

## Education

- Singapore University of Technology and Design (SUTD)** Singapore  
*Bachelor of Engineering (Information Systems Technology and Design), Honours* May 2019 - Present
  - Preferred Focus Track: Artificial Intelligence.
  - Cumulative GPA: **4.70**/5.00 (Expected Honours with Highest Distinction).
  - Expected Date of Graduation: August 2022.
  - Member of the ISTD 2021 Student Board.
  - Appointed as the Formation and Coordination of Study Groups Rep for Freshmore Class.
  - Appointed as a House Guardian in SUTD Hostel.
  - Admitted to the SUTD Global Leadership Programme (Sponsored Summer Exchange Programme).
- St. Andrew's Junior College (SAJC)** Singapore  
*Singapore-Cambridge GCE Advanced Level* 2017 - 2018
  - Graduated with **85** rank points (AAAC/AC) - Science Stream.
  - Obtained Merit for H3 course at National University of Singapore: Introduction to Modern Physics (PC1144).
  - Made an e-Portfolio Website for the Talent Development Programme:  
<https://sites.google.com/site/jamesrttdpeportfolio/>
  - Appointed as Mathematics Subject Representative in 2017 and Assistant CT Representative (Class Vice-Chairman) in 2018.
  - Provided audio-visual support in St. Andrew's Hall for hall events.
  - Helped out in preparing ingredients for Willing Hearts' soup kitchen.
  - Completed **33** VIA hours and **2** Enrichment activities.
  - Participated in SAJC Saints MUN 2017 Conference as a Delegate.
- Anglo-Chinese School (Independent) (ACS(I))** Singapore  
*Singapore-Cambridge GCE Ordinary Level* 2015 - 2016
  - Graduated with an L1R5 of **9** (4 A1s, 2 A2s and 2 B3s).
  - Graduated with **27** CCA points (A1).
  - Took Higher Malay as MTL.
  - Appointed as Member of Class Committee/Monitor in 2015.
  - Participated as a member of The Boys' Brigade (12th(I) Company), Choir and the Science Research Challenge group/team.
  - Completed **152** VIA hours and **6** Enrichment modules.
  - Went to Taiwan for Overseas Exploration Programme and to Malaysia for Character Development Programme.
  - Produced a class video for Year Farewell.
- Gloria Junior High School 2** Surabaya, Indonesia  
2012 - 2014
  - Was involved in various Mathematics competitions and olympiads.
  - Participated in Graphic Design as an extracurricular activity.
  - Went to Singapore before taking the Indonesian Ujian Nasional (Sekolah Menengah Pertama).
- Alusis Petra Sejahtera** Surabaya, Indonesia  
*Indonesian Ujian Nasional (Sekolah Dasar)* 2006 - 2012
  - Graduated with an overall score of **28.30** out of 30.00 (combined from 40% USBN and 60% UN scores).
  - Was part of the last cohort graduating from the school.

## Co-Curricular Activities

- **SUTD Organisation of Autonomous Robotics** Singapore  
*Vice-President* *Jun 2019 - Jan 2021*
  - Led 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.
  - Supervised the day-to-day operation and directed the culture, vision and mission of the club.
  - Assisted the President in delegating work amongst an Executive Committee of 7 individuals.
  - Worked 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.
- **Saints for Christ** Singapore  
*Vice-President (Admin)* *Apr 2017 - Apr 2018*
  - Managed the administrative side of the club with regards to event proposals, scheduling and community documentations.
  - Produced a video for Easter Week 2018, a publicity brochure and an animation of Saints for Christ's logo.

## Work Experience

- **Temasek Laboratories @ SUTD** Singapore  
*Research Assistant* *May 2020 - Sep 2020*
  - Worked under the supervision of Professor Malika Meghjani to develop an intelligent multi-robot system capable of responding dynamically to emergency scenarios.
  - Developed an algorithm based on model predictive control to automate multiple robots in navigating around dynamic obstacles in a Gazebo simulation.
- **Mathvision Enrichment Centre Pte. Ltd.** Singapore  
*Assistant Teacher* *Mar 2019 - May 2019*
  - 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.
  - A brief exposure to the office work ethic of the professional world.

## Projects

- **SUTDoggo** Singapore  
*Project Leader* *Sep 2019 - 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.
- **Smart Classroom** Singapore  
*Software Engineer* *May 2020 - Dec 2020*
  - Developed 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.
- **DiscoverSUTD 2020 Website** Singapore  
*Chief Developer* *May 2020 - Sep 2020*
  - 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 2020 - Sep 2020*
  - 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 2019 - Feb 2020*
  - Developed a Telegram Bot in Python for SUTD Hostel Hunt. Utilized Cloud Firestore for database management and Heroku for cloud deployment.
- **Olethros Bot** Singapore  
*Chief Developer* *Sep 2019 - May 2020*
  - Developed a Telegram Bot in Python with miscellaneous commands for my SUTD Freshmore Class. Utilized MongoDB Atlas for database management and Microsoft Azure for cloud deployment.
- **V2X Implementations** Singapore  
*Team Coordinator & Software Specialist* *Sep 2019 - May 2020*
  - Coordinated a team of 4 in studying and implementing the applications of V2X devices in real-life vehicles.
- **SUTD What The Hack Slack Bot** Singapore  
*Chief Developer* *Sep 2019 - Feb 2020*
  - 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 2019 - Oct 2019*
  - 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 2019 - Jul 2019

    - 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 2019 - Sep 2019

    - 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 2018

    - 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 2017 - Jul 2017

    - Project: Supernova.
    - Had Urban Heat Island as the theme.
    - Designed a solar thermophotovoltaic cell prototype as a proof of concept under the supervision of Mr Arief Suriadi Budiman, an Assistant Professor at SUTD.
    - Increased the efficiency and power output of a solar PV cell by about 15% by retrofitting thermoelectric cells at the posterior of the cell.
    - Attended the various workshops (on Microcontrollers and Datalogging) at the Science Centre to upgrade my skills.
- Arduino Weather Station Workshop Competition**

Singapore
  - Software Developer*

Mar 2017

    - 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.
- Other Projects**

At Home
  - 2017 - Present

    - Currently designing a video game in GameMaker Studio 2.
    - Currently maintaining a personal website and several other repositories on GitHub.
    - Occasionally participate in the Laptop Hacking Coffee CTF during spare time.
    - Created a small, unfinished quiz mini-game on Adobe Flash just for fun.
    - Taught Mathematics and Physics to a student as a private tutor for admission to a Computer Science Course in a Taiwanese University.
    - Helped out my junior in setting up the Donkey Car software in a Raspberry Pi for his NUS H3 Science Research Programme project on a self-driving car algorithm.
    - Participated in a mini design sprint in SUTD with Design Odyssey. Created a prototype of a joystick device that helps visually-impaired people to play simple games (like Pac-Man).
    - Helped out as an Assistant Teacher for a Micro-Bit Workshop conducted by IES-SUTD at Science Centre Singapore.

## Awards

SUTD ASEAN Undergraduate Scholarship	2019 - 2022
Ministry of Education (Singapore) - Undergraduate Tuition Grant	2019 - 2022
SAJC Jacob Ballas Awards - Scholars' Awards (4 Distinctions)	2019
SAJC Mrs. Grace Ballas Scholarship	2018
SAJC Service Award (Saints for Christ)	2018
SAJC Talent Development Programme Certificate	2018
St. Andrew's Hall Model 2-Bedder Room (Boys) - Certificate of Achievement	2018
Energy Innovation Challenge - Category 2 Popularity Prize	2017
Energy Innovation Challenge - Category 2 Merit Prize	2017
Australian Mathematics Competition (Senior Division) - Certificate of Credit (Top 30%)	2017
30th Singapore Physics Olympiad - Certificate of Participation	2017
Designing with TI-84+ Colour Graphing Calculators Competition - Certificate of Participation	2017
St. Andrew's Hall MOE SPARKS: Hostel-Based VIA Programme - Certificate of Participation	2017
SAJC 5th Saints MUN Conference - Certificate of Participation	2017
SAJC Exemplary Character Award	2017 - 2018
SAJC Outstanding Class Conduct Award	2017 - 2018
SAJC Commendation Award (Science Stream)	2017 - 2018
Singapore Mathematical Olympiad (Senior Section) - Silver Award	2016
Singapore Junior Chemistry Olympiad - Certificate of Merit	2016
Ngee Ann Engineering Challenge (5-EngXplorer) - Certificate of Achievement (Champion)	2016
Enigma Mathematics Competition - Certificate of High Distinction (Grades 9/10)	2016
Enigma CAT Competition - Certificate of Distinction (Grades 9/10)	2016
MOE-NUS Amazing Lab Race - Certificate of Participation	2016
ACS(I) Science Research Challenge - Certificate of Merit	2016
ACS(I) Choir - Certificate of Commendation	2016
Singapore Mathematical Olympiad (Senior Section) - Bronze Award	2015
Singapore Mathematical Olympiad (Open Section) - Certificate of Participation	2015
Singapore Sports Hub Official Opening (Youth Celebrate!) Contribution Certificate	2015
ACS(I) Academic Award - Top Student	2015
ACS(I) Pastoral Care Award	2015
ACS(I) Cleanest Room Award	2015 - 2016
ACS(I) Inter-class Mathematics Challenge - Certificate of Distinction (Top 10%)	2015 - 2016
United Kingdom Intermediate Mathematical Challenge - Gold Certificate	2015 - 2016
Ministry of Education (Singapore) - ASEAN Scholarship	2015 - 2018
National Mathematical "Vector" Olympiad - Third Prize	2014
Gloria School Scholarship	2014
National Indonesian Science Olympiad (Mathematics) - Finalist	2014

## Skills

**Digital Achievements:** Hack The Box - "Hacker" Rank, Codewars - "6 kyu" Rank.

**Languages:** Python, C/C++, Arduino, JavaScript/TypeScript, Java, HTML/CSS, SQL, MATLAB, Visual Basic, L<sup>A</sup>T<sub>E</sub>X.

**Frameworks:** ROS, Android.

**Operating Systems:** Linux (Ubuntu), Windows.

**Applications:** SolidWorks, Adobe After Effects, Adobe Photoshop, Adobe Illustrator.

**Language Proficiency:** English, Indonesian.

**Miscellaneous:** Strong verbal and written communication skills, exceptional problem-solving skills, good team skills. Excellent attendance, punctuality, life skills and character development. Democratic coaching as leadership style.

## Interests

**Sports:** Swimming and playing badminton.

**Computers:** Full-stack software development and robotics. Tinkering with video games - memory scanning, debugging and hex editing on Windows and Android. Learning image, audio and video editing.

**Musical:** Singing.

**Others:** Teaching and design thinking.