Youya Xia

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Education

Cornell University
Ph.D. in Computer Science
- Focused on robotics, reinforcement learning and computer vision

University of Minnesota, Twin Cities
B.S. in Computer Science and Mathematics
- with high distinction

Research Experience

ByteDance AI Lab
Research Intern under the guidance of Dr. Xiao Chen, Dr. Zhili Chen and Yiheng Zhu
- Guided Reinforcement Learning for Locomotion Control
  - Propose a bilevel controller such that it uses reinforcement learning as a high level controller to output command into the low level controller to simulate the animation trajectories
  - Design a simulated gaming system such that the humans are chasing a moving target in an environment with clustered obstacles

HRC2 Lab
Graduate Research Assistant under the guidance of Prof. Guy Hoffman
- Shadow Pose Estimation
  - Propose a methodology such that it can be used for estimating humans’ poses while still protecting humans’ privacy when cameras are covered with various filters
  - Design experiments to evaluate both the pose estimation results and the results for protecting humans’ privacy

Interactive Robotics and Vision Lab
Undergraduate Research Assistant under the guidance of Prof. Junaid Sattar
- 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

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**Working Experience**

ByteDance AI Lab  
**Research Intern**  
Mountain View, CA  
Jun. 2020 - Aug. 2020

- Guided Reinforcement Learning for Locomotion Control

Department of Computer Science  
**Teaching Assistant for CS3110 (Functional Programming)**  
Cornell University  
Aug. 2019 - present

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

Department of Computer Science and Engineering  
**Teaching Assistant for CSCI 2011 (Discrete Mathematics)**  
University of Minnesota, Twin Cities  
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  
**Teaching Assistant for CSCI 2033 (Linear Algebra)**  
University of Minnesota, Twin Cities  
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  
**Undergraduate research assistant**  
University of Minnesota, Twin Cities  
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  
**Grader for Math 2263 (Multivariable Calculus)**  
University of Minnesota, Twin Cities  
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

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**Honors & Awards**

- May 2019 **RAS Travel Grant**, A reward offered to participants of ICRA2019
- 2015-2018 **Dean's list**, A reward offered to students with semester GPA 3.666 or higher
- 2015-2019 **Global Excellence scholarship**, A reward offered to excellent incoming students

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**Skills**

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

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**Publication**

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**September 2, 2020**  
**YOU YIA XIA · Résumé**  
**2**
Visual Diver Recognition for Underwater Human-Robot Collaboration
YOU YAXIA, JUNAED SATTAR
• Accepted by the IEEE International Conference on Robotics and Automation, ICRA2019. arXiv preprint available.

Fast Underwater Image Enhancement for Improved Visual Perception
Md Jahidul Islam, Youyu Xia, Junaed Sattar
• Accepted by Robotics and Automation Letters. arXiv preprint available.