YIXUAN WANG

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EDUCATION

University of Illinois, Urbana-Champaign 09/2021 - 09/2026 (expected)
Ph.D. in Electrical and Computer Engineering GPA: 3.83/4.00

University of Michigan, Ann Arbor 09/2019 - 05/2021
B.S. in Computer Science GPA: 3.94/4.00

Shanghai Jiao Tong University 09/2017 - 08/2021
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).*

ACADEMIC EXPERIENCE

UIUC Advanced Topics in Robot Perception 09/2021 - 12/2021
Project: Non-rigid 3D reconstruction of Articulated Object *Supervisor: Prof. Shenlong Wang*

- Proposed two methods for approximating motions from point cloud of articulated objects based on ICP algorithm and clustering algorithm respectively.
- Studied reconstruction errors and geometric errors based on simulated data generated from Sapien dataset.

UMich Autonomous Robotic Manipulation Lab 05/2020 - 08/2021
Project: Learning-based probabilistic motion planning *Supervisor: Prof. Dmitry Berenson*

- Proposed to improve Rapidly-exploring Random Tree (RRT) algorithm by incorporating a reinforcement learning policy that reasons the environment.
- Reduced RRT iteration numbers by 80% while improved success rate from 87.1% to 98.4% in random generated environments with box obstacles.
- Analyzed reason for bad performance of our method in corner cases like narrow passages.

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.
- Represented soft robots' shapes as Bezier curve and tracked soft robots using curve fitting.
- Applied Deep Q-Learning to learn soft robot control policy.

TEACHING & SERVICE

Reviewer

- Conference: ICRA 2022.

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

Silver Medal for Capstone Design	08/2021
Shanghai Excellent Gradudate (Top 5%)	08/2021
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), Motion Planning (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