

JAMES RAPHAEL TIOVALEN

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EDUCATION

Singapore University of Technology and Design (SUTD)

Singapore

May 19 to Present

- Bachelor of Engineering (Information Systems Technology and Design), Honours
- Preferred Focus Track: Artificial Intelligence
- Cumulative GPA: 4.83/5.00 (Expected Honours with Highest Distinction)
- Expected Date of Graduation: August 2022

ACADEMIC PROJECTS & SELF-INITIATED PROJECTS

Singapore University of Technology and Design

Singapore

Smart Classroom, Software Engineer

May 20 to Present

- Developing a software-based method to monitor attention rate in virtual classrooms by using Zoom's livestream API, gaze tracking, head pose estimation and sentiment analysis.

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.

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.

DiscoverSUTD 2020 Website

Singapore

Chief Developer

May 20 to Sep 20

- Developed a one-stop website for the incoming SUTD Freshmores (Class of 2024) as part of the DiscoverSUTD programme. Utilized HTML, CSS and JavaScript to design a beautiful and simple website to embed all the information needed by the Freshmores to have a meaningful introductory 3-weeks in SUTD.

SUTD Orientation 2020 Website

Singapore

Main Developer

Jan 20 to Sep 20

- Developed a website for SUTD Orientation 2020. Utilized Vue.js framework for its relatively small footprint and TypeScript for static typing.

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.
- As Technical Director, headed the Automation Team in developing automation tools such as an automated form-email workflow and a backend dashboard for What The Hack's Organizing Committee.

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 Chief Developer <ul style="list-style-type: none"> 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. 	Singapore Mar 19 to Sep 19
WhiteHacks@SG Team Leader <ul style="list-style-type: none"> 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). 	Singapore Feb 18
Energy Innovation Challenge Team Leader <ul style="list-style-type: none"> 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. 	Singapore May 17 to Jul 17
Arduino Weather Station Workshop Competition Software Developer <ul style="list-style-type: none"> 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. 	Singapore Mar 17

CO-CURRICULAR ACTIVITIES

SUTD Organisation of Autonomous Robotics Vice-President <ul style="list-style-type: none"> 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. 	Singapore Jun 19 to Present
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WORK EXPERIENCES

Temasek Laboratories @ SUTD Research Assistant <ul style="list-style-type: none"> Working under the supervision of Professor Malika Meghjani to develop an intelligent multi-robot system capable of responding dynamically to emergency scenarios. Developing an algorithm based on model predictive control to automate multiple robots in navigating around dynamic obstacles in a Gazebo simulation. 	Singapore May 20 to Present
Mathvision Enrichment Centre Pte. Ltd. Assistant Teacher <ul style="list-style-type: none"> 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. 	Singapore Mar 19 to May 19

ADDITIONAL INFORMATION

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

- Language Proficiency:
 - English
 - Indonesian

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