LEJUN JIANG

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EDUCATION

University of Michigan Ann Arbor, MI
B.S in Mechanical Engineering, Minor in Electrical Engineering (projected), GPA: 4.00/4.00 May 2020
Shanghai Jiao Tong University Shanghai, China
B.S in Electrical and Computer Engineering (projected), GPA: 3.81/4.00 Aug. 2020

RELATED COURSEWORK

Linear Systems Theory; Control System Analysis and Design; Engineering Acoustics; Dynamic System Modeling, Analysis & Control; Design and Manufacturing; Signals and Systems; Probability & Statistics; Logic Design (FPGA); Data Structures & Algorithm; Computer Architecture

PUBLICATION

Y. Kim, **L. Jiang**, L. Munoz, J. Luntz, D. Brei, P. Alexander, W. Kim. "Fiber-Reinforced Inflatable Torsional Actuator Design with Performance-Enhancing Axial Tension". Presented at *ASME 2019 Conference on Smart Materials, Adaptive Structures and Intelligent Systems* (Presentation), and in preparation for submission to *the ASME Journal of Mechanical Design*. 2019.

RESEARCH EXPERIENCE

Traffic Prediction based on Vehicle-to-everything (V2X) Connectivity University of Michigan, Ann Arbor, MI
Group of Gabor Orosz May 2019–Present

- Implemented Time Space Mean Speed on continuum models to provide accurate predictions for upstream vehicles based on downstream vehicle data
- Modeled traffic flow with a Markov Chain by establishing connection to continuum models
- Examined the Markov Chain Model through MATLAB simulations of a single-lane traffic, attaining robustness with 15% tolerance for model parameter variations

Characterization & Design Methodology of Inflatable Torsional Actuators University of Michigan, Ann Arbor, MI
Smart Materials and Structures Design Laboratory Jan. 2019–May 2019

- Studied functioning principle of the actuator and related the effect of applied axial tension to a shift in its torque-deflection curve, effectively enhanced the actuator's operation performance
- Modelled the fiber-reinforced inflatable torsional actuator's performance as a function of its design and operating parameters through a combined empirical and analytical approach
- Developed an unprecedented systematic design methodology for the actuator based on the derived models, including a design space visualization and a step-by-step design process

PROJECT EXPERIENCE

2020 SAE Aero Design Competition University of Michigan, Ann Arbor, MI
M-Fly SAE and AUVSI Aerospace Design Team, Regular Class Aerodynamics Lead Sep. 2019–present

- Designed the size, shape, and control surface of wing and empennage for a high-lift bush plane based on trade studies, which decreased 30% of wing span and 50% of takeoff distance compared to last year's design
- Analyzed and predicted the aircraft lift/drag performance and static/dynamic stability from XFOIL and Athena Vortex Lattice (AVL) simulation
- Hosted workshops for UM students about aerodynamics analysis and created an interactive environment for the aircraft design

Automatic Ball Collection Robot University of Michigan, Ann Arbor, MI

Course Project, Team Leader Jan. 2019–May 2019

- Designed, modeled, simulated, and manufactured a linkage system by analysis in SolidWorks and ADAMS
- Executed combined feedforward and PID feedback control algorithm using Arduino microcontroller, which attained 97% accuracy for the given task
- Achieved Top five operating performance among a total of 30 teams

Robotic Arm with Soft Robotics Shanghai Jiao Tong University, Shanghai, China

Course Project Feb. 2018–May 2018

- Designed and manufactured a pneumatic silicone rubber gripper and a robotic arm based on Siemens NX, achieved high flexibility and efficiency for grabbing and transporting objects of different shapes and sizes

Automatic Roller Skate Base Shanghai Jiao Tong University, Shanghai, China

Course Project, Team Leader July 2017–Aug. 2017

- Devised and realized a roller skate serving as a convenient transportation tool based on Arduino, with both manual and battery driving mode

9th SJTU Mechanical Innovation Competition for Freshmen Shanghai Jiao Tong University, Shanghai, China

Runner-up Apr. 2017

- Devised and built a robot with high efficiency to transport objects in different shapes to desired areas
- Performed remote control using PS2 wireless controller and Arduino microcontroller
- Controlled the robot on behalf of the team to contest with 47 opponent teams and won the 2nd prize

LEADERSHIP & TEACHING EXPERIENCE

"Introduction to Solid Mechanics" Teaching Group University of Michigan, Ann Arbor, MI

Grader Sep. 2019–Present

- Created rubrics for homework problems and graded students' submissions

"Academic Writing II" Teaching Group Shanghai Jiao Tong University, Shanghai, China

Teaching Assistant Feb. 2018–May 2018

- Improved and polished students' essays during office hours
- Enhanced communication between instructor and students by collecting and answering common questions

UM-SJTU JI Volunteer Teaching Group Yunnan, China

Group leader Dec. 2017–Jan. 2018

- Planned, organized, and held various courses (Math, Science, English, Art, etc) and activities with local government and teachers to help local students, involving 4 primary schools and 1 vocational high school
- Led the group to win the title of "Outstanding Team of Aid Education" out of 4 volunteer teaching groups

SCHOLARSHIP & HONORS

- *University of Michigan College of Engineering King, Roger Scholarship* 2019–2020
- *University of Michigan Dean's List* FA18, WI19
- *University of Michigan University Honors* FA18, WI19
- *UM-SJTU Joint Institute Volunteer Spirit Scholarship* 2017–2018
- *UM-SJTU Joint Institute Dean's List* FA16, SU17, FA17, SU18
- *SJTU Undergraduate Excellent Scholarship* 2016–2018

SKILLS

SolidWorks, MATLAB, C/C++, Arduino, ADAMS, COMSOL, Verilog, Microsoft Office, Latex, Photoshop.