

Wenjie Lin

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EDUCATION

Purdue University First-year Ph.D. Student 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: Optimization for Deep Learning, 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, Dynamic System and Feedback, Creative Robot Design and Production, Intelligent Control Theory, Mechanical Design.

PUBLICATIONS

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- Wenjie Lin, Xingyu Li. GRASNet: A Novel Graph Neural Network for Improving Human Action Recognition and Well-Being Assessment in Industry 5.0. Submitted to *NAMRC 52, 2024*
 - Wenjie Lin, Yajun Fang. Primary Hyperhidrosis: A Systematic Review of Current Status and Potential Interventions. *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-UV, 2020*

RESEARCH EXPERIENCE

Project: GRASNet, A Novel Graph Neural Network for Human Action Recognition Aug. 2023-present

Advisor: Prof. Xingyu Li, Purdue University

- Developed a novel Graph Neural Network model for improving human action recognition and well-being assessment in manufacturing.
- It can outperform other advanced GNN models, and the validation was conducted on NTU RGB+D 120 benchmark dataset.

Project: Squirrel Biomechanics and Agile Locomotion Design for Squirrel Robot Oct. 2022-Jan. 2023

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 Reinforcement Learning-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

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- **Medical Image Classification Using Deep Learning for Alzheimer's Detection (Instructed by Prof. John Wright)** [\[PDF\]](#)
Achieved classification of Alzheimer's Disease with magnetic resonance images and compared two CNN-based models (Python, Deep Learning)
 - **Birdman and LarvaBot (Instructed by Prof. Hod Lipson, Columbia University)** [\[PDF\]](#) [\[Video\]](#)
Mechatronic design and production of bipedal robot "Birdman" and soft robot "LarvaBot" (3D Printing, Gait Optimization using Pybullet)
 - **OctopusBot (Instructed by Prof. Hod Lipson, Columbia University)** [\[PDF\]](#) [\[Video\]](#)
Evolved an octopus-like robot to realize fast and stable gaits using Evolutionary Algorithms (C++, Python, 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)

HONORS AND AWARDS

Presidential Doctoral Excellence Fellowship (Purdue University) Aug. 2023

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