

YOUPIING SUN

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EDUCATION

Northwestern University — Evanston, IL, USA

Sept 2026 – May 2028

M.S. in Computer Engineering (Admitted)

University of Wisconsin–Madison — Madison, WI, USA

Sept 2025 – Dec 2025

Visiting Student, Department of Industrial and Systems Engineering / GPA: 4.0 / 4.0

Shandong University — Jinan, China

Sept 2022 – June 2026

B.Eng. in Robotics Engineering (Expected), School of Control Science and Engineering / GPA: 83.99 / 100

Coursework emphasis: Robotic Control, Machine Vision, Machine Learning, Embedded Systems

RESEARCH EXPERIENCE

Research Assistant, Robotics Research Center, Shandong University

Oct 2024 – Present

Machine Learning–Based Gait Phase Detection and Prediction from sEMG / Advisor: Prof. Huanghe Zhang

- Built an end-to-end data-processing pipeline for multi-channel lower-limb surface electromyography (sEMG) signals, covering denoising, feature engineering, and gait-phase segmentation, to enable reliable continuous-phase estimation.
- Designed and trained artificial neural network (ANN) models for gait-phase prediction across level walking, stair ascent, and stair descent; systematically studied cross-task generalization and substantially improved robustness under locomotion-mode transitions.
- Authored three first-author publications (AIHCIR 2024; AIACT 2026; ICCA 2026, accepted) with direct applications to exoskeleton and intelligent-prosthesis human–machine interaction control.

Research Assistant, Flexible Electronics and Additive Printing Laboratory, UW–

Sept 2025 – Dec 2025

Madison

3D Modeling, High-Precision Scanning, and Surface Pattern Projection for EHD Printing / Advisor: Prof. Hantang Qin

- Designed and fabricated continuous-curvature 3D geometries in SolidWorks and performed 0.10 mm precision 3D scans to generate a high-fidelity geometric reference for downstream surface path planning.
- Developed a 2D-to-3D pattern-mapping workflow in Blender and uniformly resampled fabrication toolpaths at 1 mm intervals, significantly improving pattern consistency and process stability for EHD printing on non-planar substrates.

PROJECTS

Humanoid Robot Manipulation in a Warehouse Setting | 19th “Challenge Cup”

Jul 2025 – Nov 2025

National AI+ Competition

National Second Prize

- Set up a reproducible Docker-based robotic simulation environment integrating perception and task-planning modules to enable rapid iteration on high-level control algorithms.
- Developed high-level control algorithms for a humanoid robot with a multi-finger dexterous hand, enabling multi-object grasping strategies and global motion planning across warehouse scenarios.

Intelligent Quadruped Robot | Intelligent Robotics Course Project

Feb 2025 – Mar 2025

Webots Simulation and Motion Control

- Implemented pose transformation and gait switching for a quadruped robot in Ubuntu + Webots, achieving stable ascent and descent on stairs.
- Fused LiDAR point clouds with RGB camera input to design line-following and obstacle-avoidance algorithms, enabling stable real-time perception and evasion during high-speed circular navigation.

Car Competition (iFlytek Track)

Provincial First Prize

- Implemented track-edge recognition and corner-type classification in OpenCV, building adaptive control strategies tailored to different cornering scenarios.
- Tuned steering stability using a ROS + PID control pipeline to achieve high-speed, stable lap performance on a complex track.

PUBLICATIONS

- Sun, Y., & Wang, J. (2024). "Gait phase detection and prediction with machine learning models based on sEMG." AIHCIR 2024.
- Sun, Y., et al. (2026). "Cross-locomotion task generalization in sEMG-based gait phase prediction using artificial neural networks." AIACT 2026.
- Sun, Y., et al. (2026). "Exploring the correlation between level walking and stair ambulation for fine-grained gait phase prediction." ICCA 2026 (Accepted).

AWARDS AND HONORS

- National Second Prize, 19th "Challenge Cup" National College Student AI+ Competition (2025)
- Provincial First Prize, 19th National University Student Intelligent Car Competition, iFlytek Track (2024)
- Outstanding Individual in Student Innovation & Entrepreneurship, Shandong University (2023)
- Entrepreneurship Practice Scholarship, Shandong University (2023)

LEADERSHIP

Director, Social Practice Management Center, Shandong University

Sept 2023 – Jun 2024

- Organized corporate visit programs with TGOOD (Qingdao), Shandong Lingong, and Bosch Jinan; led planning and evaluation of summer/winter social-practice projects; hosted "Practice Reflection" experience-sharing sessions.

TECHNICAL SKILLS

Programming: C / C++, Python, R, MATLAB, Wolfram

Frameworks & Tools: ROS, OpenCV, Webots, SolidWorks, Blender, Docker, Tableau

Mathematics: Calculus, Probability & Statistics, Linear Algebra, Complex Analysis

Languages: Mandarin (native), English (TOEFL 99)