

# YIXUAN WANG

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## EDUCATION

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<b>University of Michigan, Ann Arbor</b> B.S. in Computer Science	09/2019 - 05/2021 (expected) GPA: 4.00/4.00
<b>Shanghai Jiao Tong University</b> B.S.E. in Mechanical Engineering	09/2017 - 08/2021 (expected) GPA: 3.81/4.00

## PUBLICATION

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**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

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

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

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

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

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<b>Teaching Assistant of Honor Physics I, UM-SJTU Joint Institute</b>	05/2019 - 08/2019
<b>Teaching Assistant of Honor Calculus II, UM-SJTU Joint Institute</b>	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**

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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**

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<b>Computer Science</b>	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)
<b>Mechanical Engineering</b>	Introduction to Solid Mechanics, Introduction to Dynamics and Vibrations, Design and Manufacturing I, Design and Manufacturing II, Dynamic Systems

### **SKILLS**

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