

# Ruoxiang Li | Curriculum Vitae

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## RESEARCH INTEREST

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Visual SLAM, Event-based Vision, Computer Vision, Robotics

## EDUCATION

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**National University of Defense Technology (Non-military student)**

*Master of Engineering in Computer Science and Technology*

Advisor: Prof. Dr. Dianxi Shi

GPA: 2.91/4

**Changsha, China**

*Sept. 2017 - June 2020*

**Northeastern University**

*Bachelor of Engineering in Internet of Things*

GPA: 3.8085/5 (Ranking: 6/59)

**Shenyang, China**

*Sept. 2013 - June 2017*

## PUBLICATIONS

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- **Ruoxiang Li**, Dianxi Shi, Yongjun Zhang, Kaiyue Li and Ruihao Li, "FA-Harris: A Fast and Asynchronous Corner Detector for Event Cameras," *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*. 2019: 6223-6229.
- **Ruoxiang Li**, Dianxi Shi, Yongjun Zhang and Ruihao Li, "Asynchronous Event Feature Generation and Tracking based on Gradient Descriptor for Event Cameras." In submission.
- Kaiyue Li, Dianxi Shi, Yongjun Zhang, **Ruoxiang Li** and Ruihao Li, "Feature Tracking Based on Line Segments with the Dynamic and Active-pixel Vision Sensor (DAVIS)," *IEEE Access* 7 (2019): 110874-110883.
- Mingkun Wang, Dianxi Shi, Naiyang Guan, Tao Zhang, Liuqing Wang and **Ruoxiang Li**, "Unsupervised pedestrian trajectory prediction with graph neural networks," *The IEEE International Conference on Tools with Artificial Intelligence (ICTAI)*, 2019.
- Zhuoyue Yang, Dianxi Shi, Yongjun Zhang, Shaowu Yang, Fu Li and **Ruoxiang Li**, "Multi-UAV Collaborative Monocular SLAM Focusing on Data Sharing," *International Conference on Neural Information Processing*. Springer, Cham, 2018.

## COMPETITION EXPERIENCE

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**ABU Robocon (Third Award, Best Design Award)**

*June 2015*

- **Team Task:** Independently design two robots cooperating to play badminton doubles.
- **Duties included:** Coordinate conversion, data acquisition and processing procedures based on Kinect for Windows v2 using C language, test the effect of illumination on Kinect depth camera.
- **Development Tools:** Halcon, Microsoft Visual Studio

**Robot Competition for Undergraduates in Liaoning Province (First Award)**

*Oct. 2014*

- **Team Task:** Independently design two robots cooperating to collect the golf balls in the designated area and transport the collected balls to the starting position.
- **Duties included:** Robot control program design, control the robot to collect the golf balls by fixed route based on LPC1700 series Cortex-M3 micro-controller and  $\mu$ C/OSII system (using C language).
- **Skills & devices:** CAN communication, Gyroscope, Encoder

## RESEARCH EXPERIENCE

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### Event-based Asynchronous Feature Detection and Tracking 2018 - 2019

- o Work for asynchronous event feature detection and tracking based on event cameras.
- o Proposed a fast and asynchronous event-based corner detection method achieving  $8\times$  speed-up.
- o Presented an asynchronous event feature generation and tracking method.

### Intelligent Unmanned Cluster System 2017 - 2018

- o Aim to construct operational support platform for the intelligent unmanned cluster system.
- o Participated in the research about multi-UAV collaborative mapping based on multiple monocular cameras, which is part of the Incremental Global View Extension Technology.

## CORE COURSES

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### Master 2017 - 2018

- o Machine Learning (A)
- o Matrix Analysis and Calculation (B)
- o Principle of Artificial Intelligence (B)
- o Computational Complexity (B)
- o Computational Geometry (B)
- o Parallel Computing (B)

### Bachelor 2013 - 2017

- o Object-Oriented Programming (C++) (A)
- o Algorithm Design and Analysis (A)
- o Probability Theory and Mathematical Statistics (B)
- o Data Structures (B)
- o Linear Algebra (B)

## HONORS AND AWARDS

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### National University of Defense Technology 2017 - Present

- o Postgraduate Admission Scholarship (Nov. 2018)
- o Outstanding Postgraduate (June 2019)

### Northeastern University 2013 - 2017

- o Second-class Scholarship (Apr. 2014)
- o Second-class Scholarship (Oct. 2014)
- o Outstanding Student Leader (Oct. 2014)
- o Third-class Scholarship (Nov. 2015)
- o Outstanding Student Leader (Nov. 2015)
- o First-class Scholarship (Oct. 2016)
- o Zhongtian Iron and Steel Scholarship (Second-class) (Oct. 2016)
- o Second-class Scholarship (Oct. 2017)
- o Outstanding Graduate of Liaoning Province (Mar. 2017)