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 in 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 J. Rouse, Zach Bons
Neurobionics Lab, Robotics, University of Michigan

- Literature review of torsional spring design
- Middleware Design to link spring in series
- Testing the performance of the series spring

New Controller Implementation for Open-Source Leg — Mar 2024 - Present
Instructor: Prof. Elliott J. Rouse, Senthur Ayyappan
Neurobionics Lab, Robotics, University of Michigan
GitHub Repository Posted

- Literature reviews on the structure of bionic legs and 3-Phase Brushless DC Motors
- Redesign the Python Library for compatibility with multiple actuators
- Design baseplate for new controller board on the original actuator
- Implementation of the new controller board to expand alternative choices of actuators
- Test actuator functions based on new designs

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 a PID controller for the servos in the stabilizer to achieve object tracking
- Implementing and testing the functionality of the tracking system

Research Intern of Prof. Xiaobo Zhou   Mar 2022 - June 2023

West China Hospital Biomedical Big Data Center, 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 test datasets
- Perform interpretability analysis of built models using variable sensitivity analysis
- Enhance classification processes' precision of the model by analyzing visualized Decision Trees

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