Parth Mahendru

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Education

University of Toronto — Toronto, ON
BASc, Engineering Science — *Sept. 2020 – Present*

- ESC103: Numerical computation in MATLAB
- PHY180: Newtonian Mechanics
- ESC190: Algorithms and Data Structures in C

Experience

Control Systems Engineer — June 2020 – Present
University of Toronto Aerospace Team, Liquid Rocket — *Toronto, ON*

- Simulated the Pressurization Control System for Houbolt Jr. Liquid Rocket
- Tuned P&ID controller to control the opening of the pressurant servo valve

Honours & Awards

Semi-Finalist, Conrad Innovation Challenge — Nov. 2019
Conrad Foundation, Seabrook, TX

- Prototyped a web app - Lingz that makes MOOCs available in multiple native languages
- Investigated operational costs, need, market, revenue model, and funding sources

Second Position, National Level Mathematics Olympiad — Oct. 2018
Delhi Public School Society, Advanced Enrichment Programme in Mathematics

- Attended a 7-day National Math Camp in Mumbai, India
- Secured Second Position among all national qualifiers

14 Preliminary Near Earth Asteroid Discoveries — Sept. 2018
International Astronomical Search Collaboration

- Analyzed data from Pan-STARRS in Hawaii using Astrometrica
- Made valuable scientific contributions and identified 14 main-belt asteroids

Projects

Pressurization Control System for Houbolt Jr. | *MATLAB, Simulink, Python, C* — Aug. 2020 – Present

- Designed an Active-Controlled Pressurization System from scratch in Simulink
- Assembled Blowdown Models for Pressurant and Oxidizer Tanks
- Implemented dynamic control to obtain optimal pressures across the tanks and maintain safe flow rates

Propulsion & Air Flow Analysis for Project Boom | *Python, Mathematica* — Nov. 2020 – Jan. 2021

- Analyzed inlet and exhaust air flows for subsonic and supersonic speeds
- Designed a basic exhaust for subsonic air flows

Lingz | *Python, Django, React, Celery, Azure Speech-to-Text API* — Aug. 2019 – Nov. 2019

- Developed a subscription-based model for translating MOOCs into vernacular languages
- Implemented Microsoft Azure Cognitive Services for language processing
- Used TextRank algorithm (NLP) for subtitles and overall summarization

SPARK | *C++, Mathematica* — Sept. 2018 – Jan. 2019

- Led a team of 4 students to perform a comprehensive study into the feasibility of asteroid mining in the near future
- Approximated a solution for a restricted 3-Body problem - The Sun, Earth and an asteroid
- Determined regions (Hill Zones) for ideal asteroid capture and analyzed their relation to the Jacobi Constant