteries of our own planet would not be possible without the innovative and creative spirit of explorers! NASA Earth Science channels the imagination of scientists, engineers, and storytellers like YOU to solve challenges that we face here on Earth.**

- **Challenges in this category will ask you to interpret NASA Earth Science data creatively and design new means to experience NASA Earth Science data and technologies.**

Some Example Challenges from 2016

- **Near Earth Objects Machine**

  For this challenge, we invite you to become "virtual contributors" to the Asteroid Grand Challenge and develop a hypothetical method, concept note or simple prototype that demonstrates how Machine Learning could be used to help us avoid the same fate as the dinosaurs.

- **Don’t Crash My Drone**

  Create an app that will enable small drone operators to know more about specific weather parameters, local terrain and no fly zones within a five-mile radius of their GPS location.

- **Geotagging Space and Aviation**

  Collect and develop geotagged information about local ties to space and aviation to incorporate within geo-based games/web applications/tools. Many apps and programs exist that allow users to input information about a location that corresponds to the real world. Public information and historical space events could be added to the location within the program. While exploring a new region, users can learning new facts about how the community played a role in new scientific discoveries or innovations in aviation or spaceflight..


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How it will Work

Space Apps Ottawa Schedule

- **Friday April 28**
  - 6:00 pm Registration opens
  - 7:00 pm Kick-off and Opening Remarks
  - 7:35 to 10:00 pm Team formation/review challenges
  - 10:00 pm Doors close for the night
- **Saturday April 29**
  - 8:00 am Doors re-open
  - 8:00 am to 10:00 pm Hacking and building!
  - 10:00 pm Doors close for the night
- **Sunday April 30**
  - 8:00 am Doors re-open
  - 12:00 to 3:00 pm Presentation Prep
  - 3:00 to 5:00 pm Presentations and judging
  - 5:00 to 6:00 pm Final awards and wrap-up
  - 6:00 pm Doors close, event finished.

Space Apps Ottawa Friday Night

- **You'll check in with Anneke & Andrej when you arrive. They will give you a check-in package and remind you to register on the NASA site as well.**
- **We will pre-select a subset of NASA's Challenges. Each chosen Challenge will have a station set up for you to take a closer look at the details and make a decision on which one you want to tackle.**
- **All the people who choose each Challenge will become a team – there's lots to do and having more people working towards the same goal will result in a better solution in the end.**
  - **It means if you've pre-selected your team & Challenge, you could be joined by others who want to tackle that Challenge.**
- **After a few opening remarks, the rest of the night should be geared towards assigning team roles and brainstorming ideas.**
- **Assign a team lead, register on the NASA site and for any of the sponsor services you think you need.**

Space Apps Ottawa Saturday

- **The big work day!**
- **Doors are open 8am – 10pm.**
- **You will have Wifi and Power available through Shopify.**
- **Food is allowed on the premises, but please respect our host’s facility and tidy up as you go.**
- **Design, create, code, hack, whatever it is you’ve decided for your solution!**
- **Ask Mentors for help if you’re stuck!**
- **Help out other teams if you can:**
- Our main goal is for everyone to have a good time. But another goal is for Ottawa teams to dominate the world competition!!

Space Apps Ottawa Sunday

- **The Final Stretch!**
- **Continue working on your solution.**
- **Focus should turn from solving to presenting.**
- **Presentations for judging start at 3:00 pm.**
- **You must have your team registered on NASA's site before the presentations start – you won't be eligible for Global Judging if you aren't!**
- **Present your teams' solution – watch the other teams' presentations and vote for the People's Choice winner.**

- **Winners will be announced shortly after the presentations end.**


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Tips for the Hackathon

Pre-Event Prep

Minimum prep:

- **NOTHING, you can be 100% fresh and still do fine!**

Max prep:

- **Pick your Challenge. Pick and register your team. Set up your tools. Get started on ideas.**

Reasonable prep:

- **Read the Challenges**
- **Pick a few that interest you**
- **Pack your bag with:**
  - **Laptop, tablet & any other devices or tools you think you'll need**
  - **Snacks, drinks water**
  - **Power bars, extension cords, USB sticks, are always useful!**


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Awards Selection

Judging

Scoring Criteria

1. **Impact:** *How much impact (quality and quantity) can this solution have? Does this solve a big problem or a little problem?*
2. **Creativity:** *How creative is the approach? Is the solution new and something that hasn't been attempted before? Is it something that isn't being addressed by the market?*
3. **Product:** *How well does this project fit the needs of the challenge they chose to tackle? How user friendly is the technology? Is it a complete solution, or do they have a long way to go?*
4. **Sustainability:** *How good is their plan for next steps? How prepared are they to continue their work beyond the event?*
5. **Presentation:** *How did they present themselves? What does the final product look like?*


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Help & Support

Support Tools

- **Help and support for**
  - **Qlik Playground**
  - **Sinergise Sentinel Hub**
  - **Speedyrails hosting**
  - **Amazon Web Services hosting credit**
  - **Additional data sets courtesy Canadian Space Agency**

- **Details on accessing these will be in check in kits**

Mentors

- **Rey Riel**
- **Ewan Reid**
- **Kaizad Raimalwala**
- **Hooman Jazebizadeh**
- **Maykel Rodriguez**
- **Cory McKinnon**
- **Sandeep Mistry**
- **Arthur Ruff**
- **Nick Kellett**
- **Ryan Anderson**

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NASA International Space Apps Challenge 2017 ("Earth")

NASA SPACE APPS CHALLENGE

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