

# Wenjie Lin

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## EDUCATION

**Columbia University** M.S. in Mechanical Engineering (Robotics and Control), GPA: 3.7/4.0 Sept. 2021-Dec. 2022

**University of Science and Technology Beijing (USTB)** B.E. in Safety Engineering, GPA: 3.7/4.0 Aug. 2016-June 2020

**UC Berkeley/UCLA Exchange Program** in Mechanical Engineering, GPA: 3.9/4.0, 3.9/4.0 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 (UV)

## 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: Splashback Study based on IllustrisTNG** Sept. 2022-present

**Advisor: Prof. Mark Vogelsberger, Vogelsberger Group, MIT**

- Derived X-ray luminosity from IllustrisTNG dataset and built the X-ray scaling relations of early-type galaxies, which provides a new of identifying splashback galaxies.
- Co-authored paper "X-ray scaling relations of early-type galaxies in IllustrisTNG and a new way of identifying splashback objects".

**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.

**Project: Study on Coordination of Subsystems in Smart City** May 2019-present

**Advisor: Dr. Yajun Fang, Universal Village Society, MIT**

- Constructed a preliminary system connecting energy system with other subsystems, reviewed current diagnosis and management of primary hyperhidrosis, and proposed Low-cost Mighty Mini Fan-based Watch and Intelligent Glove for patients.
- First-authored paper "Primary Hyperhidrosis: A Review of Current Diagnosis and Management and Potential Engineering and Social Interventions" to appear on IEEE-UV 2022 and co-authored paper "Evaluation of Energy Systems and Novel UV-Oriented Solution for Integration, Resilience, Inclusiveness & Sustainability" published on IEEE, the 5th International Conference on Universal Village.

## 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