

# FU ZHENGYU

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## EDUCATION

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The Hong Kong University of Science and Technology

Sep. 2018 – present

*BSc in Integrative Systems and Design & Computer Engineering*

- Current CGA: 3.85
- Awards & Scholarships: Dean's List, University's Scholarship of Continuing Undergraduate Students, HKSAR Government Scholarship Fund - Talent Development Scholarship
- Relevant Courses: Introduction to Aerial Robots, Modern Robotics, Control System Design, Optimal Control, Fundamentals of Computer Vision, System Thinking and Design

## PUBLICATIONS

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Motion Planning for Mobile Robots with Uncertainty: A Model Predictive Control Approach

Jiawei Tang\*, Yik Ben Wong\*, **Zhengyu Fu\***, Nachuan Yang, Sil Kwong Tse, Winnie Suk Wai Leung, Ling Shi.

Submitted to IROS2021

## WORK EXPERIENCES & PROJECTS

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Robotic Manipulation, Hong Kong Centre for Logistics Robotics

Jan. 2020 – Feb. 2022

*Software engineer (Internship)*

- Implement ros2\_control-compatible hardware interface for NACHI MZ25 manipulator in ROS2 Foxy

Multi-agent System Control, Department of ECE, HKUST

Jun. 2020 – present

*Undergraduate research assistant*

- Implement MPC-iLQR controller for differential wheeled robot
- Implement graph-based formation controllers in ROS Melodic
- Set up the simulation environment in Gazebo

IMU-based Motion Capture System, HKUST

Mar. 2020 – Jun. 2020

*Software engineer*

- Deploy the complementary filter to fuse data from accelerometers and gyroscopes
- Map the captured motion to a humanoid skeleton in Unity in real-time
- The demonstration can be viewed on [https://youtu.be/I017\\_Ufs-Fg](https://youtu.be/I017_Ufs-Fg)

Online Course System, Division of ISD, HKUST

Jan. 2019 – Oct. 2019

*Full-stack developer*

- Design and deploy an online course system delivering tutorial videos and customized assignments to students.
- Develop a grading system for instructors to comment and grade each submission of students
- The project is currently hosted on <http://mooc.isd.ust.hk/>

RoboMaster Competition, ENTERPEIZE, HKUST Robotics team

Oct. 2018 – Sep. 2019

*Software engineer*

- In charge of designing and implementing a quaternion-based orientation controller for a 2-axis stabilizer
- Implement a forward kinematics solver and motor controllers of the Mecanum mobile platform
- Develop and maintain the software of Infantry robots

## ACTIVITIES & LEADERSHIP

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Probationary Engineering Student Ambassador (ESA), HKUST

May. 2020 – present

*Student Ambassador*

- Work as a student representative of the Faculty of Engineering
- Introduce engineering through interacting with prospective students, parents, scholars and the general public

Design Thinking for Urban Challenges, Asian Universities Alliance

Jan. 2020 – Jan. 2020

*Participant*

- An AUA Overseas Study Program hosted by Seoul National University(SNU)
- The program was aimed to help participants to gain an understanding of the characteristics of the 4<sup>th</sup> industrial revolution through introducing newly emerging technology, like VR, AR, AI, big data and digital marketing
- The learning was consolidated by numerous site visits such as Samsung D'light and SKT

## TEACHING EXPERIENCE

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Mechatronic Systems Design with Embedded Computing, HKUST

Feb. 2021 – present

*Teaching Assistant*

- Design lab manuals and programming exercise to familiarise students with Arm<sup>®</sup> based microcontrollers
- In charge of leading laboratory sessions

## AWARDS & CERTIFICATIONS

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- Modern Robotics: Mechanics, Planning, and Control, Northwestern University      Robot Kinematics certificate
- 2019 RoboMaster International qualification tournament, RoboMaster      1<sup>st</sup> Prize
- “Cyber Defenders Challenge – Team Up for the Good Fight”, China Everbright Bank & HKUST      1<sup>st</sup> Prize
- 2016 RoboCup Junior Rescue Line International Competition in Leipzig, Germany      1<sup>st</sup> Prize

## SKILLS

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**Programming**

**(Well-experienced in)**C++, Python, MATLAB, ROS;**(Capable of)**Julia, JavaScript

**Mechanical**

CAD software(Rhino, Solidworks), Physical prototyping(CNC, Laser cutter, water jet)