# Track and Challenge Descriptions

Vizathon 2021

*Please see the FAQs for more questions about how tracks will work for our event. Any publicly available datasets can be used for any of the 3 tracks.* ***You may only submit to one track, but you can submit to any number of challenges.***

## Public Health Track

**Description:**

With the adverse effects of COVID-19 still lingering in several countries, analyzing public health has never been more crucial. This track will focus on crunching and visualizing data from hospitals, medical organizations and the public health community, with the aim of inferring or predicting meaningful results either quantitatively, qualitatively or visually. Some examples can include studying patient data (in keeping with confidentiality terms), morbidity and mortality rates, public health infrastructure versus COVID-19 response, vaccination rates, non-COVID related public health analysis, etc.

**Example datasets:**
https://www.cdc.gov/nchs/covid19/nhcs.htm
https://open.canada.ca/en/open-data

## Social Justice Track

**Description:**

The social justice track delves into all domains related to social good, justice, politics, law, etc. Some examples could include analyzing and visualizing the political climate in war-stricken countries, leveraging AI for social good, picking a social cause and extracting meaningful insights from relevant datasets, analyzing intriguing legal chapters of history, etc.

**Example datasets:**

https://elon.libguides.com/c.php?g=553597&p=5095797
https://open.canada.ca/en/open-data

## Economics Track

**Description:**

The economics track will deal with all domains concerned with finance, economics and their consequent effects on the world. Some sample topics which are presently relevant include cryptocurrency (Bitcoin), Wall Street versus Reddit: The GameStop phenomena, the COVID-19 economic downfall and resurrection after vaccinations, etc.

**Example datasets:**
https://www.census.gov/econ/geo-us.html
https://open.canada.ca/en/open-data

## Harvard Center for Geographic Analysis Challenges

**Background and Motivation:**

In late 2019, the outbreak of the novel coronavirus (SARS-CoV-2) and resulting illness, COVID-19, in Wuhan, China rapidly expanded across the globe resulting in the declaration of a global pandemic by WHO in early 2020. A highly contagious disease, the rapid transmission of the virus resulted in immediate *first-order impacts*, which included increasing numbers of cases and case fatalities, stressing hospital capacity, and generating government responses in the form of border restrictions, lockdowns, quarantines, and public health guidance.

The worldwide scale of *second-order impacts* soon became evident, including a global economic crisis impacting all aspects of society, exacerbating chronic conditions of food insecurity, limited access to health services, and loss of livelihoods. This pandemic crisis magnifies fundamental inequities that require measures to plan for and adapt to the longer-term impacts of COVID-19. These implications highlight the need to generate

robust data to track the impacts of the virus, identify vulnerable populations, and monitor mitigation plans that integrate information from diverse sources and multiple scales.

The Cities' COVID Mitigation Mapping (C2M2) program is an initiative of the Office of the Geographer and Global Issues at the U.S. Department of State that builds partnerships to enhance geospatial capacity, generate data, and share maps to support planning for mitigating COVID-19 second order impacts. The C2M2 Program is a global set of urban projects with the goal to build capacity for enabling mitigation strategies through application of geospatial approaches (tools, training, and technology) to address the second-order impacts of the COVID-19 pandemic.

- **Challenge 1**
  - **Description:** The C2M2 program works with 12 cities from the globe. Each city focuses on its unique and critical second-order impacts to find strategies to mitigate the adverse second-order impacts (e.g., worsening economic inequality). In order to find the most effective strategy, it is essential to accurately diagnose the current status of the second-order impacts. In this light, each city partner has produced the initial baseline report. However, since these reports are prepared in PDF documents and have an inconsistent format, it is somewhat difficult to compare reports. Please create a web-based interactive dashboard that highlights the key information from the reports.
  - **Datasets:** 12 PDF baseline reports prepared by C2M2 city partners: https://drive.google.com/drive/folders/1YSLbY5RtliC5Tx8FhwUizggvdL_FTh3i?usp=sharing
  - **Supplementary Information:**
    - https://www.youtube.com/watch?v=OARbBlRoFSc&t=4281s
    - https://www.youtube.com/watch?v=mFGe0s9YYPQ&t=4525s
    - https://www.youtube.com/watch?v=OYz5ejPDR6k&t=4383s

- **Challenge 2**
  - **Description:** During the pandemic, it is important to assess the vulnerable population of each country. Some groups of people (regarding race/ethnicity/sociodemographic characteristics, etc.) may be more vulnerable to the second-order impacts of the COVID-19 pandemic. Please

develop an evaluation framework to assess the number of vulnerable populations for each country and apply your framework to assess the vulnerability of each country. Finally, create a web-based interactive map that visualizes each country's vulnerability assessment results.

- **Datasets:** Please use any publicly available dataset(s) that you can find online. Some examples include (but are not limited to):
  - https://data.worldbank.org/
  - https://www.who.int/data
  - https://dtm.iom.int/
  - https://ourworldindata.org/
- **Supplementary Information:**
  - https://doi.org/10.1016/S0140-6736(20)30757-1
  - https://www.atsdr.cdc.gov/placeandhealth/svi/index.html

## Other Challenges/Prizes

These challenges are open to **all tracks** and do not have specific datasets. Rather, challenge winners must meet certain criteria to be eligible for these award:

**Best Beginner Visualization**

This award will be given to a beginner team in any track who produces an outstanding visualization. Beginners are defined as those who self-identified as being in high school or having never attended a hackathon/vizathon before on their registration form. Eligibility: all members of a team must meet the definition of a 'beginner' outlined above. This award is open to all tracks.

**Best High School Visualization**

This award will be given to a high school team in any track who produces an outstanding visualization. Eligibility: all members of a team must be in high school. This award is open to all tracks. A team cannot win both the "Best Beginner" and "Best High School" award.

**Narrative Award**

This award will be given to a team that creates a story with their visualization. Their work has a clear, compelling, and creative narrative. They are able to effectively show patterns and insights from their data in a way that is accessible and insightful. Eligibility: this award is open to all tracks.

**Aesthetic Award**

This award will be given to a team that creates an outstandingly visually attractive submission. Their work is stunning and beautiful. Every element of the submission is clearly purposeful and well-designed. Eligibility: this award is open to all tracks.

**Innovation Award**

This award will be given to a team that displays outstanding creativity and innovation in their work. They may make unique use of our sponsor-provided resources, or use

visualization tools in a novel way. The overall submission is one-of-a-kind and impressive in its concept and execution. Eligibility: this award is open to all tracks.

**Interdisciplinary Award**

This award will be given to a team who thoughtfully takes ideas or inspiration from multiple disciplines in their visualization. They combine fields in a way that allows their visualization to make the most of their data. This visualization tells a story that couldn't be found in one discipline alone. Eligibility: This award is open to all tracks.

**Accessibility Award**

This award will be given to the team that is best able to take complex information, concepts, and data, then visualize it in a way that is accessible and easy-to-understand. Their visualization could be understood even by those who are younger (i.e., middle school) and those with no experience in data science and statistics. Eligibility: This award is open to all tracks.

**Interactivity Award**

This award will be given to a team whose submission has interesting and compelling interactive elements. Their visualization is fun to play around with and allows viewers to engage with the data in a way that static visualizations cannot always achieve. Eligibility: this award is open to all tracks. Due to the agreements of our sponsorship with HyperX, teams must be from the US or Canada to win this prize. The specific products available are Cloud II – Red Gaming Headsets and Pulsefire Core Gaming Mice.