Riddhiman Roy

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Research interests

Propulsion, Space Systems, Human Space Flight, Renewable Energy, Climate Change

Skills

Spoken Languages — Fluent: English, Hindi; Spoken: Bengali, Spanish
Programming — Proficient in: Python, LaTeX; Familiar with: C, MATLAB, Java.

Research experience

Predicting GHG emissions of light vehicle fleets May 2021 - Present
- Computational model of greenhouse gas emissions of fleets light vehicles using FLAME (Fleet Life Cycle Assessment and Material-Flow Estimation) written in R. I received the ESROP-UofT grant worth $6000 CAD and worked with Professors Daniel Posen, Heather Maclean and Alexandre Milovanoff.

Modelling the Thermal Expansion of a Bent Metal Strip January 2020
- Mathematical modelling of the thermal expansion of a deformed metal strip in the Qatari Sun.

How do different coefficients of rolling friction of a surface affect the angular speed of a ball? November 2019 – January 2020
- Conduted two experiments to determine the coefficient of rolling friction and determine the effect on angular velocity.

Trasitioning Qatar to Renewable Energy May 2019 – July 2019
- Studied sustainable engineering and renewable energy through an online course at Brown University.
- Conducted land and climate analysis, wind turbine and solar panel evaluation, and financial estimates to design a plan for Qatar to transition completely from fossil fuels to renewable energy.

Extracurricular Experience

University of Toronto Aerospace Team (UTAT) August 2020 to Present
- Member of Propulsion subsystem, working on Liquid rocket "Houboldt Jr."
- Programmer on Project Dark Matter - computer simulation for liquid rocket dynamics from liftoff to main engine cutoff.
- Integrating NASA CEA through RocketCEA in python to expand the simulator.

Biomedical Engineering Competition (BMEC) February 27-28th, 2021
- Placed 2nd out of 20 in a team of 4.
- Designed 'Mediway' - an application to route ambulances across a network of hospitals to reduce ER stress and physician burnout, the app's information flowchart and the user interface.

UofT Engineering Kompetitions January 2021
- Took part in Junior Design category with a team of 4 and designed a mechanical and accesible system for sorting fruits

Homegrown Rocketry October 2017 to May 2018
- High school project to design and build a rocket from renewable materials

Education

University of Toronto (UofT) — Toronto, Ontario, Canada
First Year, BASc in Engineering Science — August 2020 to Present

American School of Doha (ASD) — Doha, Qatar
ASD Diploma — August 2016 to May 2020
International Baccalaureate Diploma *Score: 41/45* — August 2018 to May 2020

The Village School — Houston, TX, USA
Grades 7 & 8 — August 2014 to July 2016

Training

Harvard University — *Online*
CS50: Introduction to Computer Programming — May 2019 to December 2019

Carnegie Mellon University - Qatar (CMUQ) — Doha, Qatar
Summer College Preview Program — May 2019 to August 2019
Classes in English, Calculus and Java

Brown University — *Online*
Renewable Energy Engineering — June 2018 to August 2018

Awards and Recognition

President's Education Award (U.S Department of State) 2020
Citizenship Award (U.S Department of State) 2020
1st Place, Academic Games (NESAC) 2020
Academic Achievement, IB Physics HL (American School of Doha) 2019
National Honor Society Membership (American School of Doha) 2019

Teaching experience

Teaching assistant, Science Department, ASD — Fall 2019 - Spring 2020
AP Physics 1: Advanced Placement Physics 1
- Worked with students through content of AP Physics 1 - Mechanics (translational and rotational), waves, and electricity and magnetism.
- Duties included helping proctoring exams, lab assistance and stand-in for teacher when absent.

Other interests

Badminton (played for my high school), tennis, table tennis, drawing