# Lejun Jiang

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## EDUCATION

**UNIVERSITY OF PENNSYLVANIA (PENN)** Philadelphia, PA
*M.S in Robotics (projected)* Sep 2020 - May 2022
Coursework (projected): Intro to Optimization Theory; Machine Learning; Computer Vision & Computational Photography

**UNIVERSITY OF MICHIGAN (UMICH)** Ann arbor, MI
*B.S in Mechanical Engineering (GPA: 4.0/4.0)* w/ Minor in Electrical Engineering Sep 2018 - May 2020
Coursework: Linear Systems Theory; Control System Analysis & Design; Dynamic System Modeling, Analysis & Control; Engineering Acoustics; Design & Manufacturing; Probability & Statistics; Data Structures & Algorithms; Computer Architecture

**SHANGHAI JIAO TONG UNIVERSITY (SJTU)** Shanghai, China
*B.S in Electrical and Computer Engineering (GPA: 3.8/4.0)* Sep 2016 - Aug 2020
Coursework: Dynamics & Control of Connected Vehicles (Teaching Assistant); FPGA Logic Design

## PUBLICATIONS

• **L. Jiang**, T. G. Molnar, G. Orosz. "On the Deployment of V2X Roadside Units for Traffic Prediction". Submitted to *2021 Transportation Research Board Annual Meeting*.
• 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*.

## RESEARCH EXPERIENCE

**TRAFFIC PREDICTION BASED ON VEHICLE-TO-EVERYTHING (V2X) CONNECTIVITY** Ann Arbor, MI
*Group of Gabor Orosz* May 2019 – Aug 2020
• Established metrics to quantify the amount of traffic prediction that roadside units (RSUs) can provide via V2I communication; developed strategies for deploying RSUs along highways through evaluating the proposed metrics numerically and analytically
• Modeled traffic flow with Markov Chain by establishing connection to continuum models; examined the model through MATLAB simulations of a single-lane traffic, attained robustness with 15% parameter variation tolerance

**CHARACTERIZATION & DESIGN METHODOLOGY OF INFLATABLE TORSIONAL ACTUATORS** Ann Arbor, MI
*Smart Materials and Structures Design Laboratory* Jan 2019 – May 2019
• Enhanced the actuator's operation performance by quantifying and exploiting the effect of applied axial tension
• Modeled the actuator's performance against its design and operating parameters; based on the model developed an unprecedented systematic design methodology for the actuator, including a design space visualization and a step-by-step design process

## PROJECT EXPERIENCE

**CREATING DIGITAL TWIN MODELS FOR TOBACCO DRYING PROCESSES** Shanghai, China
*Capstone Design, Facilitator* May 2020 – Aug 2020
• Developed 2D and 3D Finite Element Analysis (FEA) models for the tobacco drying process based on four physics modules in COMSOL Multiphysics; achieved 9.45% accuracy error with the final model

**2020 SAE AERO DESIGN COMPETITION** Lakeland, FL
*M-Fly SAE and AUVSI Aerospace Design Team, Aerodynamics Lead* Sep 2019 – May 2020
• Led the aerodynamics design of a high-lift plane through trade studies, which are based on evaluations & analysis of the lift/drag performance and static/dynamic stability with XFOIL & AVL
• Reduced 30% of wingspan and 50% of takeoff distance by adopting bi-wing configuration

**GLOVEBOX PRESSURE CONTROL SYSTEM FOR REDOX FLOW BATTERY** Ann Arbor, MI
*Capstone Design, Sponsor Contact, Team Leader* Jan 2020 - May 2020
• Created a Gas Inflow/Outflow On/Off Control Algorithm, which achieved an accuracy error within $\pm$ 0.1 mbar
• Analytically modelled the glovebox system and simulated its behavior by MATLAB to validate the design

**AUTOMATIC BALL COLLECTION ROBOT** 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, achieved 97% accuracy for the given task

**ROBOTIC ARM WITH SOFT ROBOTICS** Shanghai, China
*Course Project* Feb 2018 – May 2018
• Designed and manufactured a pneumatic silicone rubber gripper along with a robotic arm based on Siemens NX that achieved high flexibility and efficiency for grabbing and transporting objects of different shapes and sizes
• Implemented remote control using PS2 wireless controller and Arduino microcontroller

**9TH SJTU MECHANICAL INNOVATION COMPETITION FOR FRESHMEN** Shanghai, China
*Runner-up* Apr 2017
• Designed and built a robot with high efficiency of holding and transporting objects of different shapes to desired areas with teammates
• Implemented remote control using PS2 wireless controller and Arduino microcontroller
• Controlled the robot on behalf of the team to contest with 47 opponent teams

## TEACHING EXPERIENCE

**"DYNAMICS & CONTROL OF CONNECTED VEHICLES"** Shanghai, China
*Teaching Assistant* May 2020 – Aug 2020
• 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"** Ann Arbor, MI
*Grader* Jan 2020 – May 2020

**"INTRODUCTION TO SOLID MECHANICS"** Ann Arbor, MI
*Grader* Sep 2019 – Dec 2019

**"ACADEMIC WRITING II"** 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** Eryuan, 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

**SHANGHAI JIAO TONG UNIVERSITY OUTSTANDING GRADUATES** SHANGHAI JIAO TONG UNIVERSITY
*Overall outstanding performance in the undergraduate career* 2020

**ROBERT. M. CADDELL MEMORIAL SCHOLARSHIP** UNIVERSITY OF MICHIGAN
*Study in the area of materials and/or manufacturing and made significant contributions to relevant student activities* 2020

**JAMES B. ANGELL SCHOLAR** UNIVERSITY OF MICHIGAN
*Achieve an "A" record for two or more consecutive terms* 2020

**UNIVERSITY HONORS** UNIVERSITY OF MICHIGAN
*Earned a 3.5 GPA or higher during the term* FA18, WI19, FA19, WI20

**DEAN'S LIST** UNIVERSITY OF MICHIGAN
*Achieved high scholastic standing for the term* FA18, WI19, FA19

**VOLUNTEER SPIRIT SCHOLARSHIP** SHANGHAI JIAO TONG UNIVERSITY
*Contribution to public welfare as a volunteer* 2018

**UNDERGRADUATE EXCELLENT SCHOLARSHIP** SHANGHAI JIAO TONG UNIVERSITY
*Overall outstanding performance during the year* 2017, 2018

**DEAN'S LIST** SHANGHAI JIAO TONG UNIVERSITY
*Achieved high scholastic standing for the term* FA16, SU17, FA17, SU18

**HONORABLE MENTION** MATHEMATICAL CONTEST IN MODELING / INTERDISCIPLINARY CONTEST IN MODELING
*Honorable performance in the contest* 2017

## SKILLS

MATLAB, Simulink, C/C++, Arduino, LaTeX, COMSOL, SolidWorks, NX, ADAMS, Verilog, Microsoft Office, Photoshop.