

Martin Leung

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As a firm believer in space being our future, I have a burning desire to expand my horizons in engineering, physics, and astronomy. All for the goal of helping make humans an interplanetary species. Rockets are so fascinating that they have become the meaning of my life.

Work Experience

Full-time software Developer at Jadason Technology Ltd. – Hong Kong **June 2022 – September 2022**

- Developed a one-camera system for ball tracking and projective mapping with an IR camera.
- Adapted multi-camera tracking technology, along with motion capture technology for real-time usage.
- Developed UDP OSC transports to transfer tracking data to colleagues who are using unreal.
- Developed three VR applications for clients with a small team.
- Provided user training to students and professors at multiple universities in Hong Kong on motion tracking solutions.

Part-time research assistant at HKU Industrial and Manufacturing **July 2022 – August 2022**

- Assisted postgraduates by collecting & presenting erroneous data from point cloud contour data.
- Used motion capture technologies for contour measurement.
- Researched recent academic literature for possible solutions and implementations.

Education

International Baccalaureate 44/45 at Victoria Shanghai Academy **August 2020 – May 2022**

- Physics HL 7, Chemistry HL 7, Math AA HL 7, Economics SL 7, Spanish AB SL 7, English L&L 6
- Extended Essay (Graded year-long research essay) in Physics on the aerodynamics of spinning propellers, gained skills and can work with laser cutting, bench drill, etc.
- Math IA (Graded math project) on orbital dynamics and the maths of propagating the ISS's geographical coordinates.

Clubs and Societies

Rocket Science Club at Victoria Shanghai Academy **September 2021 – April 2022**

- Leader & planner of many activities for club members of many year groups online and in person. The activities include:
 - 3D printed rocket landing legs experiment, liquid fuel injectors experiment, woosh bottles experiment, vinegar-baking powder water rocket, structure integrity experiment, paper airplane challenge.
- Learned and taught basic 3D printing.

Cook and Serve at Victoria Shanghai Academy

September 2020 – April 2022

- Founder of a 25-member club and event planner with charity organizations to engage with locals.
- Arranging 3+ service sessions per year, serving children, the elderly, and minorities.
- Managing finance to negotiate support from local charity organizations.

Mathematics Olympiad Team at Victoria Shanghai Academy

March 2021 – April 2022

- Participate in international competitions such as the AMC.
- Mentored junior students in past competition questions practice.

Badminton Team

December 2020 – July 2022

- Trained every Monday morning and Friday after school.
- Showed time management skills required to participate in many clubs actively during the strenuous IB Diploma.

Personal Projects

Math and Physics Explorations on Desmos

- Made 200+ graphs on mathematics and physics, including:
 - 3D implicit/explicit function renderer with lighting (Link: [Explicit](#), [Implicit](#))
 - 3D Keplerian orbits from orbital data ([Link](#))
 - 3D Orbit vector manipulation (Link: [Video](#), [Graph](#))
 - 2D Solar system ([Link](#))
 - Electron orbitals ([Link](#))
 - ISS Ground tracker ([Link](#))
 - Perlin noise visualizer 3D, 2D colored version (Link: [3D Visual](#), [2D Visual](#))
 - Sphube with back face occlusion through partial differentiation ([Link](#))
- Many collaborative projects with classmates.

Programming Projects

- Developed over 30 separate repositories, notable projects include:
 - Simulated TVC Rocket landing algorithm using PID controllers. ([Video](#))
 - 3D engine, rasterizing a world with UV texture mapping, triangle clipping, etc. ([Link](#))

Skills and achievements

- Proficient in JavaScript, C#, Java, Python, C++, HTML, CSS, Unity Engine, and Unreal Engine.
- Proficient in English, can communicate in Chinese (Mandarin and Cantonese) and Spanish.
- Third honor in Hong Kong Physics Olympiad