

XIANGYU PENG

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[Homepage](#) [Google Scholar](#)

EDUCATION

University of Michigan (Ann Arbor), USA

August 2021 - Present

Ph.D. in Robotics, GPA: 4.0/4.0

University of Michigan (Ann Arbor), USA

August 2019 - April 2021

M.S. in Robotics, GPA: 4.0/4.0

Shanghai Jiao Tong University, China

September 2015 - June 2019

B.E. in Nuclear Engineering and Technology, GPA: 86.4/100

Stanford University, USA

June 2017 - August 2017

Intensified Study in Computer Science (Summer Session), GPA: 4.0/4.0

PUBLICATION

[1] **Xiangyu Peng**, Yadrianna Acosta-Sojo, Man I Wu, and Leia Stirling, “Actuation Timing Perception of a Powered Ankle Exoskeleton and its Associated Ankle Angle Changes During Walking”, *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, 2022

[2] **Xiangyu Peng**, Yadrianna Acosta-Sojo, Man I Wu, and Leia Stirling, “Perception of Powered Ankle Exoskeleton Actuation Timing During Walking: A Pilot Study”, *The 43rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, Guadalajara, Mexico, October 31 - November 4, 2021

[3] **Xiangyu Peng**, Ningbin Zhang, Lisen Ge, and Guoying Gu, “Dimension Optimization of Pneumatically Actuated Soft Continuum Manipulators”, *The 2nd IEEE International Conference on Soft Robotics (RoboSoft)*, Seoul, Korea, April 14-18, 2019

RESEARCH EXPERIENCE

Development of Co-Adaptive Controller for Upper-Extremity Exo

Sep 2021 - Present

Advisor: Prof. Leia Stirling, University of Michigan

Research Assistant

- Designed visual and haptic feedback for upper-extremity exoskeleton to investigate the effects of feedback on people’s usage of the device (potentially accelerate the adaptation period and mitigate the influence of dynamic changes such as muscle fatigue).

Human Perception of Exoskeleton Actuation Timing

May 2020 - August 2021

Advisor: Prof. Leia Stirling, University of Michigan

Research Assistant

- Designed human subject study to measure human perception of changes in exoskeleton actuation timing, which gives information on people’s comfort, coordination, and trust in using devices, as well as providing foundations on how the sensorimotor system detects the exoskeleton behavior changes.
- Developed boot algorithm to present desired torque timing based on the simple up-down method.
- Designed an Android app to minimize potential distractions that could influence people’s perception, and developed a Python GUI to control the device following pre-determined human study protocols.

Kirigami Scale Design on Snake Robot

July 2018 - October 2018

Advisor: Prof. Chen Li, Johns Hopkins University

Research Assistant

- Designed and tested plastic Kirigami scales with anisotropic frictional properties combined with soft backings to increase compliance and reduce instability of snake robot in traversing gaps or bumps.

- Analyzed several design parameters affecting the wave efficiency of snake robot and found the optimal combination for the largest forward speed, reaching up to 0.4 in wave efficiency.
- Compared and summarized the performance of two kinds of snake robot (with wheels / scales).

Instability phenomenon on Soft Manipulator

February 2018 - July 2019

Advisor: Prof. Guoying Gu, Shanghai Jiao Tong University

Research Assistant

- Investigated a common instability phenomenon existed in soft continuum manipulator and studied the effect of Length to Diameter Ratio (LDR) on manipulators' workspace through Finite Element Analysis.
- Designed and fabricated a novel two-section soft continuum manipulator combining three fiber-reinforced actuators in each section and carried out experiments to validate simulation results.
- Proposed the concept of Instability and a new measure variable, workspace ratio, to analyze soft manipulator's performance regarding to its workspace, which can guide design for future application.

AWARDS AND HONORS

Rackham International Student Fellowship (nominated)	2020
Excellent Undergraduate in Shanghai	2019
Honors degree for outstanding scholastic and scientific research performances in SJTU	2019
Design Excellent Award – 2 nd Place for Capstone Design Project EXPO	2019
Hongyi Overseas Research Scholarship (Top 10%)	2018
3 rd Prize in the 4 th Qian Xuesen Innovative Competition in SJTU	2017
1 st Prize NPIC Scholarship	2016, 2017
Excellent Student of SJTU selected with overall performance (Top 5%)	2016, 2017
2 nd Prize NPIC Scholarship	2015

SKILLS

English	TOEFL 110 (30 R + 28 L + 23 S + 29 W) GRE 325 (V 155, 69% + Q 170, 96% + W 3.5, 41%)
Computer Languages	Python, MATLAB, C/C++
Software & Tools	Arduino, Raspberry Pi, Android Studio, L ^A T _E X, Solidworks, ABAQUS

OTHERS

Membership	IEEE Student Member, 2021 EMBS Graduate Student Member, 2021
Reviewer	IEEE Robotics and Automation Letters, 2022