Rajeev Persaud

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Professional Summary

Motivated Honours Physics student at the University of Waterloo with strong analytical, computational, and problem-solving skills. Interested in condensed matter, optical physics and quantum systems with hands-on experience in Python-based data analysis, simulation, and experimental design. Eager to contribute to research exploring quantum materials and superconductivity using optical setups.

Education

University of Waterloo — Waterloo, ON
Candidate for Bachelor Of Science in Honours Physics — *Expected 2029*

Research & Volunteer Experience

Rocketry - Payload Division — Sept 2025 – Present
E7 - Rocketry Bay — *University of Waterloo, ON*

- Designed a low-weight, compact PCB for a fiber-optic gyroscope to meet payload size and mass constraints while maintaining signal integrity
- Optimized component layout and routing for minimal noise and improved reliability during dynamic testing
- Collaborated with **100+ team members** across six subsystem teams to ensure electrical and mechanical compatibility throughout the payload system

Math & Physics Tutor — Sept 2025 – Present
Physics Tutorial Centre — *University of Waterloo, ON*

- Communicated effective explanations to aid 10+ students weekly to deepen their understanding of concepts
- Adapted to students needs by explaining concepts either graphically or analytically in courses relating to Linear Algebra, Calculus & Classical Physics

Projects

AI Exoplanet Classification Model | *React, 3JS, Next.JS, Python* — Sept 2025

- Built an accurate AI model to classify exoplanets for the **2025 NASA Space Apps Challenge**, completing the project within competition deadlines
- Analyzed NASA datasets to train a machine learning achieving **80% accuracy** in identifying planets
- Used Python, TensorFlow, and scikit-learn to design and train the model, iterating through multiple architectures to improve prediction precision

Math & Physics Education Tool | *mathandmatter.com* — April 2025 – Present

- Attracted over **15,000 monthly users** by creating clear breakdowns of complex physics topics
- Used Obsidian and LaTeX to turn advanced concepts into visual and digestible lessons for new learners
- Maintained a structured knowledge base of 500+ concepts, reducing friction in learning complex topic
- Produced tangible impact **over 30+** countries through organic search & traffic

Spring Fling Competition | *Python* — May 2024 - June 2024

- Designed and built a linear spring launcher applying Hooke's Law to predict projectile motion
- Derived the spring constant experimentally and calibrated launch settings leading to **96% accuracy**

- Achieved a **4% mean error** between theoretical and experimental range, **placing 2nd among 40+ teams**

Mini-Rocket Competition | *Python* May 2023

- Led design of a chemical-propelled mini-rocket focusing on stability and altitude optimization
- Matched predicted and observed heights within **3%**, earning **1st place among 10+ teams**

Certifications

- Workplace Hazardous Materials Information System (WHMIS) Certification — University of Waterloo
- Cryogenics Safety Training — University of Waterloo
- Chemical Waste Segregation — University of Waterloo
- Compressed Gas Safety Certification — University of Waterloo
- Engineering Machine Shop Safety Training — University of Waterloo Faculty of Engineering

Skills

Soft Skills: Analytical, collaboration, adaptability, initiative, perseverance, receptiveness to feedback
Lab skills: Error analysis, curve fitting and regression, uncertainty analysis, experience with oscilloscopes
Technical Languages: Python, SQL, LaTeX, JavaScript, CSS, HTML
Libraries & Frameworks: NumPy, SymPy, Pandas, React, Tailwind, 3JS, Next.JS
Developer Tools: TensorFlow, scikit-learn, Git