YIXUAN WANG

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EDUCATION

University of Michigan, Ann Arbor 09/2019 - 05/2021 (expected)
B.S. in Computer Science GPA: 4.00/4.00

University of Michigan - Shanghai Jiao Tong University Joint Institute 09/2017 - 08/2021 (expected)
B.S.E. in Mechanical Engineering GPA: 3.81/4.00

PUBLICATION

Wang. Y., McConachie, D., Berenson, D., "Tracking Partially-Occluded Deformable Objects while Enforcing Geometric Constraints", *The 2021 International Conference on Robotics and Automation (ICRA 2021).* [**Under review**]

ACADEMIC EXPERIENCE

UMich Autonomous Robotic Manipulation Lab 05/2020 - Present
Project: Robust Deformable Object Tracking *Supervisor: Dr. Dale McConachie*

- Preserved deformable object tracking results' geometric correctness during self-intersection and obstacle interaction by improving posterior constraints of Gaussian Mixture Model-Expectation Maximization (GMM-EM) algorithm.
- Obtained deformable object tracking results that are more robust to the occlusion by incorporating prediction model of deformable object into objective function of GMM-EM algorithm.
- Validated ideas in simulation environment and real experiments.
- Wrote the research paper targeting at ICRA 2021.

UMich Compliant Systems Design Laboratory 09/2019 - 04/2020
Model-free Control over Soft Robots' Shape based on Visual Information *Supervisor: Dr. Audrey Sedal*

- Segmented soft robots in real time based on texture segmentation using Gabor filter and k-means clustering.
- Tracked soft robots' shapes using Bezier curve fitting and Ceres solver.
- Applied Deep Q-Learning to control soft robots.

UM-SJTU Joint Institute Design and Manufacturing II 05/2019 - 08/2019
All-terrain Vehicle based on Transformable Wheels and Caterpillar Bands *Instructor: Prof. Jaehyung Ju*

- Designed the structure of transformable wheels and the whole vehicle using four-bar linkage mechanism.
- Selected materials based on the analysis of the vehicle dynamics and kinematics.
- Programmed the feedback controller and the finite state machine for the vehicle moving along the wall and navigating in the designated environment based on ultrasound sensors.

UM-SJTU Joint Institute Design and Manufacturing I 09/2018 - 08/2019
Soft Gripper Capable of Grasping Unknown Objects *Instructor: Prof. Jaehyung Ju*

- Designed the mechanical structure of the robot arm and soft gripper based on analysis of its grasping ability.
- Programmed the remote controller for moving the robot arm and controlling the soft gripper.

TEACHING & SERVICE

Teaching Assistant of Honor Physics I, UM-SJTU Joint Institute 05/2019 - 08/2019
Teaching Assistant of Honor Calculus II, UM-SJTU Joint Institute 09/2018 - 12/2018

- Lectured around 20 students for one hour on recitation class every week to review lecture material and give some exercises.
- Hosted office hours to solve confusions one by one.
- Graded the assignments and exams.

Peer Consultant, UM-SJTU Joint Institute Advising Center 09/2018 - 08/2019

- Led social media of the Advising Center by sharing workshop information and course information.
- Organized career development workshops and invited more than 30 alumni from prestigious academic institutions.
- Hosted office hours every week to solve every student's questions about career development.

HONOR & AWARDS

University Honors	12/2019, 04/2020
Dean's List	12/2019
Jackson and Muriel Lum Scholarship	09/2019
Undergraduate Merit Scholarship (Top 10%)	08/2018, 08/2019
National Encouragement Scholarship	09/2018
John Wu & Jane Sun Sunshine Scholarship	09/2018
SJTU Outstanding Student	09/2018
Yu Liming Scholarship	09/2017

LEADERSHIP EXPERIENCE

Shanghai Jiao Tong University Student Union 03/2019 - 08/2019
Minister of Propaganda in Secretariat

- Recruited new members of the Secretariat.
- Organized propaganda of the student union's activities.
- Organized activities inside the Secretariat to engage new members.

SELECTED COURSES

Computer Science	Data Structure and Algorithm, Applied Linear Algebra, Introduction to Embedded System Design, Introduction to Machine Learning, Computer Vision, Autonomous Robotics, Deep Learning for Computer Vision (graduate level)
Mechanical Engineering	Introduction to Solid Mechanics, Introduction to Dynamics and Vibrations, Design and Manufacturing I, Design and Manufacturing II, Dynamic Systems

SKILLS

Programming	C++, MATLAB, C, Python, ARM
Application	CATIA, Origin, SolidWorks, Arduino, LabVIEW, OpenCV, SmartFusion, PyTorch, Qt, ROS, Blender