JAMES RAPHAEL TIOVALEN

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EDUCATION

Singapore University of Technology and Design (SUTD) **Singapore**
- Bachelor of Engineering (Information Systems Technology and Design), Honours **May 19 to Present**
- Preferred Focus Track: Artificial Intelligence
- Cumulative GPA: 4.75/5.00 (Expected Honours with Highest Distinction)
- Expected Date of Graduation: August 2022

ACADEMIC PROJECTS & SELF-INITIATED PROJECTS

Singapore University of Technology and Design **Singapore**
V2X Implementations, Team Coordinator & Software Specialist **Sep 19 to Present**
- Coordinating a team of 4 in studying and implementing the applications of V2X devices in real-life vehicles.

SUTD Orientation 2020 Website **Singapore**
Main Developer **Jan 20 to Present**
- Developing a website for SUTD Orientation 2020. Utilized Vue.js framework for its relatively small footprint and TypeScript for static typing.

SUTDoggo **Singapore**
Project Leader **Sep 19 to Present**
- Leading a project team in building a Stanford Doggo with a stretch goal of implementing autonomous navigation for the Doggo.
- Developing a custom software stack for the robot by improving the original project codebase and integrating ROS into the navigation stack.

Olethros Bot **Singapore**
Chief Developer **Sep 19 to Present**
- Developing a Telegram Bot in Python with miscellaneous commands for my current SUTD Class. Utilized MongoDB Atlas for database management and Microsoft Azure for cloud deployment.

Hostel Hunt Bot **Singapore**
Main Developer **Dec 19 to Feb 20**
- Developed a Telegram Bot in Python for SUTD Hostel Hunt. Utilized Cloud Firestore for database management and Heroku for cloud deployment.

SUTD What The Hack Slack Bot **Singapore**
Chief Developer **Sep 19 to Feb 20**
- Developed a Slack Bot in Python to streamline and automate the judging process for SUTD's What The Hack hackathon. Utilized FastAPI for speedy asynchronous service, SQLAlchemy ORM for secure database management, Cloud Firestore for user-bot conversation state management and AWS for cloud deployment.

OpenSUTD Landing Page **Singapore**
Main Developer **Sep 19 to Oct 19**
- Developed the landing page for OpenSUTD, an open-source movement dedicated to build a community in SUTD that embraces open sharing and collaboration. Utilized HTML, CSS and JavaScript to achieve a clean and elegant look for the webpage.

Linorobot **Singapore**
Team Leader **May 19 to Jul 19**
- Led a team of 10 in building a working 7kg Linorobot with dimensions 300x215x102mm, equipped with a ROS autonomous navigation stack, teleoperation and SLAM.
- Took down and maintained detailed professional documentation on GitHub.

The Spread Bot **Singapore**
Chief Developer **Mar 19 to Sep 19**
- Developed a Telegram Bot in Python for The Spread, a café/food bar in NUS Business School, with order and payment capabilities. Utilized PostgreSQL for database management and Heroku for cloud deployment.

WhiteHacks@SG **Singapore**
Team Leader **Feb 18**
- Participated in a 2-day cybersecurity workshop and penetration-testing competition.
- Managed to be in the top 10 out of about 50 groups (Team //TODO).

Energy Innovation Challenge   **Singapore**
Team Leader   **May 17 to Jul 17**
- Designed a solar thermophotovoltaic cell prototype as a proof of concept.
- Increased the efficiency and power output of a solar PV cell by about 15% by retrofitting thermoelectric cells to the cell's posterior.

Arduino Weather Station Workshop Competition   **Singapore**
Software Developer   **Mar 17**
- Assembled a weather station as a team of 3 from the provided components and wrote Arduino code for data collection.
- Obtained 12th place in terms of accuracy of the data collection of weather conditions around the venue.

CO-CURRICULAR ACTIVITIES

SUTD Organisation of Autonomous Robotics   **Singapore**
Vice-President   **Jun 19 to Present**
- Leading the organization of about 70 people strong together with the President with the objective of nurturing a committed robotics community by building skills to take on industry projects.
- Supervising the day-to-day operation and directing the culture, vision and mission of the club.
- Assisting the President in delegating work amongst an Executive Committee of 7 individuals.
- Working closely with the Secretary in settling administrative matters of the club.
- Monitored the logistics flow and manned MOMObot, an autonomous ground vehicle, for Singapore Maker Extravaganza 2019, an external event at which SOAR showcased our club projects.
- Assumed the position of Logistics IC for SUTD BuildSomething 2019, a week-long SolidWorks & Arduino workshop course held in collaboration with SUTD Entrepreneurship Centre, with the end product of a line-tracing robot.
- Manned Jessica, a robot barista, at Singapore MINDEF Innovation Symposium 2019, which was held at SUTD, to serve coffee for about 50 personnel.
- Improved the skills and proficiencies of about 30 members of the club by organizing 6 workshops that cover robotics and other technical concepts (SolidWorks, Arduino, PID, Git, Linux and ROS).
- Developed a fresh and responsive website for the club by utilising Vue.js and TypeScript.
- Worked together in a team of 10 as the organising committee to build a fully autonomous arena for SUTD's biggest robotics competition, Roboclash, by developing a novel scoring system utilising computer vision (OpenCV) and IoT sensors.

WORK EXPERIENCES

Mathvision Enrichment Centre Pte. Ltd.   **Singapore**
Assistant Teacher   **Mar 19 to May 19**
- Taught Physics for the IB (SL and HL), Singapore-Cambridge GCE A-Level (H2), AT (Computational), EDEXCEL AS Level, EDEXCEL International GCSE (9-1) - Science Double Award, SAT and Cambridge IGCSE (Pure and Co-Science) syllabi.
- Taught Mathematics for the IGCSE - CIM (Core and Extended) and UKMT (JMC) syllabi.
- Rated by **75%** of students taught as **Excellent** and by **22%** of students taught as **Good**. The other 3% did not submit a rating.
- Had mastery of the content and ability to explain clearly and patiently.

ADDITIONAL INFORMATION

- Technical Skills:
- Python
- C/C++
- ROS
- JavaScript/TypeScript
- SQL
- SolidWorks
- Arduino
- HTML/CSS
- Visual Basic
- LaTeX
- Linux

- Language Proficiency:
- English
- Indonesian

- Interests:
- Full-Stack Development
- Robotics
- Design Thinking
- Teaching