TAN YONG ZHUO

CONTACT

+65 8186 9505

2402165@sit.singaporetech.edu.sg

http://linkedin.com/in/tanyongzhuo

https://dragon2948.github.io/

EDUCATION

Singapore Institute of Technology
Bachelor of Engineering in Robotics Systems

Sep 2024 - Present

Nanyang Polytechnic
Diploma in Digital & Precision Engineering

Apr 2019 - Mar 2022

ITE Collage East
Mechanical Engineering

Jan 2017 - Mar 2019

LANGUAGES

English

Chinese

Japanese

WORK EXPERIENCE/ROLES

Student Research Engineer (Centre for Immersification)

Dec 2025

- Developed new interactive features in a VR simulation environment using babylon and typescript.
- Integrated existing desktop functionalities into a fully immersive VR platform, enabling users to perform tasks such as adding pointers, adding and removing of object.
- Improved user immersion and usability by allowing real-time interaction and intuitive control within a 3D environment.

Student Project Engineer (InnoHub)

Jul 2025 - Present

- Supported 2 faculty-led R&D and proof-of-concept projects through CAD design, prototyping, and electronics integration.
- Produced SolidWorks CAD drawings, fabricated 3D-printed prototypes, and soldered and assembled electronic components.
- Contributed to 2 proof-of-concepts that progressed to internal reviews / funding consideration.

NSF Council Chairman

May 2023 - May 2024

- Led the NSF Council to represent servicemen and coordinated communication between NSFs and DXOs.
- Managed and resolved approximately 10+ welfare and operational issues, improving response time and unit morale.
- Planned and executed office-wide initiatives and events involving 80+ participants, strengthening engagement and teamwork.

Student Internship Programme

Quality Control & Assurance @ Sunningdale Tech Ltd

Apr 2021 - Jun 2021

- Inspected 3D-printed medical replacement parts using measurement machines to ensure compliance with engineering drawings and tolerance requirements.
- Verified dimensional accuracy and documented defects, contributing to improved quality control and reduced risk of non-conforming healthcare components.
- Developed a detailed, step-by-step Work Instruction (WI) for operating the CMM, standardising inspection procedures and reducing operator error.

TECHNICAL SKILLS

Programming Languages:

- Python, C/C++, Bash/shell

Robotics Frameworks

- ROS 1 & ROS 2, Gazebo, RViz

Hardware Platforms:

- Agilex LIMO, Lidar Systems, Camera Systems

Development Tools:

- Git/GitHub, CMake, Catkin, Ubuntu

PROJECTS

Multi-Sensor SLAM using RTAB-Map

- Integrated RGB-D camera and Lidar data in ROS for mapping and localization
- Tuned RTAB-Map and AMCL for real-world navigation accuracy on Agilex LIMO
- Documented RTAB-Map

Autonomous Navigation with ROS 1 and Agilex LIMO

- Collaborated in a 6-member team to configure move_base with AMCL, DWA Planner, and custom costmaps for indoor navigation
- Tuned velocity and recovery parameters for smooth obstacle avoidance and path tracking
- Successfully navigated through mapped environments using localization in the map frame

TurtleBot3 Maze Solving Algorithm using ROS 2

- Developed a ROS 2-based autonomous maze-solving system for TurtleBot3
- Implemented exploration and obstacle-avoidance logic using LiDAR data
- Built and tested custom ROS 2 nodes for perception and navigation

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ACHEIVEMENTS

Best Serviceman Award 2023

Achieved during National Service that acknowledges the amount of hard work and dedication the serviceman has put in his work, and is put against the Military Full Time Regulars to win the award. Was nominated due to being able to cover a Supervisor’s position with minimal supervision.