John Z. Zhang

350712 Georgia Tech Station, Atlanta, GA, 30332

jzzhang3.github.io zzhang741@gatech.edu 215-460-8897

Education

Georgia Institute of Technology **Atlanta, GA**

BS in Mechanical Engineering GPA: 3.9/4.0 *Expected Graduation: May 2022*

- Minor in Computing and Intelligence GPA: 4.0/4.0
- President's Undergraduate Research Award (PURA) Fellowship
- Study abroad at Georgia Tech Shenzhen Institute
- Faculty Honors

Experience

Cummins Inc., Machine Integration and Electrification **Columbus, IN**

Software Development Engineering Intern *May 2021 - Aug 2021*

- Worked on new electric/hybrid bus systems in the Dynamic Systems and Controls team
- Developed and on-site tested *Kalman Filter* and *Gaussian Process Regression* algorithms for online vehicle acceleration noise reduction and estimation
- Performed on-vehicle testing for regenerative braking and adaptive cruise control features
- Presented internship project entitled *Novel Methods for Online Acceleration Filtering and Estimation*
- Developed Python GUI for automated system calibrations used by bus drivers and technicians

G. W. Woodruff School of Mechanical Engineering, Georgia Tech **Atlanta, GA**

ME 3017 System Dynamics Teaching Assistant *Aug 2020 - May 2021*

- Hosted weekly office hours and tutoring sessions for individual advising on course related subjects
- Designed grading rubrics, evaluated homework and exams, and provided detailed feedback
- Led the transition to online/hybrid format during the COVID-19 pandemic
- *Key topics:* Laplace transformation, mechanical and electrical systems modeling, transfer functions, state-space approach, feedback control, transient response, stability analysis, etc.

Research

Laboratory for Intelligent Decision and Autonomous Robots, Georgia Tech **Atlanta, GA**

Undergraduate Researcher, advised by Prof. Ye Zhao *March 2019 - Present*

- First authored journal article entitled *Mediating between Contact Feasibility and Robustness of Trajectory Optimization through Chance Complementarity Constraints*, submitted
- Presented research abstract and conference poster entitled *Can Chance-Constrained Contact Uncertainty Quantification Improve Feasibility of Robust Trajectory Optimization?* at *Dynamic Walking, 2021*
- Investigated trajectory optimization and motion planning algorithms for robot locomotion and manipulation under uncertainty

Cognitive Optimization and Relational (CORE) Robotics laboratory, Georgia Tech **Atlanta, GA**

Undergraduate Researcher, advised by Prof. Matthew Gombolay *Jan 2021 - Present*

- Co-authored journal paper *Meta-Active Learning in Probabilistically Safe Optimization*, in progress
- Developed Neural Network based Model Predictive Controller for high dimensional dynamics systems
- Empirically validated both meta-active learning and model predictive control algorithms on physical RC planes

Additional

- **Relevant Coursework:** Robot Intelligence - Planning, Machine Learning, Robotics and Perception, Data Structures and Algorithms, Numerical Methods, Statistics, Dynamics of Rigid Bodies, System Dynamics, Machine Vision
- **Activities:** ASME, Yellow Jacket Club Baseball, Intramural athletics
- **Software:** Python, C, C++, Java, HTML/CSS, Javascript, MarkDown, Arduino, Raspberry Pi, MATLAB/Simulink, ROS, LaTeX, GitHub, SolidWorks, Calterm, Adobe Illustrator
- **Languages:** English, Mandarin Chinese, Spanish