

Aspiring robotics PhD candidate with a **mechatronics** background and Master's research focused on optimizing gait control for soft quadruped robots. Skilled in interdisciplinary design, simulation, and practical implementation. Proficient in **Python**, **C/C++**, **Matlab**. Committed to collaborative, impactful robotics research.

Education

- 2021.9-present **MSc. in Mechatronics**, *KTH Royal Institute of Technology*, Stockholm, Sweden.
Master thesis: Optimal Gait Control of Soft Quadruped Robot by Model-based Reinforcement Learning
Expected Graduation: Oct. 2023
- 2017.9–2021.7 **B.Eng. in Mechanical Engineering**, *City University of Hong Kong*, Hong Kong SAR, China.
Modulus in Control theory, Embedded system, Machine vision, Signal and systems, Thermodynamics, Fluid dynamics, CAD/CAM, MEMS, Manufacturing techniques, Materials, Mechanics, C++ etc.
- 2020.1–2020.6 **Formal Exchange**, *National University of Singapore*, Singapore.
Education in MEMS, Biomaterials, Aerodynamics and Java programming

Experience

Academic

- 2022.1–present **Optimal Gait Control of Soft Quadruped Robot by Model-based Reinforcement Learning**, *Supervised by Lei Feng*, Master Thesis, Stockholm, Sweden.
- Designed innovative software architecture for a novel soft quadruped robot.
- Utilized model-based reinforcement learning to optimize gait patterns and motion.
- Conducted simulations and experiments to achieve superior motion speeds.
- Collaborated across disciplines to integrate the model-based approach for optimal gait control.
- 2022.3–2023.1 **Electronically Regulated Hybrid Valve for Milking System**, *Cooperated with DeLaval International*, HK Project, Stockholm, Sweden [Report here](#).
- Led a team to design and manufacture an electronic vacuum control valve for milking systems.
- Developed a valve controller and user interface on Arduino, implementing precise continuous adjustment, and integrating Kalman filter for improved data accuracy and reliability.
- Ensured strict quality assurance and compliance with industry standards.
- 2022.9–2023.1 **Design and Fabrication of MEMS Actuator**, *Guided by Prof. Joachim Oberhammer*, Project course, Stockholm, Sweden.
- Led a team to design and manufacture an optical in-plane switch for routing telecommunication signals.
- Employed COMSOL simulations for optimizing electrical and mechanical behavior.
- Applied microfabrication techniques, achieving device specifications (thickness=30 m, minimum feature=4 m, minimum gap=3 m).
- 2022.1–2022.5 **Monocular Autonomous Drone Systems**, *Guided by Prof. Patric Jensfelt*, Project course, Stockholm, Sweden.
- Led a team developing an autonomous drone for detecting intruders and navigation in a known environment.
- Conceptualized and implemented control algorithms tailored for localization, perception and path planning modules in the Robot Operating System (ROS).
- Successfully demonstrated autonomous flight capabilities using Crazyflie 2.0 and VM275T FPV camera.
- 2022.1–2022.5 **Simultaneous Localization and Mapping (SLAM) for Unmanned Vehicle**, *Guided by Prof. Martin Edin Grimheden*, Project course, Stockholm, Sweden.
- Led a dynamic team in creating a SLAM system for a Turtlebot3-based unmanned vehicle.
- Learn to integrated sensor data fusion from lidar and cameras for robust performance.
- Designed and implemented comprehensive algorithms for object recognition, precise localization, trajectory planning, and control.
- 2020.9–2021.6 **Liquid-based Bubble-Driven TENG Generator**, *Supervised by Prof. WANG Zuankai*, Final Year Project, Hong Kong SAR, China.
- Conducted foundational research on liquid-based triboelectric nanogenerators (TENGs).
- Successfully validated and characterized the generator's performance based on self-designed station.
- Developed an innovative approach to liquid-based TENGs, advancing sustainable energy solutions.

- 2019.4–2020.1 **Synthesis and Manufacture of Flexible Batteries**, Supervised by Prof. Zhang Kaili, Internship, Hong Kong SAR, China.
- Developed and conduct research on metal hydroxides for flexible batteries using seed-assisted synthesis.
 - The new synthesis method and the designed assembly module of the experiment have applied for invention patents.
 - Collaborated with industry to bring flexible battery technology from concept to market, participate in market research and product testing.

Teaching

- 2018.1–2018.7 **Teaching Assistant**, AP1201 General Physics, City University of Hong Kong.
Provided course support, led discussions, graded assignments, and offered individual assistance
- 2022.10–2023.1 **Teaching Assistant**, MF2007 Dynamics and Motion Control, KTH Royal Institute of Technology.
Provided course support, led discussions, graded assignments, and offered individual assistance

Achievements

- 2020.9 **CN patent Grant**, City University of Hong Kong, Hong Kong SAR, China, "Novel high-load multi-component metal hydroxide with its synthesis method and application".
pending approval
- 2020.6 **Talent Development Scholarship**, Hong Kong Special Administrative Region Government, Hong Kong SAR, China, Hong Kong Special Administrative Region Government Scholarship(2019/2020).
- 2020.6 **CN patent Grant**, City University of Hong Kong, Hong Kong SAR, China, "A flexible battery assembly die and its structural design".
pending approval
- 2019.11 **Second prize in National Finals of the "Challenge Cup" Competition**, Ministry of Education of the P.R.C., Ministry of Science, Technology of the P.R.C., etc., Beijing, China, "A flexible battery assembly die and its structural design".
P.S. "Challenge Cup": National College Students Curricular Academic Science and Technology Works Competition
- 2019.10 **Silver Prize in the National Finals of "Internet +" Competition**, Ministry of Education of P.R.C., Chinese Academy of Sciences, Chinese Academy of Engineering, State Intellectual Property Office, Central Committee of the Communist Youth League and Guangdong Provincial People's Government, etc., Hangzhou, China, "A flexible battery assembly die and its structural design".
P.S. "Internet +": Innovation and Entrepreneurship Competition for China college students
- 2019.7 **Silver Prize in the Finals of the 8th Winning in Guangzhou and Guangdong-Hong Kong-Macao Greater Bay Area Entrepreneurship Competition**, Guangzhou Municipal Labor and Social Security Bureau, Hangzhou, China, "A flexible battery assembly die and its structural design".
- 2019.4 **Second prize in the Finals of the 5th Hong Kong University Student Innovation and Entrepreneurship Competition**, Guangzhou Municipal Labor and Social Security Bureau, Hangzhou, China, "A flexible battery assembly die and its structural design".

Skills & Interest

- Programming C/C++, Python, ROS, Ubuntu, L^AT_EX, JAVA, C#
- Software SolidWorks, AutoCAD, MATLAB, Endnote, Zotero, COMSOL, LS-DYNA, Solid Edge, ANSYS, EAGLE, KLayout, EasyEDA, Simplify3D, Adobe Premiere Pro, OriginLab, Adobe Illustrator, SPSS, MS Office, etc.
- Hardware STM32F1/F3, NXP LPC13xx, Arduino/Raspberry Pi, Turtlebot, 3D printing, laser cutting, lathe and milling machine, PCB prototyping(LPKF), soldering, wiring, electrochemical working station, Transmission Electron Microscope (JEOL JEM-2100)/Scan Electron Microscope (FEI Quanta 450)
- Languages Native Chinese, Fluent English, Limited working German, Elementary Swedish
- Interests Soccer, Cooking, Reading, Cycling, Esports