Curriculum Vitae

TAI JUN JET | Student
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EDUCATION

2016 – Present **Bachelor of Engineering (Honours) Mechanical Engineering**
Taylor's University, Malaysia
2015 – 2016 **South Australian Matriculation**
Taylor's College, Subang Jaya

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

- Unmanned Systems
- Machine Intelligence
- Control Systems

AWARDS AND HONORS

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 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, Proficient in C/C++)
- Simulation Software (MATLAB, ANSYS, Simulink, Simscape, Gazebo)
- CAD Software (SolidWorks, EasyEDA)
- Linux-based Operating Systems (Ubuntu, Kali Linux)
- 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).

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 drone
- 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