YI WANG

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EDUCATION

Columbia University, New York, NY
MS in Mechanical Engineering | GPA: 4.00 Expected Dec 2023
- Concentration on Robotics and Control

Sichuan University, Chengdu, CN
B. E. in Mechanical Engineering | GPA: 3.73 Jun 2022
- First-class Scholarship

PUBLICATIONS

- **Y. Wang**, J. Kang, Z. Chen, and X. Xiong, "Terrestrial Locomotion of PogoX: From Hardware Design to Energy Shaping and Step-to-step Dynamics Based Control," Submitted to ICRA 2024. arXiv preprint arXiv:2309.13737.
- **Wang Y**, Cheong K-P, Wang J, Liu S, Hu Y, Chyu M, Mi J. Operational condition and furnace geometry for premixed C3H8/Air MILD combustion of high thermal-intensity and low emissions. Energy 2024;288:129905. https://doi.org/10.1016/j.energy.2023.129905.

RESEARCH EXPERIENCE

University of Wisconsin-Madison, Madison, USA Jun 2023 - Present
Research Assistant: Design and Control of PogoX
- Developed a novel robotic system, PogoX, that seamlessly integrates a quadrotor with a spring-loaded leg, enabling aerial vehicles to perform terrestrial locomotion under heavy payloads and varying conditions.
- Applied a decoupled control strategy that employs vertical height control through a quadratic program-based energy shaping and horizontal velocity control based by step-to-step dynamics.

Columbia University, New York, USA Feb 2023 - Jun 2023
Research Assistant: EMG Pattern Classification
- Evaluated different EMG pattern classification algorithms such as LDA, SVM, and DNN to classify the EMG signals into different head-neck movements and achieved 86.5% accuracy using ConvRNN Classification method.
- Detected a motor impaired user's intention to execute specific head movements based on neck muscles EMG and implemented selected machine learning algorithm into neck brace's control system.

Sichuan University, Chengdu, CN May 2021 - Dec 2022
Research Assistant: Numerical Analysis of MILD Combustion
- Conducted a comprehensive numerical analysis of premixed C3H8/air MILD combustion under various operational conditions and furnace geometries, revealing critical correlations between these factors and pollutant emissions.
- Identified and optimized furnace geometry and operating conditions for premixed MILD combustion, achieving a significant reduction in pollutant emissions by 90%.

Shandong University, Jinan, CN Jun 2021 - Sep 2021
Research Assistant: Design and Simulation of Manipulator
- Designed and fabricated various mechanical end-effectors for manipulator based on diverse project requirements.
- Conducted simulations on the ROS1 Gazebo platform, controlling manipulator through forward and inverse kinematics. Implemented A* and RRT algorithms for path planning and obstacle avoidance.

LEADERSHIP AND ACTIVITIES

Teaching Assistant, Physics for Science and Engineering Sep 2020 - Jan 2022
- Answered the classmates' questions, reported the study progress to the professor, and assisted in correcting homework and marking examination papers.

Team Leader, The Yangtze River Clear Flow Protection Sep 2019 - Dec 2019
- Organized the program to promote the knowledge of river environment protection. Led the team to test the composition and contaminant of the rivers and reported to the Sichuan River Protection Association

Team Leader, Cultural Exchange and Integration Jun 2019 - Aug 2019
- Showed volunteers from different countries the places of interests and introduced Chinese culture to them. Assisted these volunteers in sharing their native cultures with middle school students in Chengdu.

SKILLS

Software: Solidworks, Ansys, Pybullet, Mujoco and Gazebo
Program Language: Python, Matlab, C, C++, ROS and ROS2