Wenjie Lin

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EDUCATION

Purdue University Ph.D. Candidate in Smart Manufacturing Technology (AI and Robotics)	Aug. 2023-May 2028
Columbia University M.S. in Mechanical Engineering (Robotics and Control), GPA: 3.67/4.0	Sept. 2021-Dec. 2022
University of Science and Technology Beijing (USTB) B.E. in Safety Engineering, GPA: 3.75/4.0	Aug. 2016-June 2020
UC Berkeley/UCLA Exchange Program in Mechanical Engineering, GPA: 3.91/4.0, 3.85/4.0	Jan. 2019-Aug. 2019

- Relevant Graduate and Undergraduate Coursework: Artificial Intelligence, Reinforcement Learning, Robotics Studio, Robot Learning, Evolutionary Algorithm, Intro to Robotics, Modern Control, Digital Control, Data Science for Mechanical Systems, Digital Signal Processing, Solid Mechanics, Dynamic System and Feedback, Creative Robot Design and Production, Intelligent Control Theory, Mechanical Design, Mechanical Vibration.

PUBLICATIONS AND PROFESSIONAL ACTIVITIES

Publications

- Yunchong Wang, Mark Vogelsberger, Dong-Woo Kim, Josh Borrow, Aaron Smith, Lars Hernquist and **Wenjie Lin. X-ray scaling relations of early-type galaxies in IllustrisTNG and a new way of identifying splashback objects. To be submitted to** *MNRAS*
- **Wenjie Lin**, Yajun Fang. **Primary Hyperhidrosis: A Review of Current Diagnosis and Management and Potential Engineering and Social Interventions. To appear on** *IEEE-UV* **2022**
- **Lin, Wenjie**. **Deep Reinforcement Learning based Haptic Enhancement for Tele-Diagnosis**. *FUZZ-IEEE. WCCI*, **2022** (Oral)
- Yang, Zhiyuan, Lin Li, Hao Yuan, Yuhao Dong, Kunniang Liu, Lan Lan, **Wenjie Lin** et al. **Evaluation of Smart Energy Management Systems and Novel UV-Oriented Solution for Integration, Resilience, Inclusiveness and Sustainability**. *IEEE International Conference on Universal Village (UV)*, **2020**

Reviewer for Conferences: IEEE International Conference on Universal Village

RESEARCH EXPERIENCE

Project: Squirrel Biomechanics and Agile Locomotion Design for Squirrel Robot   Oct. 2022-present

Advisor: Prof. Fumiya Iida, Bio-Inspired Robotics Lab (BIRL), University of Cambridge

- Investigated the spring loaded inverted pendulum model (SLIP) model and its explanation and validation for squirrel's running locomotion.
- Analyzed stability and matched model parameters to squirrel's high-speed running, providing mathematical foundation for squirrel robot design.

Project: Multi-View Videos Synchronization   Feb. 2022-May 2022

Advisor: Prof. Sunil Agrawal, Robotics and Rehabilitation (RoAR) Lab, Columbia University

- Developed audio and brightness methods for synchronizing multi-view physical-therapy videos for physiologists to analyze the effect of rehabilitation for children with cerebral palsy and improved the algorithms and minimized the error for audio method to 50ms.
- Proposed a systematic solution to multi-view videos synchronization for rehabilitation analysis including deep learning method.

Project: Deep RL-based Haptic Enhancement Framework   Sept. 2021-Feb. 2022

Advisor: Dr. Ziwei Wang, Human Robotics, Imperial College London

- Proposed a deep RL-based haptic enhancement framework to facilitate remote palpation without installing force sensors on telesurgery robot.
- First-authored the paper "**Deep Reinforcement Learning based Haptic Enhancement for Tele-Diagnosis**" published on WCCI, 2022.

Projects

- **Birdman and LarvaBot (Instructed by Prof. Hod Lipson, Columbia University)** [PDF] [Video]
  From sketch to mechatronic design and production of a bipedal robot "Birdman" and a soft robot "LarvaBot"
  (CAD, 3D Printing, Laser cutting, Gait Simulation and Optimization using Pybullet)
- **OctopusBot (Instructed by Prof. Hod Lipson, Columbia University)** [PDF] [Video]
  Evolved an octopus-like robot to realize fast and stable gaits at the same time using Evolutionary Algorithms
  (C++, Python, MATLAB, Evolutionary Algorithms)
- **Boxing Robot (Instructed by Prof. Sunil Agrawal, Columbia University)** [PDF] [Video]
  Achieved 3D pose reconstruction of boxing motion captured by markless optical cameras based on deep learning and control algorithms
  (MATLAB, Deep Learning, PID Control)
- **Medical Image Classification Using Deep Learning for Alzheimer's Detection (Instructed by Prof. John Wright)** [PDF]
  Achieved the detection of Alzheimer's Disease with magnetic resonance images and compared two CNN-based classification models

HONORS AND AWARDS

Outstanding Undergraduate of USTB / The People's Scholarship of China   June 2020 / Oct. 2019

SKILLSET

C++/C, Python, MATLAB, CAD, ROS, Gazebo/Pybullet, PyTorch/TensorFlow, Adobe PR/AE/PS