Mingyang Xu

Date of Birth: 26/04/1997 **Nationality:** Chinese

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EDUCATION

Waseda University, Japan Apr. 2021 - Mar. 2023

Graduate School of Information, Production and Systems

Master of Engineering, Information, Production and Systems Engineering, **GPA: 3.63/4.0**

Student Member of the Japan Society of Mechanical Engineers (JSME)

Beihang University, China (Top "211 & 985" Projects) Sep. 2015 - Jul. 2019

School of Mechanical Engineering and Automation

Bachelor of Engineering, Mechanical Engineering, GPA: 82.31/100

Excellent Graduate of Beihang University

RESEARCH INTERESTS

Human-Robot Interaction, Human Augmentation, Bioinspired Robotics, Mechatronics Design

SELETED RESEARCH EXPERIENCE

A Compact Ankle-assist Walking Robot with Gait-adaptive Control Method Sep. 2021 - Mar. 2023

***Supervisor*:** Prof. Eiichiro Tanaka and Osawa Keisuke (Waseda University)

- Proposed a gait-adaptive control method to recognize and estimate the user's gait changing
- Developed and verified the gait-adaptive system on the manufactured ankle-assisted robot
- Implemented and evaluated the control system based on emotion recognition and fatigue detection

Manta ray-inspired Airship Robot for Harmless Human-robot Interaction Jun. 2017 - Apr. 2019

***Supervisor*:** Prof. Zhongcai Pei and Prof. Jianhong Liang (Beihang University)

- Designed a flapping-wing actuator inspired by the pectoral fin structure of manta rays
- Developed a pitch control system that can change the robot's center of gravity
- Conducted the flight test to optimize the wing area and flexibility distribution of the artificial wings

Development of Terrain-adaptive Aerial Robot with Legged Landing Gear Oct. 2016 - Mar. 2018

***Supervisor*:** Prof. Tianmiao Wang (Robotics Institute of Beihang University)

- Designed the robotic landing gear structure based on Chebyshev lambda linkage and optimized the parameters to achieve a minimal horizontal deviation during the given vertical movement
- Assembled and tuned the quadrotor-type and helicopter-type robots with the robotic landing gear
- Implemented and tuned the PID controller for robotic landing gear to ensure stability and fast response

SKILLS & TECHNIQUES

- **Programming:** MATLAB, C/C++, Python
- **Simulation:** SIMULINK, ANSYS
- **Embedded System:** Arduino, STEM32, Pixhawk
- **Prototyping:** 3D printing, Laser cutting, CNC
- **Mechanical Design:** Solidworks, AutoCAD, ADAMS
- **Academic:** LaTeX, Zotero, EndNote
- **Measurement (human):** Motion capture, Electromyography (EMG), Electroencephalogram (EEG)
- **Language:** IELTS - 6.5 overall, TOEIC - 860 overall

PUBLICATIONS & SUBMITTED PAPERS

1. **M. Xu**, Y. Hua, Y. Li, J. Zhuang, K. Osawa, K. Nakagawa, H. Lee, L. Yuge, E. Tanaka, "Development of an Ankle Assistive Robot with Instantly Gait-Adaptive Method," in Journal of Robotics and Mechatronics (JRM), 2023. (Accepted)
2. Y. Wei, Y. Li, **M. Xu**, Y. Gong, K. Osawa, E. Tanaka, "A Real-Time and Two-Dimensional Emotion Recognition System Based on EEG and HRV Using Machine Learning," in IEEE/SICE International Symposium on System Integrations (SII 2023), Atlanta, GA, USA, 2023, pp. 1-6.
3. Y. Li, **M. Xu**, K. Osawa, E. Tanaka, "A Control Method for Walking Assistance Robot Considering Emotion and Body Condition," in JSME-IIP/ASME-ISPS Joint International Conference on Micromechatronics for Information and Precision Equipment (MIPE 2022), A1-1-03, 2022. (Oral presentation at Nagoya University)

SELECTED AWARDS & SCHOLARSHIPS

Academic and Science Awards & Scholarships

- **Best Award**, the 4th Conference of the Japanese Society for Regenerative Medicine and Rehabilitation (JSRMR 2022) Sep. 2022
- Monbukagakusho (MEXT) Honors Scholarship for Privately Financed International Students Apr. 2021
- **1st Prize**, the 28th "Feng Ru Cup" Competition of Academic and Technological Works (**top 3%**) May. 2018
- **1st Prize**, the 9th "Challenge Cup" Science and Technology Works Competition (**top 10%**) Aug. 2017
- **3rd Prize**, the 10th National University Student Social Practice and Science Contest on Energy Saving & Emission Reduction Aug. 2017

Innovation and Entrepreneurship Awards & Scholarships

- **Golden Prize**, China College Students' Entrepreneurship Competition in 2018 (Beijing) (**top 5%**) Jun. 2018
- **1st Prize**, Entrepreneurship Scholarship of Ministry of Industry and Information Technology Jun. 2018
- **1st Prize**, the 1st "Lee Kum Kee" Innovation Scholarship Jan. 2018

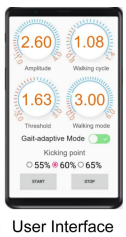
Art Prizes

- **Golden Prize**, Beijing College Students Music Festival (Wind Ensemble Competition) Nov. 2018
- **Champion**, Taiwan International Marching Band Competition 2017 Apr. 2017

EXTRACURRICULAR ACTIVITIES

- Saxophonist, Beihang University Wind Orchestra and Marching Band Sep. 2015 - Jun. 2019
- Member, Student Aeromodelling Association of Beihang University Oct. 2015 - Jun. 2016
- Student Cadre, Music and Recording Studio of Beihang University Sep. 2016 - Jun. 2017

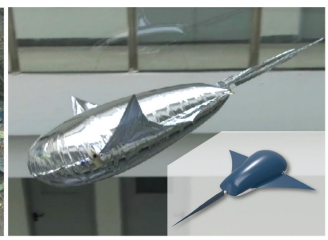
THE ROBOTS THAT I BUILT / PARTICIPATED IN

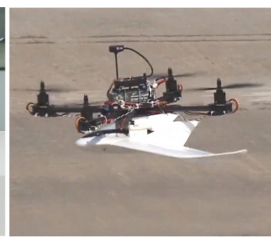
User Interface

Ankle-Assisted Robot

Terrain-adaptive Aerial Robot



Manta Ray Inspired Aerial Robot



Fixed-wing Aircraft Launch System

Click to watch the project videos in my channel: YouTube

https://www.youtube.com/channel/UCTgV9drEJ7IElGMRFppK0uA