Zixu Zhang

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EDUCATION

University of Michigan Ann Arbor, MI
Master of Science in Robotics Aug 2018-May 2020 (expected)

University of Illinois at Urbana – Champaign Urbana, IL
Bachelor of Science in Mechanical Engineering with Highest Honors Aug 2014-May 2018
- Electrical Engineering Minor and Computer Science Minor GPA 3.94/4.0

RESEARCH EXPERIENCE

University of Illinois at Urbana – Champaign Urbana, IL
Bretl Research Group Feb 2017-Aug 2018
- Developed ROS-integrated autonomous ground robot and its GAZBO simulation
- Implemented efficient methods for robot frontier exploration and object detection with occupancy grid mapping
- Developed algorithms for real-time predictive model of feature point association in Visual Simultaneous Localization and Mapping (VSLAM) with data-driven approach
- Aided the development of online real-time path planning framework with feature constraints for reliable VSLAM-based indoor navigation for autonomous ground robots

Dynamic Robotics Laboratory Sept 2016-Jan 2017
- Designed and manufactured linear testing bed for quasi-direct-drive robot leg
- Conducted experiments and analyzed robot leg design for optimized jumping

Renewable Energy and Turbulent Environment May 2015-Aug 2017
- Aided research on transition to turbulence over 2D and 3D periodic large-scale wavy-wall
- Interpreted and analyzed experimental results for transition to turbulence over periodic roughness
- Conducted experiments on turbulent boundary layer over and within complex media with particle image velocimetry

WORK EXPERIENCE

University of Illinois at Urbana – Champaign Urbana, IL
Course Assistant for Introductory Solid Mechanics (TAM 251) Aug 2015-May 2018
- Led collaborative discussion sections for around 90 students overall
- Answered students' questions in office hours and on the online forum Piazza
- Collaborated to develop problem sets and detailed solutions for online assignments and quizzes
- Assisted in the improvement of the syllabus and course structure

Northern Engraving Corporation Sparta, WI
Engineering Intern for Continuous Improvement June 2016-Aug 2016
- Led and Conducted DOE analysis for sheet metal preparation scrap factors
- Evaluated the current state and root causes of defects for Tesla Door Trim lines
- Coordinated engineers with production floor to implement 5S and lean manufacture in production
- Revised standard work procedures, trained operators and improved yield and line rate by 40%

PUBLICATION

1. X. Deng, *Z. Zhang*, A. Sintov, J. Huang, and T. Bretl, "Feature-constrained Active Visual SLAM for Mobile Robot Navigation," To appear in the proceedings of the *IEEE International Conference on Robotics and Automation,* May 2018, Brisbane, Australia (acceptance rate 40.6%).
2. A.M. Hamed, A. Pagan-Vazquez, D. Khovalyg, *Z. Zhang*, and L. P. Chamorro, "Vortical structures in the near-wake of tabs with various geometries," *Journal of Fluid Mechanic*, vol. 825, July 2017.
3. A.M. Hamed, M. Sadowski, *Z. Zhang*, and L. P. Chamorro, "Transition to turbulence over 2D and 3D periodic large-scale roughnesses," *Journal of Fluid Mechanics*, vol. 804, Oct. 2016.

RELEVANT SKILLS

Cero Parametric, C, C++, CUDA, GAZEBO, LabVIEW, LaTeX, MATLAB, Python, ROS, Simulink, SolidWorks, Tensorflow

COURSEWORK

Robotics Dynamics and Control, Computer Vision, Reinforcement Learning, Linear Control Systems, Embedded Control Systems, Feedback Control Systems, Intermediate Dynamics, Multimedia Signal Processing, Data Structures, Parallel Programming

HONORS AND ACTIVITIES

- University of Illinois, T.A. Peebles Award, 2017
- University of Illinois Department of Mechanical Science and Engineering Grant for Undergraduate Research, 2015