ZHE HUANG

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EDUCATION BACKGROUND

09/2019—06/2024	**University of Illinois at Urbana-Champaign**
(Expected)	*Ph.D.* in Electrical and Computer Engineering
09/2017—06/2019	**Stanford University**
	M.S. in Mechanical Engineering
09/2013—07/2017	**Xi'an Jiaotong University**
	B.Eng. in Energy and Power Engineering, Honors Engineering Program

Coursework: Robotics, Machine Learning, Computer Vision, Convex Optimization, Random Processes, Control System Theory & Design, Optimal Control, Reinforcement Learning, Probabilistic Graphical Models, Statistical Learning Theory.

Skills: Python, Robot Operating System (ROS), PyTorch, MATLAB, LaTeX.

PROFESSIONAL EXPERIENCES

Collaborative Manufacturing   07/20-Now

Human-Centered Autonomy Lab   *Position: Research Assistant*

University of Illinois at Urbana-Champaign   *Advisor: Prof. Katherine Driggs-Campbell*

- Developed vision-based safety algorithms for human-robot collaboration in manufacturing settings by applying camera-based human skeleton tracking algorithms. Wrote a ROS interface across machines for data collection of multi-agent collaboration tasks.
- Created contact detection algorithms for human-robot interaction in a shared workspace using joint torque sensors. Implemented admittance control with the wrist force torque sensor.

Pedestrian Trajectory Prediction   07/19-Now

Human-Centered Autonomy Lab   *Position: Research Assistant*

University of Illinois at Urbana-Champaign   *Advisor: Prof. Katherine Driggs-Campbell*

- Presented a novel framework that incorporates particle filtering and Long-Short Term Memory (LSTM) Networks, to simultaneously estimate pedestrian intentions and generate multi-modal long-term trajectory prediction with a flexible sampling strategy.
- Proposed an end-to-end Transformer-based approach to perform interaction graph structure learning and trajectory prediction for crowds walking in public scenes.

Intelligence on the Cloud and at the Edge   04/19-06/19

Big Data and IoT Team,   *Position: Digital Technology Intern*

Schlumberger Software Technology & Innovation Center   *Advisors: Bernard Van Haecke, Crispin Chatar*

- Cloud-wise: Developed Drake the Driller, i.e. a voice interface for drilling systems, based on a Dialogflow NLP agent and Google Cloud services. Demonstrated Drake the Driller on a drilling rig model running in the real world. Our publication received the highest rating in the innovative technologies session.
- Edge-wise: Trained decision tree models on a machine learning chip integrated with accelerometer and gyroscope for drilling pattern recognition and fault diagnosis.

PUBLICATIONS

1. **Huang, Z.,** Li, R., Shin, K., & Driggs-Campbell, K. (2021). Learning Sparse Interaction Graphs of Partially Observed Pedestrians for Trajectory Prediction. arXiv preprint arXiv:2107.07056.

2. **Huang, Z.**, Hasan, A., Shin, K., Li, R., & Driggs-Campbell, K. (2021). Long-Term Pedestrian Trajectory Prediction Using Mutable Intention Filter and Warp LSTM. IEEE Robotics and Automation Letters, 6(2), 542-549.

3. Gan, L. T., Blumenschein, L. H., **Huang, Z.,** Okamura, A. M., Hawkes, E. W., & Fan, J. A. (2020). 3D Electromagnetic Reconfiguration Enabled by Soft Continuum Robots. IEEE Robotics and Automation Letters, 5(2), 1704-1711.

4. Chatar, C., **Huang, Z.,** & Hadrovic, P. (2020). A Voice Interface for Drilling Systems. In IADC/SPE International Drilling Conference and Exhibition. Society of Petroleum Engineers.

5. Du, P., **Huang, Z.,** Liu, T., Xu, K., Gao, Q., Sibai, H., Driggs-Campbell, K., & Mitra, S. (2019). Online Monitoring for Safe Pedestrian-Vehicle Interactions. IEEE International Conference on Intelligent Transportation Systems.