

XIAO CHEN

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EDUCATION

Zhejiang University (ZJU), Hangzhou, China

Sept. 2018 – Jun. 2022(*expected*)

- **Major:** Biosystems Engineering (Mechatronics Track) & Advanced Class of Engineering, **Chu Kochen College** (Honours degree, 40 among 4000+ students majoring in STEM fields, providing special courses and research training)
- **Research Interest:** Unsupervised Representation Learning, Perception and Control for Robotics
- **GPA:** 3.77/4.00 | **Rank:** 8/68 | **Earned Credits:** 193.5 (30+ beyond the graduation requirement)
- **Selected Courses:**
Mathematics: Numerical Analysis (95), Mathematical Modeling, Stochastic Process, Convex Optimization
Computer Science: Fundamentals of Data Structure, Wireless Network Application (96), Computing Systems
Control Science: Systems Science (92), Stochastic Control Theory (90, *HKUST*), Principle of Automatic Control
Robotics: Bipedal Robot Technology (93), Wheeled Robot Technology (92), Bioproduction Systems Robots (90)

RESEARCH EXPERIENCE AND SELECTED PROJECTS

Towards Task-relevant Visual Representation in RL via Information Theory ([Link](#))

Jul. 2021 –

Department of Electrical and Computer Engineering, The University of British Columbia

- Proposed a theoretical framework based on Information Theory to quantify the relevancy between the embedding and task-relevant feature in RL.
 - Designed an adaptive algorithm with a composite loss based on the better estimated bound of task relevancy.
- Future work and expectations:*
- Conduct experiments to outperform *SOTA* and reveal the dynamic dominance of representation and interaction.

Data-driven Modeling for Industrial Processes ([Link](#))

Dec. 2020 – Mar.2021

State Key Laboratory of Industrial Control Technology, Zhejiang University

- Reimplemented a novel generative denoised model and improved its termination conditions for preprocessing.
- Tested the performance of LightGBM and LSTM on soft-sensing model to verify the effect of preprocessing.
- Proposed the sensitivity test by PCA, AutoEncoder, etc. for fault monitoring and introduced comprehensive statistical index φ for online monitoring, which outperform the commonly used statistics T^2 and SPE .

Autonomous Localization and Navigation for Wheeled Mobile Robots ([Link](#))

Mar. 2020 – Jun.2020

Institute of Intelligent Systems and Control, Zhejiang University

- **Mapping:** Constructed the laser path and then obtained the recurrence formula of posterior probability of occupancy in the raster map.
- **Localization:** Extracted landmarks from real-time point cloud and incorporated position of the undetected landmarks into the system state, which was updated by EKF based on the odometer and feature observation.
- **Navigation:** Achieved global and local path planning respectively based on the structured map and realized the stable control of the path tracking.

SELECTED AWARDS AND HONORS

- **Wisdom Enlightenment Scholarship**, ZJU (5 Excellence undergraduates among my College) 2019–2020
- **First-Class Scholarship** for Academic Excellence, ZJU (**Top 3%**) 2018–2019
- **3rd Prize**, 17th Challenge Cup Extracurricular Academic Works Competition, Zhejiang Province Mar. 2021
- **3rd Prize**, 12th National College Student Mathematics Competition, China Nov. 2020
- **1st Prize**, ASABE Robot Competition, ZJU (**Rank 1**) Feb. 2019

SKILLS AND ACTIVITIES

- **English Proficiency:** CET-6: 545, TOEFL: 81
- **Programming Language:** C, Python(PyTorch, etc.), MATLAB, Assembly Language (MCS8051, Intel 8086)
- **Tools of Production:** ROS(Gazebo, Rviz), LaTeX/Markdown, ArcGIS, Altium Designer, Multisim, AutoCAD
- **Interpreter:** I'm an interpreter of the School History Museum & Science and Technology Museum. I feel very honored to share my understanding on the history and achievements of ZJU to freshmen and visiting scholars.
- **Monitor:** I was the monitor of professional class and the class committee of Advanced Class of Engineering, Chu-Kochen Honors College. My outstanding performance made me rated as Excellent Student Cadre of ZJU. Also, I took the initiative to be the group leader in about 80% of my courses.
- **Sports:** I won the championship of ZJU's Yunfeng Community Men's Basketball Game as PG and team captain. Also, I run 5-8km usually about twice a week to relax and exercise :)