

YIXUAN WANG

+1(734) 546-8061 ♦ yixuanwa@umich.com ♦ Ann Arbor, MI

EDUCATION

| | |
|---|--|
| University of Michigan, Ann Arbor B.S. in Computer Science | 09/2019 - 05/2021 (expected) GPA: 4.00/4.00 |
| University of Michigan - Shanghai Jiao Tong University Joint Institute B.S.E. in Mechanical Engineering | 09/2017 - 08/2021 (expected) 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 <i>Project: Robust Deformable Object Tracking</i> | 05/2020 - Present <i>Supervisor: Dr. Dale McConachie</i> |
|---|---|

- 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 <i>Model-free Control over Soft Robots’ Shape based on Visual Information</i> | 09/2019 - 04/2020 <i>Supervisor: Dr. Audrey Sedal</i> |
|---|--|

- 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 <i>All-terrain Vehicle based on Transformable Wheels and Caterpillar Bands</i> | 05/2019 - 08/2019 <i>Instructor: Prof. Jaehyung Ju</i> |
|--|---|

- 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 <i>Soft Gripper Capable of Grasping Unknown Objects</i> | 09/2018 - 08/2019 <i>Instructor: Prof. Jaehyung Ju</i> |
|--|---|

- 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 | |
| <ul style="list-style-type: none"> • 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 |