LEJUN JIANG

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EDUCATION

University of Pennsylvania   Philadelphia, PA
M.S in Robotics (projected)   May 2022
University of Michigan   Ann Arbor, MI
B.S in Mechanical Engineering, Minor in Electrical Engineering, 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 & Algorithms; 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". Presentation at *ASME 2019 Conference on Smart Materials, Adaptive Structures and Intelligent Systems,* 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–May 2020

- Designed the size, shape, and control surface of wing and empennage for a high-lift bush plane based on trade studies, adopted bi-wing configuration to reduce 30% of wingspan 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, created an interactive environment for aircraft design

Glovebox Pressure Control System for Redox Flow Battery University of Michigan, Ann Arbor, MI
Capstone Design, Sponsor Contact, Team Leader Jan. 2019-May 2019
- Generated user requirements and engineering specifications based on meetings with sponsors, literature review and benchmark products, adopted concept map and physical decomposition to create three potential design solutions
- Created and selected the Gas Inflow/Outflow On/Off Control Algorithm based on Pugh Chart analysis, analytically modelled the physical system and simulated its behavior by Matlab to complete and validate the design, achieving stability and accuracy error within $\pm$ 0.1 mbar

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

LEADERSHIP & TEACHING EXPERIENCE

"Dynamics & Control of Connected Vehicles" Teaching Group Shanghai Jiao Tong University, Shanghai, China
Teaching Assistant May 2020–Present
- Enhanced students' understanding of the course material by holding office hours and assisting the instructor in class
- Created rubrics for homework problems and graded students' submissions

"Heat Transfer" Teaching Group University of Michigan, Ann Arbor, MI
Grader Jan. 2020–May 2020

"Introduction to Solid Mechanics" Teaching Group University of Michigan, Ann Arbor, MI
Grader Sep. 2019–Dec. 2019

"Academic Writing II" Teaching Group Shanghai Jiao Tong University, Shanghai, China
Teaching Assistant Feb. 2018–May 2018
- Polished students' essays during office hours, collected and answered common questions to enhance communication

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

AWARDS, SCHOLARSHIP & HONORS

- *Robert. M. Caddell Memorial Scholarship, Department of Mechanical Engineering, University of Michigan* 2020
- *James B. Angell Scholar, University of Michigan* 2020.3
- *King, Roger Scholarship, College of Engineering, University of Michigan* 2019
- *Dean's List, University of Michigan* FA18, WI19, FA19
- *University Honors, University of Michigan* FA18, WI19, FA19
- *Volunteer Spirit Scholarship, UM-SJTU Joint Institute, Shanghai Jiao Tong University* 2018
- *Dean's List, UM-SJTU Joint Institute, Shanghai Jiao Tong University* FA16, SU17, FA17, SU18
- *Undergraduate Excellent Scholarship, Shanghai Jiao Tong University* 2017, 2018
- *Honorable Mention, Mathematical Contest in Modeling / Interdisciplinary Contest in Modeling* 2017.9
- *2nd Place, The 9th SJTU Mechanical Innovation Competition for Freshmen* 2017.4

SKILLS

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