

# Youya Xia

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## Education

### Cornell University

PH.D. IN COMPUTER SCIENCE

- Focused on robotics, reinforcement learning and computer vision

*Ithaca, New York*

*Aug. 2019 - May 2024*

### University of Minnesota, Twin Cities

B.S. IN COMPUTER SCIENCE AND MATHEMATICS

- with high distinction

*Minneapolis, Minnesota*

*Sep. 2015 - May 2019*

## Research Experience

### Interactive Robotics and Vision Lab

UNDERGRADUATE RESEARCH ASSISTANT UNDER THE GUIDANCE OF PROF. JUNAED SATTAR

*University of Minnesota, Twin Cities*

*Feb. 2018 - Aug. 2019*

- Visual Diver Recognition for Underwater Human-Robot Collaboration:
  - propose the first vision-based algorithm in the underwater robots area to detect specific diver underwater using deep learning neural network, feature extraction and K-Means clustering algorithm such that the algorithm can not only detect divers underwater but also differentiate between different divers
  - leading author of the paper-Visual Diver Recognition for Underwater Human-Robot Collaboration which has been accepted by the IEEE International Conference on Robotics and Automation 2019
  - Website link to my research: <http://irvlab.cs.umn.edu/projects/visual-diver-identification-underwater-hri>
- Pose-association:
  - Let robots understand divers' pose underwater. We use Open pose to extract points on the divers' bodies
  - Associating persons' poses from different cameras and scenes using four different person re-identification techniques
  - github link of the project: <https://github.com/xiaxx244/person-association>
- Underwater image enhancement:
  - work with a Ph.D. student to design a Generative Adversarial Network to improve the quality of underwater images
  - Collecting and releasing an unique underwater image dataset
- Marine Trash Project:
  - help label marine trash data for the project of building a deep vision detection model to detect marine litter
  - get recognition at the end of the paper-Robotic Detection of Marine Litter Using Deep Visual Detection Models which has been submitted by the IEEE/RSJ International Conference on Intelligent Robots and Systems 2018
- other work:
  - help conduct monthly pool or lake trials for underwater robots
  - help fix software malfunctioning of robots in our lab

### GroupLens Lab

UNDERGRADUATE RESEARCH ASSISTANT UNDER THE GUIDANCE OF MAX HARPER

*University of Minnesota, Twin Cities*

*Sep. 2017 - Apr. 2018*

- Moviemood project:
  - help build a movie recommendation system which recommends movies based on the mood words users suggest using natural language processing toolkits, such as Gensim and spaCy

## Working Experience

### Department of Computer Science

TEACHING ASSISTANT FOR CS3110(FUNCTIONAL PROGRAMMING)

*Cornell University*

*Aug. 2019 - present*

- Construct and grade midterms for CS3110
- Grade homeworks, programming assignments for CS3110

## Department of Computer Science and Engineering

University of Minnesota, Twin Cities

TEACHING ASSISTANT FOR CSCI 2011(DISCRETE MATHEMATICS)

Sep. 2018 - Dec. 2018

- Construct and grade weekly quiz for CSCI2011
- Hold weekly office hours to answer students questions about lectures, homework and quizzes for CSCI 2011

## Department of Computer Science and Engineering

University of Minnesota, Twin Cities

TEACHING ASSISTANT FOR CSCI 2033(LINEAR ALGEBRA)

Jan. 2019 - May. 2019

- Grade weekly homework, midterms and final for CSCI2033
- Hold weekly office hours to answer students questions about lectures, homework and quizzes for CSCI 2033

## Department of Computer Science and Engineering

University of Minnesota, Twin Cities

UNDERGRADUATE RESEARCH ASSISTANT

May. 2018 - Aug. 2018

- appointed by professor Junaed Sattar as a paid undergraduate research assistant during summer 2018
- conducted the previously stated specific diver detection research project and helped conduct several pool trials and lake trials during summer

## School of Mathematics

University of Minnesota, Twin Cities

GRADER FOR MATH 2263(MULTIVARIABLE CALCULUS)

Jun. 2017 - Aug. 2017

- Helped grade weekly quizzes and homework for Math 2263.
- Helped maintain students' records about quizzes, midterm, finals and homework for Math 2263

## Honors & Awards

May 2019 **RAS Travel Grant**, A reward offered to participants of ICRA2019

Robotics and  
Automation Society

2015-2018 **Dean's list**, A reward offered to students with semester GPA 3.666 or higher

University of  
Minnesota

2015-2019 **Global Excellence scholarship**, A reward offered to excellent incoming students

University of  
Minnesota

## Skills

<b>Programming</b>	Python, JAVA, OCaml, Matlab, LaTeX, C++, MySQL, C, Lisp, Julia
<b>Computer Vision</b>	Opencv
<b>Machine Learning</b>	Tensorflow, Pytorch, Caffe
<b>Robotics System</b>	Robotics Operating System
<b>Natural Language Processing</b>	Gensim, spaCy
<b>Reinforcement learning</b>	Gym

## Publication

### Visual Diver Recognition for Underwater Human-Robot Collaboration

<https://arxiv.org/abs/1809.10201>

YOUYA XIA, JUNAED SATTAR

Sep. 2018

- Accepted by the IEEE International Conference on Robotics and Automation, ICRA2019. arXiv preprint available.

### Fast Underwater Image Enhancement for Improved Visual Perception

<https://arxiv.org/abs/1903.09766>

MD JAHIDUL ISLAM, YOUYA XIA, JUNAED SATTAR

Feb. 2020

- Accepted by Robotics and Automation Letters. arXiv preprint available.