

SUYU LUOHONG (NAME ON PASSPORT: **HONGSUYU LUO**)
sl5442@columbia.edu | (+01) 412 413 1066 | New York, NY

RESEARCH INTERESTS

- computational mechanics, fluid-structure interaction, soft robotics, machine learning,

EDUCATION

COLUMBIA UNIVERSITY

New York, NY

*Master of Science in **Mechanical Engineering***

Sep 2023 – Jan 2025 (expected)

- GPA: **3.88/4**
- **Selected Courses:** Advanced Machine Dynamics (A), Robot Learning (A), Intro to Control Theory (A), MS Projects in Mechanical Engineering (A), Big Data in Transportation (A+)

UNIVERSITY OF PITTSBURGH

Pittsburgh, PA

*Bachelor of Science in **Mechanical Engineering** (minor in **Computer Science**)*

Sep 2021 – May 2023

- GPA: **3.96/4**
- **Selected Courses:** Differential Equations (A+), Intro to Fluid Mechanics (A+), Dynamic Systems (A+), Intermediate Programming (A+), Mechanical Design II (A), Mechanical Measurement II (A+), Automatic Controls (A+), Applied Fluid Mechanics (A), Algorithms and Data Structures 2 (A)
- **Honors:** Dean's Honors (Spring 2022); Term Honor (Fall 2021& Spring 2022)

SICHUAN UNIVERSITY

Chengdu, China

*Bachelor of Science in **Mechanical Engineering***

Sep 2019 – Jul 2021

- **Weighted Average Mark:** 86.86/100
- **Selected Courses:** MATH Calculus 1, 2 & 3, ENGR Probability and Statistics, ENGR Statics 1 & 2, ENGR Circuitry, ENGR Manufacture, H/SS Micro-economics, H/SS Macro-economics
- **Honors:** Monomial First-class Scholarships of Sichuan University (**5%**); Third-class Scholarship of Sichuan University

PUBLICATION

Zechen Xiong, **Suyu Luohong**, Jeong Hun Lee, Hod Lipson. "Accelerating Aquatic Soft Robots with Elastic Instability Effects", arxiv.org/abs/2310.14119

RESEARCH EXPERIENCE

BISTABLE COMPLIANT FISH ROBOTS RESEARCH PROJECT

New York, NY

Key Member; Advisor: Professor Hod Lipson, Columbia University

Sep 2023 – Present

- Conducted swim tests on the fish robot and performed dynamics simulations, particularly examining the unique Hair Clip Mechanism (HCM) swimming pattern using COMSOL.
- Analyzed forces, torques, and efficiency of the robotic fish and created an efficiency-Strouhal plot for detailed performance evaluation.
- Compared the performance of the HCM swimming pattern to traditional sine wave and cambering sine wave patterns.

DATA-DRIVEN ANALYSIS OF CYCLIST ACCIDENTS WITHIN NEW YORK CITY

New York, NY

Team Leader; Supervisor: Professor Sharon Di, Columbia University

Jan 2024 – May 2024

- Identified prevalent accident locations using a K-Means clustering model, with the final model consisting of 20 clusters, pinpointing high-accident areas in Manhattan, Queens, and Brooklyn.
- Used a Multilayer Perceptron (MLP) deep learning model to forecast future accident occurrences.
- Supported by the Northeast Big Data Innovation Hub and received certification for the project.

3D RECONSTRUCTION RESEARCH PROJECT

Pittsburgh, PA

Team Member; Advisor: Professor Jinghua, Wayne State University

Jan 2023 – Jun 2023

- Led a team in Professor Jinghua's visual algorithms group and worked on 3D reconstruction from

single views using deep learning methods.

- Ran test datasets with the OpenMVS library and verified point cloud results to ensure the accuracy and effectiveness of the 3D reconstruction process.

MECHANICAL DESIGN 2 TEAM PROJECT

Pittsburgh, PA

Team Leader; Professor John Whitefoot, University of Pittsburgh

Jan 2022 – Mar 2022

- Designed a high-speed shaft for the transmission of a small industrial mixing apparatus.
- Found the appropriate parts supplier and used SolidWorks to make models and the overall layout drawing.
- Calculated manufacturing costs and presented the project report.

MECHANICAL MEASUREMENT SEMESTER TEAM PROJECT

Pittsburgh, PA

Team Leader; Supervisor: Professor John Whitefoot, University of Pittsburgh

Sep 2021 – Dec 2021

- Designed and constructed a sensor to measure the breakage stress for an aftermarket replacement iPhone glass screen.
- Compared the test results with an original screen and wrote a report about the results.

MISCELLANEOUS EXPERIENCE

TEACHING ASSISTANT EXPERIENCE

Pittsburgh, PA

Student Grader for Professor John Whitefoot

Sep 2022 – Jan 2023

- Assist the professor in completing the grading of the lab report of Mechanical Measurement 2 and guide the students on how to write lab reports.

ANIMATION COMIC AND GAME CLUB

Chengdu, China

Member

Sep 2019 – Jul 2021

- Managed the club's WeChat Media Platform account and promoted club events.

MUSIC CLUB OF SICHUAN UNIVERSITY

Chengdu, China

Member

Sep 2019 - Jul 2021

- Promoted club events and participated in school musical shows as an instrumentalist.

SKILLS AND HOBBIES

- **Computer Skills:** MATLAB, Comsol, SolidWorks, Python, C, Java, OpenCV, Ansys
- **Languages:** Chinese (native), English (fluent), Japanese (basic)
- **Hobbies:** piano, live music, animation, trading cards, orienteering, tennis, basketball
- **GitHub Personal Website Link:** <https://luohongsuyu.github.io>