YU ZHAO

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https://yzhao334.github.io/

EDUCATION

University of California, Berkeley — Berkeley, CA
Ph.D. in Mechanical Engineering, GPA 3.95/4.0 — *expected May, 2018*
Major: Control. Minor: Dynamics & Machine Learning
Advisor: Masayoshi Tomizuka

Tsinghua University — Beijing, China
M.S. in Mechanical Engineering, GPA 3.88/4.0 — *June, 2013*
B.S. in Mechanical Engineering, GPA 3.85/4.0 — *June, 2009*

EXPERIENCE

Toyota Infotechnology Center — Mountain View, CA
Summer Intern — *Jun.-Aug.2017*

· Model exchange and parameter estimation research for digital twin. Software package developed for using FMU(functional mockup unit) in MATLAB environment. Preliminary result obtained on model based parameter estimation.

FANUC — Yamanashi, Japan
Summer Intern — *Jun.2015, Sep.2016, Aug.2017*

· Vibration suppression of industrial robot.
· Reducing overshoot by 1.7mm, 0s time delay.

Energid Technologies — Cambridge, MA
Summer Intern — *Jun.-Aug.2016*

· Developting online trajectory generation for robotic application.
· Smooth trajectory (bounded velocity, acceleration, & jerk) generated in 1k Hz control loop.

Mechanical Systems Control Laboratory, UC Berkeley — Berkeley, CA
Graduate Student Researcher — *Aug.2013-Present*

· Vibration suppression of industrial robot with flexible payload (faster motion can be achieved without vibration).
· Motion control of flexible joint robot. Tracking accuracy can be greatly improved by advanced control design and neural network approximation.
· Efficient numerical method for optimal control. In this work general nonlinear optimal control problem (e.g. motion planning involving robot dynamics, obstacle avoidance, torque saturation) can be solved in several seconds.

RELEVANT SKILLS

Programming	MATLAB/Simulink, C/C++, ROS, Ubuntu/Linux, Python
Expertise	Robotics (kinematics, dynamics), Control, Simulation, Optimization

PUBLICATIONS

- Y Zhao, M Tomizuka, "Modified Zero Time Delay Input Shaping for Industrial Robot With Flexibility", ASME 2017 Dynamic Systems and Control Conference (DSCC), 2017. (**Best student paper finalist**)
- Y Zhao, M Tomizuka. "Modified Zero Time Delay Input Shaping for Industrial Robot With Flexibility." In ASME 2017 Dynamic Systems and Control Conference (DSCC), 2017.
- X Yu, Y Zhao, C Wang, M Tomizuka, "Trajectory Planning for Robot Manipulators Considering Kinematic Constraints Using Probabilistic Roadmap Approach", Journal of Dynamic Systems, Measurement, and Control, 2017.
- T Tang, HC Lin, Y Zhao, W Chen, M Tomizuka, "Autonomous alignment of peg and hole by force/torque measurement for robotic assembly", IEEE International Conference on Automation Science and Engineering (CASE), 2016. (**Best application paper finalist**)
- CY Lin, Y Zhao, M Tomizuka, W Chen, "Path-constrained trajectory planning for robot service life optimization", American Control Conference (ACC), 2016.
- C Wang, Y Zhao, Y Chen, M Tomizuka, "Nonparametric statistical learning control of robot manipulators for trajectory or contour tracking", Robotics and Computer-Integrated Manufacturing, 2015.
- C Wang, Y Zhao, CY Lin, M Tomizuka, "Fast planning of well conditioned trajectories for model learning", IEEE International Conference on Intelligent Robots and Systems (IROS), 2014.
- Y Zhao, T Li, X Yu, X Tang, L Wang, "Mobility analysis of a Sarrus Linkage-like 7-R single closed loop mechanism", IEEE International Conference on Robotics and Automation (ICRA), 2013.
- Y Zhao, T Li, X Tang, "Geometric error modeling of machine tools based on screw theory", Procedia Engineering, 2011.

(full list in https://yzhao334.github.io)