Jiaqi Wang

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School of Mechanical Engineering, Shanghai Jiao Tong University

EDUCATION

Shanghai Jiao Tong University (SJTU) **Shanghai, China**

B.Eng. Mechanical Engineering, Minor in Computer Science and Technology 09/2019-06/2023(Expected)

Average Score: 91.43/100；GPA：3.9/4.0；Ranking: 3/216

Elite Scholarship Program **Shanghai, China**

Tsien Hsue-Shen Honor Program (Student Pilot Program, Top 5%) 02/2020-06/2023

Zhiyuan Honors Program (Top-notch Students Program, Top 5%) 09/2019-06/2023

Scholarship

China National Scholarship (2021, Top 0.2%, 1/430)

Zhiyuan Honorary Scholarship (2020/2021/2022, Top 5%)

Xiaomi Scholarship (2020, Top 5%)

PUBLICATION & PATENTS

- Weicheng Fan*, **Jiaqi Wang*,** Zhuang Zhang, Genliang Chen, Hao Wang, " Vacuum-Driven Parallel Continuum Robots with Self-Sensing Origami Linkages." ***IEEE/ASME Transactions on Mechatronics*** (under review, * **co-first author**).
- **Jiaqi Wang,** Zijie Lu, Weihao Chen, Hongjian Zhang. "A Machine for Drying and Folding Umbrella. " (China National Patent, patent pending)

RESEARCH EXPERIENCE

Vacuum-Driven Parallel Continuum Robots with Self-Sensing Origami Linkages **Shanghai, China**

Research Assistant, the State Key Laboratory of Mechanical System and Vibration, Shanghai Jiao Tong University, Advised by Prof. Genliang Chen 01/2022 – 09/2022

- Proposed a vacuum-driven parallel continuum robots with self-sensing origami linkages and an analytical sensing model that maps the actuator torsion angle and length using the geometry of Kresling origami
- Achieved a relative position accuracy of 0.30%-1.29% and a relative repeated position accuracy of 0.26%-0.85% compared to the length of actuators in a workspace of 40 mm×40 mm×40 mm without load
- Achieved a relative position accuracy of 1.94% and a relative repeated position accuracy of 0.342% compared to the length of actuators under a 2-kg payload
- Composed and submitted a paper to IEEE/ASME Transactions on Mechatronics (under review)

Dielectric Elastomer Actuator (DEA) Modeling Design **Shanghai, China**

Research Assistant, the State Key Laboratory of Mechanical System and Vibration, Shanghai Jiao Tong University, Advised by Prof. Feifei Chen 02/2021 – 09/2021

- Modeled the DEA using the finite element analysis software Abaqus, and optimized the shape of DEA through parameter optimization
- Increased the deformation of the optimized DEA by more than 75 % compared to the conventional shape (circle) under the same voltage (~5kV)

A Machine for Drying and Folding Umbrella **Shanghai, China**

Project Leader, Advised by Prof. Weizhong Guo 09/2021-02/2022

- Designed the mechanical structure of the umbrella via SOLIDWORKS and implemented control system design based on stm32 and Raspberry Pi
- Applied the photoresistor sensor, hall angle sensor, and water level sensor to monitor and control the

prototype in real time
- Achieved the functions of rapid drying and automatic folding of umbrellas
- Applied a national patent based on the project outcome (patent pending)

INTERSHIP EXPERIENCE

Siemens High Voltage Switchgear Co., Ltd. **Shanghai, China**
Engineering Department Intern, Advised by Engr. Chuxiong Wang 06/2021 – 08/2021
- Drew 100+ 3D models from 2D engineering drawings based on Creo CAD Software
- Processed more than 100,000 lines of engineering data by MATLAB

COMPETITIONS

The 15th National Transportation Science and Technology Competition
National Second Prize (Top 2%) 11/2020
- Predicted accurately the road traffic data for a certain period in the future through existing millions of road traffic data in the past time.
- Proposed a matrix based on space-time relationship, considering the common correlation between the predicted road section and the surrounding road sections.
- Fit the matrix to the KNN model to predict the road section and fine-tuned the model to achieve optimal accuracy rates (RMSE=6.24%).

Mathematical Contest in Modeling (MCM)
Team leader, Honorable Mention (top 20%) 02/2020
- Predicted fish swarm migration using fish swarm algorithm and grayscale prediction.
- Developed a mathematic model on MATLAB with 3,000 lines of code and formulated a full paper to elaborate the experiment process.

EXTRACURRICULAR ACTIVITIES

Qian Xuesen Class of SJTU | Class Secretary 09/2021- Present
- Hold class activities regularly, organized weekly research club meetings, and invited professors from the college to comment.

SJTU Mathematical Modeling Association | Director of Organization Department 11/2019-Present
- Managed 55 members and organized weekly mathematical modeling seminars.
- Organized lectures open for the whole university to successful attract 500 + people participating online and nearly 200 people on-site for each lecture.
- Succeeded in getting the association awarded the first batch of Shanghai Student Science and Technology Innovation Associations, which was reported by SJTU official WeChat account.

SKILLS

- Software: SOLIDWORKS, Creo, MATLAB, AutoCAD, Abaqus, Ansys, Adams, LabVIEW
- Programming Abilities: C++, Python