

Yuanshao Yang

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EDUCATION

Aug 2023 - Present

University of Michigan - Ann Arbor

College of Engineering

Mechanical Engineering BSE / Concentration in Robotics

GPA: 4.00/4.00

Sept 2021 - July 2023

Sichuan University, Chengdu

Sichuan University - Pittsburgh Institute

Bachelor of Engineering - Mechanical Engineering

GPA: 3.84/4.00

HONORS & AWARDS

Aug 2024, University of Michigan

College of Engineering Scholarship (\$2,000)

Dec 2023 / May 2024, University of Michigan

University Honors

Dec 2023 / June 2024, University of Michigan - College of Engineering

Dean's List

Oct 2023, Sichuan University

Dean's List (10 % Annual Tuition, 30/230)

Oct 2022, Sichuan University

Academic Star Scholarship (20 % Annual Tuition, 3/230)

Oct 2022, Sichuan University

Comprehensive Academic Scholarship, 2nd Prize (TOP 4 %)

Oct 2022, Sichuan University

Outstanding Student Leader of the Year

PROJECTS

Series Spring Design & Evaluation for [Open-Source Leg](#)

July 2024 - Present

Instructor: Prof. Elliott Rouse, Zachary Bons

[Neurobionics Lab](#), Robotics, University of Michigan

- Literature review of torsional spring design
- CAD design to link design series-spring sets
- Testing the performance of the series-spring design and backlash model

Software Library Generalization for [Open-Source Leg](#)

Mar 2024 - Present

Instructor: Prof. Elliott Rouse, Senthur Ayyappan

[Neurobionics Lab](#), Robotics, University of Michigan

[GitHub Repository Posted](#)

- Literature review on structure of prosthetic legs and 3-Phase Brushless DC Motors
- Redesign the Python Library for compatibility with alternative hardware
- Add support to alternative actuator controllers to broaden hardware choices
- Evaluate actuator performance through test of Step Response and Time-Domain Specifications

Development & Motion Analysis of Robot Swimmer

Dec 2023 - Present

Instructor: Prof. Alex K. Shorter

Mechanical Engineering, University of Michigan

[GitHub Repository Posted](#)

- Develop an E. coli-based robot swimmer model with a sphere head and quad flagella
- Design & optimize the CAD model for robots' smooth 2-D motion in uniform, viscous flow

- Validate the mechanical design by CFD analysis
- Use correlation analysis towards design parameters to optimize mechanical design
- Develop a path-planning algorithm for obstacle avoidance
- Design the feedback control model to perform reference tracking

An Automated Vehicle with Tracking System

Mar 2023 - Aug 2023

Instructor: Prof. Qi Lu

Sichuan University - Pittsburgh Institute

[GitHub Repository](#) [Posted](#)

- Development of a self-tracking vehicle with tennis-ball-recognition
- Focusing on image recognition algorithm and object tracking method in the Tracking System
- Training and testing the image recognition model (YOLO v3) on the camera module for better effects of tennis ball recognition
- Implementation of PID controller for servos in the stabilizer to achieve object tracking
- Implementing and testing the functionality of the tracking system

Clinical Data Analysis of Heart Disease

Mar 2022 - June 2023

Instructor: Prof. Xiaobo Zhou, Yuefu Zhan

Biomedical Big Data Center, West China Hospital, Sichuan University

[GitHub Repository](#) [Posted](#)

- Work on diagnostic data of cardiac patients through feature selection
- Develop regression models (e.g., Random Forest) via Scikit-Learn and PyTorch in Python and use training data sets of clinical diagnostic data
- Test model performance on internal datasets
- Perform interpretability analysis of built models using variable sensitivity analysis
- Enhance classification processes' precision of the model by analyzing visualized Decision Trees

WORK EXPERIENCE

Instructional Aid (IA) of **MECHENG 360**

August 2024 - Present

Instructor: Prof. Uduak Inyang-Udoh

Mechanical Engineering, University of Michigan

- Hold office hours and answer questions in-person / remote
- Take trial exams and offer suggestions on exam question set-ups
- Assist Graduate Student Instructor (GSI) with homework solutions

EXTRA-CURRICULUM ACTIVITIES

M.S.D.M (Math, Science, Data, and Modelling) Club

June 2022 - Present

Co-Founder

Sichuan University

- Establish an academic club aiming to integrate and share math-related resources
- Organize online seminars twice a month, attracted 10 people
- Invite professors to give pre-competition guidance to students planning to compete in MCM/ICM
- Manage member recruiting, seminar content planning

SKILLS

- Programming
 - C/C++, Python (PyTorch, Scikit-Learn, etc)
- Tools
 - Keil MDK, MATLAB & Simulink Toolbox, LaTeX, SolidWorks, AutoCAD, MSC Adams