

Yuanshao Yang

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Last updated: August 28, 2024

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)

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, Robotics, University of Michigan

Reference: [Background Research](#)

- Generate a mechanical design of series spring with easier mounting strategies and better axial alignments
- Evaluate the backlash effect on assembly interfaces (e.g. between cam shaft and spring flextures)
- Evaluate the effect on broadening the design space from series spring design

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 - Aug 2024

Instructor: Prof. Alex K. Shorter

Mechanical Engineering, University of Michigan

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

- Design & optimize the E-coli based robot CAD model for smooth 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: *Modelling, 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

- Programming
 - C/C++, Python (PyTorch, Scikit-Learn, etc)
- Tools
 - **General Computation & Simulation Tools:** MATLAB & Simulink Toolbox, MSC Adams
 - **Mechanical Design:** SolidWorks, AutoCAD
 - **Embedded System Design:** Keil MDK
 - **Writing & Formatting:** LaTeX

PUBLICATIONS

In Review

Yang, Yuanshao et al. (2024). “Motion Analysis and Design of Bionic Swimming Robot”.