

Luying Feng

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RESEARCH INTERESTS

Fields: Robotics, Human-Machine Interaction.

Topics: Brain-inspired Embodied Intelligence, Loco-manipulation, Humanoid Locomotion, Human Movement.

EDUCATION

- **Westlake University & Zhejiang University (Joint Program)** *Aug 2025 – Present*
Hangzhou, China
Ph.D. in Computer Science and Technology
- **Zhejiang University** *Sep 2021 – Mar 2024*
Hangzhou, China
M.S. in Mechanical Engineering
- **Jiangnan University** *Sep 2017 – Jun 2021*
Wuxi, China
B.S. in Mechanical and Electronic Engineering

EMPLOYMENT

- **Westlake University, Trustworthy and General Artificial Intelligence Laboratory (TGAI Lab)** *Apr 2024 – Aug 2025*
Hangzhou, China
Research Assistant

PUBLICATIONS

- [1] **Biomechanical Comparisons Reveal Divergence of Human and Humanoid Gaits**
Feng L, Jin Y, Hu H, and Chen W
Under Review
- [2] **ULC: A Unified and Fine-Grained Controller for Humanoid Loco-Manipulation**
Sun W*, Feng L*, Cao B, et al.
Under Review
- [3] **QuietWalk: Physics-Informed Reinforcement Learning for Ground Reaction Force-Aware Humanoid Locomotion Under Diverse Footwear**
Hu H, Feng L, Chen S, Zheng T, Jiang D, Chen W, Zhang C, Yang G, and Jin Y
Under Review
- [4] **Locomotion Joint Angle and Moment Estimation with Soft Wearable Sensors for Personalized Exosuit Control**
Feng L, Gui L, Xu W, et al.
IEEE Transactions on Neural Systems and Rehabilitation Engineering, 33:1048–1060, 2025
- [5] **Synergy in Motion: Exploring the Similarity and Variability of Muscle Synergy Patterns in Healthy Individuals**
Feng L, Yu L, Lyu H, Yang C, Liu X, Zhou C, and Yang W
Human Movement Science, 98:103300, 2024
- [6] **Force Calibration of Soft-Sensing Unit for Flexible Exoskeleton**
Feng L, Gui L, Wang X, et al.
2024 6th International Conference on Data-driven Optimization of Complex Systems (DOCS), pp. 358–364, 2024
- [7] **Force Calibration and Prediction of Soft Stretch Sensor Based on Deep Learning**
Feng L, Gui L, Yan Z, Yu L, Yang C, and Yang W
2023 International Conference on Advanced Robotics and Mechatronics (ICARM), pp. 852–857, 2023
- [8] **Design of a Rapid Replacement System for UAV**
Feng L, Pin X, Wang X, and Yu Z
Machine Building & Automation, 51(04):192–195, 2022 (Chinese)
- [9] **Subject-independent Hip Moment Estimation From Bilateral Hip Angles in Transitional and Steady-state Gait**
Azam H, Xu W, Feng L, et al.
Expert Systems with Applications, 2026:132047
- [10] **Sensorless Strategy for Controlling SPMSM Combining Improved Adaptive SMO and Finite-Position-Set PLL**
Wang X, Sun X, Deng L, Feng L, et al.
Actuators, 15(3):134, 2026

- [11] **ShoesMimic: One-Policy Whole-Body Control for Multi-Shoe Humanoid Locomotion**
Hu H, **Feng L**, Chen W, Wang T, Jin Y, and Chen S
2025 5th International Conference on Mechanical Automation and Electronic Information Engineering (MAEIE), pp. 188–193, 2025
- [12] **Benchmarking State-of-the-Art Lower Limb Joint Moment Estimator Against Advanced Time Series Models**
Azam H, Xu W, Wang H, **Feng L**, et al.
International Conference on Intelligent Robotics and Applications (ICIRA), pp. 275–284, 2025
- [13] **Data-Driven Modeling of Hydraulic-to-Electric Energy Conversion for Underwater Thermal Vehicles**
Wang X, Sun X, **Feng L**, et al.
2025 7th International Conference on Data-driven Optimization of Complex Systems (DOCS), pp. 86–92, 2025
- [14] **Muscle Synergy-Based Human-In-The-Loop Optimization for Personalized Hip Exoskeleton Control**
Yang W, Yan Z, Yu L*, **Feng L**, Gui L, and Yang C
2023 International Conference on Advanced Robotics and Mechatronics (ICARM), pp. 73–78, 2023
- [15] **Design and Control of a Novel Underactuated Soft Exosuit**
Yang W, Gui L, **Feng L**, et al.
International Conference on Intelligent Robotics and Applications (ICIRA), pp. 564–575, 2023
- [16] **Biosensors Toward Behavior Detection in Diagnosis of Alzheimer’s Disease**
Sun X, Sun X, Wang Q, Wang X, **Feng L**, et al.
Frontiers in Bioengineering and Biotechnology, 2022
- [17] **The Application of Wearable Glucose Sensors in Point-of-Care Testing**
Zhang S, Zeng J, Wang C, **Feng L**, Song Z, Zhao W, Wang Q, and Liu C
Frontiers in Bioengineering and Biotechnology, 9:774210, 2021

PATENTS (PRIMARY INVENTORSHIP)

- [1] **An embodied intelligent robot inspired by biological development and its control method.**
CN121849266A, 2026-04-14
Chen W, Jin Y, **Feng L**, and Pan, W. X.,
- [2] **A robot agent evaluation system for lower-limb exoskeletons and a gait policy training method for the corresponding agent.** CN121777198A, 2026-04-03
Jin Y, **Feng L**, and Chen W,
- [3] **A mirror-assisted control method for exoskeletons capable of real-time estimation of lower-limb joint torques.** CN116999296B, 2025-12-12
Fang J, Yang W, **Feng L**, Hu H, Yang C, Yan Z, Xu W, Gui L, and Liu D,
- [4] **A motion capture pants and angle estimation method capable of detecting 3D joint angles.**
CN116195992A, 2023-06-02
Yang W, **Feng L**, Gui L, Cao Q, Yan Z, Yu L, Yang C, and Liu X,
- [5] **A medical box for Alzheimer’s detection with self-locking structure.** CN218391282U, 2023-01-31
Zhang S, **Feng L**, Xia Q, Sun X, Liu C, Zhao W, Zeng J, Hu R, Zhou Y, and Yang C,
- [6] **Basketball training machine.** CN115463399B, 2022-12-13
Feng L, Yang W, Yan Z, Yu Y, Wo K, Zhao C, Zhao W, and Yang C,
- [7] **A two-phase-driven flexible hand claw.** CN114800583B, 2022-07-29
Wang X, **Feng L**, Zhang S, Wu J, Guan Q, Xia Q, Wang Q, Wang C, Sun X, Song Z, and Sun X,
- [8] **A two-phase driven soft crawling robot.** CN114670949B, 2022-06-28
Zhang S, **Feng L**, Wang X, Zhao W, Zeng J, Wang Q, Wang C, and Yang C,
- [9] **A UAV battery exchange base station.** CN114379411B, 2022-04-22
Zhang S, **Feng L**, Yang C, Zhao W, Zeng J, Sun M, Yu Z, and Jing Y,
- [10] **A UAV quick battery replacement system.** CN111267790B, 2021-07-27
Tian S, Ping X, **Feng L**, Sun M, Li H, Chen Z, and Ren Z,
- [11] **An UAV external positioning system.** CN111392050B, 2020-07-10
Feng L, Pin X, Sun M, Tian S, Li H, Chen Z, and Ren Z,
- [12] **A drone battery quick replacement device.** CN111267791B, 2020-06-12
Feng L, Pin X, Tian S, Sun M, Li H, Chen Z, and Ren Z,
- [13] **A gravity-sensing turn signal device.** CN209972646U, 2020-01-21
Feng L, Sun M, Ren D, Zhu C, and Chen J,

[14] **A grip-sensing turn signal device.** CN209650430U, 2019-11-19
Feng L, Sun M, Ren D, Chen J, Zhu C, Zhou X, and Zhu Y,

PROFESSIONAL SERVICES

- **Conference Reviewer:** IROS 2026, CEC 2025, DOCS 2024, DOCS 2025
- **Member,** [The IMOL Community](#) (Intrinsically Motivated Open-Ended Learning)

SKILLS

- **Programming Languages:** Python, MATLAB, C++
- **Platforms & Tools:** TensorFlow, PyTorch, IsaacSim, Mujoco, Raspberry Pi, Arduino, Jetson, Altium Designer, SOLIDWORKS
- **Biomechanics & Rehabilitation:** Operator Level 1 on the GRAIL, experienced in gait analysis and therapy with patients or other subjects using the GRAIL

HONORS AND AWARDS

Honors

- 2024: Outstanding Graduate Student of Zhejiang University
- 2022: Award of Honor for Graduate, Zhejiang University
- 2018: Exceptional Student Leader, Jiangnan University

Awards

- 2021: Excellent Graduation Project of Jiangsu Province, First prize
- 2019–2021: National Conference on Undergraduate Innovation and Entrepreneurship, National Outstanding Project