

Yuanshao Yang

 Github |  yuanshao@umich.edu |  +1 (734) 882-8073

2327 Erie Dr., Ann Arbor, MI 48109

EDUCATION

Aug 2023 - Present	University of Michigan - Ann Arbor
College of Engineering	
BSE, Mechanical Engineering (Concentration in Robotics)	GPA: 4.00/4.00
Sept 2021 - Present	Sichuan University, Chengdu
Sichuan University - Pittsburgh Institute	
BSE, Mechanical Engineering	GPA: 3.84/4.00

HONORS & AWARDS

Aug 2024, University of Michigan	CoE Need- and Merit-Based Scholarships (\$2,000)
June 2024 / Dec 2023, University of Michigan	College of Engineering - Dean's List
May 2024 / Dec 2023, University of Michigan	University Honors
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 , University of Michigan	
GitHub Repository Posted	
Publication: In Preparation	

- Generate a mechanical design of series spring with easier mounting strategies and better axial alignments
- Generate a design to measure the deflection angle of the series spring via Computer Vision
- Evaluate the hysteresis effect on assembly interfaces through different designs and manufacturing methods
- Evaluate the effect on broadening the design space from series springs

Software Library Generalization for Open-Source Leg	Mar 2024 - Present
Instructor: Prof. Elliott Rouse, Senthur Ayyappan	
Neurobionics Lab , University of Michigan	
GitHub Repository Posted	

- Conducting review of literature 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 - Aug 2024

Instructor: Prof. K. Alex Shorter

Mechanical Engineering, University of Michigan

[GitHub Repository Posted](#)

Publication: **Accepted** for Conference Proceeding [1]

- Design & optimize the E-coli based robot CAD model for 2-D motion in uniform, viscous flow
- Validate the mechanical design by CFD analysis
- Develop a path-planning algorithm for obstacle avoidance
- Design the feedback control model to perform reference tracking

WORK EXPERIENCE

Instructional Aid (IA) of ME360 - System Dynamics

Aug 2024 - Present

Full Name: [Modeling, Analysis and Control of Dynamic Systems](#)

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

SKILLS

- **General Programming:** C/C++, Python
- **General Computation & Simulation Tools:** MATLAB & Simulink Toolbox, MSC Adams
- **Data Science & Machine Learning Toolbox:** Scikit-Learn, PyTorch
- **Computer Vision:** OpenCV
- **Mechanical Design:** SolidWorks, AutoCAD
- **Embedded System Design:** Keil MDK
- **Writing & Formatting:** LaTeX

PUBLICATIONS

- [1] Yuanshao Yang, Mingkai Xia, Naike Wu, and Junhan Zhang. “Motion Analysis and Design of Bionic Swimming Robot”. *Proc. of 2024 IEEE International Conference on Cyborg and Bionic Systems (CBS 2024)*. Accepted for Presentation. Nagoya, Japan: IEEE, 2024.