Ishaan Aggarwal

drperplex0.github.io/ishaanaggarwal/ | ishaan.dhruv@gmail.com |
https://www.linkedin.com/in/aggarwalishaan/ | +1 778-814-7060

About

- **Objective**: I am working at the intersection of Engineering and Physics to develop solutions for an energy abundant world.

Education

- **Simon Fraser University, Vancouver, Canada** Expected Graduation: April 2024
  Applied Physics Honours with a minor in Nuclear Science — 3.73 GPA
  - **Relevant Coursework**: Nuclear Physics, Physics of Energy, Nucleosynthesis and Materials Science
  - **Clubs and Awards**: Rocketry, Aerospace, Nuclear Science Research Group, Engineered Interfaces Group, AMPP National Conference Poster Winner, Optics Lab

Experience

- **Nuclear Science Research Group** January 2024 - Present
  Undergraduate Researcher *Vancouver, Canada*
  - **Research Statement**: Leading the analysis of global data on superallowed Fermi beta decay, pinpointing and validating essential corrections for precise testing of the weak interaction force. This research contributes to one of the most accurate validations of the Standard Model to date.
  - **Data Analysis**: Spearheading superallowed Fermi beta decay research with ISAC's non-accelerated radioactive beams, contributing to pivotal precision tests of the Standard Model's validity. This work plays a crucial role in deepening our understanding of the universe's fundamental forces.
  - **Technical Writing**: Writing technical summary papers for previously conducted research on various advancements in the nuclear science industry for past 10 years.
- **Simon Fraser University Aerospace** March 2022 - Present
  Director of Propulsion *Vancouver, Canada*
  - **Ablative Engine Creation**: Led a team in creating an ablative engine, designed engine mounts, developed safety protocols, and innovated tank-filling processes using pressure sensors and valve controllers.
  - **Test Stand Design**: Led team in construction of test-stand, consisting of tank carts, engine mounts and fluid system housing for future projects and hot-fire to be conducted by the team
  - **Fluid Systems Planning**: Collaborated in designing and building piping and fluid systems for rocketry projects, ensuring efficient and safe operation.
- **Engineered Interfaces Research Group** January 2022 - August 2022
  Graduate Experiment Lead *Vancouver, Canada*
  - **Invented a Monolayer Coating**: Reduced hydrogen diffusion through steel by 1000% by inventing a monolayer coating. Patented said technology in collaboration with the National Research Council of Canada.
  - **Experimental Procedure Development**: Developed the experimental procedure for the research, involving material characterization debugging processes, and optimizing the experiment timescale using software.
  - **Presented Research**: Showcased results at AMPP Power NACW Conference and achieved 1st place in the national poster competition (recognized by the university). Currently working on a paper for publication in the International Conference on Hydrogen Energy and Storage in collaboration with National Research Council.
- **Simon Fraser University Optics Lab** Sept 2020 - Dec 2020
  Lab Assistant *Vancouver, Canada*
  - **Technical Contributions**: Translated MATLAB code to Python, conducted literature reviews, and worked with Ph.D. students and professors, contributing to tangible results in a laboratory environment.
  - **Literature Review**: Led literature review sessions within group introduce new research conducted within optical physics relevant to the research of the group work.

Technical Skills Summary

- **Physics Specializations**: Plasma Physics, Materials Science, Experimental Physics.
- **Engineering Specializations**: CAD Design (SolidWorks), Fluid Structures, Propulsion Engineering, Cryogenic Systems
- **Simulations & Modeling**: Ansys, Finite Element Methods, Numerical Treatment of PDEs.