

Curriculum Vitae

TAI JUN JET | Student

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Location: 37, Jalan USJ 3/1F, 47620 Selangor D.E., Malaysia

EDUCATION

2016 – 2020 Bachelor of Engineering (Honours) Mechanical Engineering

CGPA 3.92/4.00

Taylor's University, Malaysia

2015 – 2016 South Australian Matriculation

Taylor's College, Subang Jaya

ATAR 98.95/99.95

WORK & RESEARCH EXPERIENCE

Aug 2018 – Present Taylor's Unmanned Aerial Vehicles Research Group

- Research Assistant under Dr. Swee King Phang
- Developed Autonomous Obstacle Avoidance and Navigation Algorithm for UAVs
- Aided in development of Artificial Intelligence based vision target tracking for UAVs
- Developed in-depth knowledge about ROS and PX4 systems

Jan 2019 – Mar 2019 Fourfang Sdn. Bhd.

- Software Engineer Intern
- Built precision landing algorithm with bespoke procedure and check safes
- Developed in-depth knowledge about Dronekit and ArduPilot systems

Jan 2015 – Dec 2016 Winanga-Li Community Service

- Provided tuition courses for underprivileged children ages 9 to 16

RESEARCH INTERESTS

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|------------------------|--------------------------|
| • Unmanned Systems | • Flight Avionics Design |
| • Machine Intelligence | • Control Systems |

AWARDS AND HONORS

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- | | |
|-------------|---|
| 2020 | Taylor's University Best Student Award |
| 2019 | Airbus Innovation Fun Day Champion |
| | EURECA Conference Best High Impact Research Award |
| | Taylor's University FYP1 Best Poster Award |
| | Semester 7 Dean's List Award |
| | Semester 7 Book Prize Award |
| 2018 | SolidWorks Intervarsity Competition Runner Up |
| | Semester 5 & 6 Dean's List Award |
| | Semester 5 & 6 Book Prize Award |
| 2017 | Taylor's Engineering Fair October 2017, 1st Place |
| | Taylor's Engineering Fair July 2017, 3rd Place |
| | Semester 3 & 4 Dean's List Award |
| | Semester 3 & 4 Book Prize Award |
| 2016 | Taylor's Tertiary Merit Scholarship, Highest Tier |
| | Taylor's Engineering Fair October 2016, 1st Runner Up |
| | Semester 1 & 2 Dean's List Award |

CORE SKILLS

- Firmware Level Software Development (PX4, ArduPilot, ROS, Dronekit , Arduino, C/C++, C#, Python)
- Simulation Software (MATLAB, ANSYS, Simulink, Simscape, Gazebo)
- CAD Software (SolidWorks, EasyEDA, EagleCAD)
- Linux-based Operating Systems (Ubuntu, Ubuntu MATE, etc.)
- Electronic Hardware Development (Avionics, Robotics, PC Hardware)
- Data analysis methods (ANOVA, Taguchi Method, Pearson's Correlation, etc.)

PUBLICATIONS

- Jun Jet Tai, Swee King Phang, and Choon Lih Hoo. "Application of Steady-State Integral Proportional Integral Controller for Inner Dynamics Control Loop of Multi-rotor UAVs." *2018 Fourth International Conference on Advances in Computing, Communication & Automation (ICACCA)*. IEEE, 2018.
- Keifer Lee, Jun Jet Tai, and Swee King Phang. "BOBBY2: Buffer Based Robust High-Speed Object Tracking." *arXiv preprint arXiv:1910.08263* (2019).
- Jun Jet Tai, Swee King Phang, and Yen Myan Felicia Wong. "Optimized Autonomous UAV design with Obstacle Avoidance Capability". *2020 AIP Conference Proceedings*. AIP Publishing LLC, 2019.

NOTABLE PROJECTS

Optimized Autonomous UAV with Obstacle Avoidance Capability

- Developed online, scalable, and lightweight path planning and trajectory optimization algorithm on TAROT 650 class drone
- Comprehensive algorithm study and hyperparameter influence documented
- Over 20,000 simulations performed to prove algorithm's robustness

Steady State Integral Controller for UAVs

- Implement novel flight control algorithm on 250 class racing drones
- Minimum 5-hour total vehicle flight time achieved

Arduino Platform based CNC knife w/ tangent following blade

- Arduino based benchtop CNC machine with tangent following blade to cut thin material sheets from user defined CAD drawings

Automated Aircraft Painter

- Small Scale Automated Aircraft Painting Machine that prints user defined images on aircraft surfaces

Arduino Platform based Quadrotor - Scratch Build

- Complete quadrotor system based on Arduino, original code, and simple off-the-shelf electronics

Others

- All Weather Quadcopter
- PID Controlled Inverted Pendulum
- Quasi-Passive Exoskeleton

EXTRACURRICULAR ACTIVITIES

Airbus Innovation Challenge Champion, 2019

- Competition Group Leader
- Lead a team of four students to compete in a UAV themed competition

Taylor's Robotic Club, 2016 - 2019

- Project Development Lead
- Overlooked development of new projects

CDIO Academy, 2018

- One-week workshop & competition at Kanazawa, Japan
- Competition Group Leader
- Lead a team of international students in a UAV innovation competition