

XINYU LIU

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Address: 92 West DaZhi Street, Harbin Institute of Technology, Harbin 150001, P. R. China

EDUCATION

CITY UNIVERSITY OF HONG KONG

Ph.D. in Electrical Engineering

Advisor: [Dr. Yixuan Yuan](#)

Hong Kong SAR, China

Expected to start at Sep. 2020

HARBIN INSTITUTE OF TECHNOLOGY

M.Sc. in Control Science & Engineering

Thesis: Research on Anchor-free Object Detection and Instance Segmentation Algorithms

Advisor: [Dr. Xiaoguang Di](#)

Harbin, China

Sep. 2018 - Jul. 2020

HARBIN INSTITUTE OF TECHNOLOGY

B.Sc. (Hons.) in Automation

Thesis: Research on Disparity Map Acquisition Algorithms Based on Binocular Vision

Harbin, China

Sep. 2014 - Jun. 2018

RESEARCH INTEREST

My research interest lies on **Computer Vision and Pattern Recognition, Medical image Processing**. I focus on **object detection** and **segmentation** tasks.

SELECTED HONORS & AWARDS

- Outstanding Thesis Defence Award, Harbin Institute of Technology, PR China, 2020.
- Scholarship for Postgraduates, First-Class, Ministry of Education, PR China, 2018–2020.
- Postgraduate Annual Scholarship, Second-Class, Harbin Institute of Technology, PR China, 2019.
- Honorable Graduate, Harbin Institute of Technology, PR China, 2018.
- 2017 International Aerial Robotics Competition, Second-Class, Association for Unmanned Vehicle Systems International, 2017.
- National Grants, Ministry of Education, PR China, 2014-2015.
- People's Scholarship, Third-Class (Twice), Harbin Institute of Technology, PR China, 2014, 2018.

INTERNSHIP EXPERIENCE

DEEPPWIS AI LAB

Machine Learning Intern

Advisor : [Fandong Zhang](#) [Prof. Yizhou Yu](#)

Beijing, PR China

Apr. 2019 - Aug. 2019

- **Topic: Research on Anchor-Free Object Detection and Improving Results through Data Augmentation and Backbone Substitution:**
 - ◊ Working on improving the precision of object detection in various datasets through anchor-free methods. Implementing data augmentation for object detection and altering the backbone to obtain better results.

RESEARCH EXPERIENCE

Some of the selected research details is available on [LINK](#).

OBJECT DETECTION AND INSTANCE SEGMENTATION, DEEPPWIS AI LAB & HARBIN INSTITUTE OF TECHNOLOGY

Beijing & Harbin, PR China

Machine Learning Intern, Graduate Research Assistant

Apr. 2019 - Jul. 2020

- * **Topic 1: Anchor-Free Object Detection Methods on Public and Private Datasets (Ongoing):**
 - ◊ Working on improving the precision of object detection in various datasets through anchor-free methods.
- * **Topic 2: Anchor-Free Instance Segmentation Methods on Public and Private Datasets (Ongoing):**
 - ◊ Working on presenting a novel method of instance segmentation based on anchor-free methods.

DEVELOPING A NOVEL ACTIVATION FUNCTION FOR IMAGE CLASSIFICATION, HARBIN INSTITUTE OF TECHNOLOGY

Harbin, PR China

Graduate Research Assistant

Aug. 2019 - Sep. 2019

- * **Topic 1: A Presentation of A Smooth and Non-Linear Activation Function:**
 - ◊ Worked on a summary of current activation functions and present a novel one which avoids the existing drawbacks.
- * **Topic 2: Demonstration of The Effectiveness on Image Classification Task:**
 - ◊ Experiments were carried out on various image classification datasets.

FULLY-SUPERVISED SEMANTIC SEGMENTATION BASED ON CNN AND RNN, HARBIN INSTITUTE OF TECHNOLOGY

Harbin, PR China

Graduate Research Assistant

Dec. 2018 - Jul. 2019

- * **Topic 1: Merging Multi-Scale Features Through Recurrent Neural Network:**
 - ◊ Design and implementation of a RNN involved semantic segmentation architecture.

REAL TIME AUTOMATIC WELDING SPOT QUALITY INSPECTION METHOD, HARBIN INSTITUTE OF TECHNOLOGY

Harbin, PR China

Graduate Research Assistant

Jun. 2018 – Dec. 2019

- * **Topic 1: Welding Spot Quality Dataset Establishing:**
 - ◊ Compiling an automatic labeling tool for data labeling.
- * **Topic 2: Design of A Real-Time Segmentation Architecture for Welding Spots:**
 - ◊ Using deep neural network to train a segmentation network, meanwhile utilizing post-processing for defects detection.

INTERNATIONAL AERIAL ROBOTICS COMPETITION, HARBIN INSTITUTE OF TECHNOLOGY

Harbin, PR China

Undergraduate Research Assistant

Dec. 2016 - Aug. 2017

- * **Topic 1: Trajectory Planning and Implementing of Ground Robots:**
 - ◊ Wrote the code of the trajectory of the robot based on the Arduino board.

PUBLICATION

◦ Journal Papers:

- [1] **Xinyu Liu**, Xiaoguang Di, “Global Context Parallel Attention for Anchor-free Instance Segmentation in Remote Sensing Images,” *Submitted*, 2020.
- [2] **Xinyu Liu**, Xiaoguang Di, Junde Wu, and Jiehao Huang, “Vector Encoded Bounding Box Regression for Detecting Remote Sensing Objects with Anchor-free Methods,” *Submitted*, 2020.
- [3] **Xinyu Liu**, Xiaoguang Di, “TanhExp: A Smooth Activation Function with High Convergence Speed for Lightweight Neural Networks,” *arXiv 2003.09855*, 2020.
- [4] Haoxin Zhang, Xiaoguang Di, **Xinyu Liu**, “Merging Multi-Scale Features through Recurrent Neural Network for Semantic Segmentation,” *Submitted*, 2019.

IN-SCHOOL POSITIONS

- * Vice-minister of The Department of Propaganda, Student Union
- * Teaching Assistant for Undergraduates
- * Commissary in Charge of Science and Technology

TECHNICAL & PROGRAMMING SKILLS

- * Programming: Python (Pytorch, Tensorflow, Numpy), C++, MATLAB, Arduino, HTML5, LaTeX
- * Tools: Git, Jupyter Notebook, Robot Operating System (ROS)

ENGLISH PROFICIENCY

- * **IELTS**, Score: **7.0** (Listening: 7.5 Reading: 8.0 Writing: 6.5 Speaking: 6.0)

REFERENCES AVAILABLE TO CONTACT

- * **Dr. Yixuan Yuan**, Assistant Professor, City University of Hong Kong, Hong Kong SAR, China. ✉: yxyuan.ee@cityu.edu.hk
- * **Dr. Xiaoguang Di**, Associate Professor, Harbin Institute of Technology, Harbin, China. ✉: dixiaoguang@hit.edu.cn