

## Curriculum Vitae

**He, Ruifei**

Automation

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### EDUCATION

**Zhejiang University**, Zhejiang, China

*September 2017-June 2021(expected)*

- Chu Kochen Honors College
- Major: Automation; GPA: 4.57/5.0, 3.93/4.0 (top 1%)
- Major Rankings: 3/153 (freshman & sophomore years); 1/153 (sophomore year)
- Mixed-Class Rankings: 3/145 (freshman & sophomore years); 1/145 (sophomore year)

### RELEVANT COURSES

Computer Vision, Special Topics on Mixed Reality, Data Analysis and System Identification, Mathematical Modeling & Simulating, Data Structure, Robotics, Embedded System, Mathematical Analysis, Linear Algebra, Probability and Mathematical Statistics, Fundamentals of Programming, Complex Variable Functions & Integral Transformation, Partial Differential Equations

### RESEARCH INTERESTS

Computer Vision; Deep Learning; Machine Learning

### RESEARCH EXPERIENCE

**Study on Artificial Intelligence Algorithms of Edge Computing**

*May 2019-Now*

*Team Leader (Advisor: Professor Yong Liu)*

- Utilized TensorFlow to build neural network and implemented detection and recognition algorithm such as Mobile-SSD and Yolo
- Proposed feasible methods to configure hardware and figure out possible porting challenges based on the knowledge of ARM system platform and usage of Neural Compute Stick (NCSDK)
- Ported network and adjusted multiple parameters; Optimized and debugged the network continuously

**Self-supervised Optical Flow Estimation on the basis of Knowledge-distillation** *March 2019-Now*

*Co-Researcher (Advisor: Professor Yong Liu)*

- Performed the recurrence of base-line and bad-case; designed indexes to conduct results analysis
- Made experiments and studied in depth comet.ml-machine learning experiment management
- Developed a better understanding of Docker technology that provides a way to securely build, share and run modern applications anywhere

### PUBLICATION

Liang Liu, Jiangning Zhang, **Ruifei He**, Yong Liu, Yabiao Wang, Ying Tai, Donghao Luo, Chengjie Wang, Jilin Li, Feiyue Huang. "Learning by Analogy: Reliable Supervision from Transformations for Unsupervised Optical Flow Estimation." In submissions to CVPR 2020. Currently Under Review.

## **COURSEWORK PROJECTS**

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- Mathematical Modeling and Simulation- advised on where to build charging stations and the quantity of charging piles in each station for new energy automobile
- Numerical Computing Methods- estimated the number of E-bikes on a certain road using interpolation and fitting & solving problems of charging and discharging of lithium battery on E-bikes with numerical integration method and differential equation
- Experiments in General Physics-Developed indoor environment monitor based on multi-sensor fusion
- Robotics- developed path programming and traced layout of differential robots
- Introduction of Robot- made a mobile robot that can recognize colors, and grab and place specific objects
- Psychology and Artificial Intelligence- Discussed the active impact of psychology on artificial intelligence on the basis of Hinton's skepticism about back-propagation algorithm

## **ACTIVITIES**

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### **Social Practice with “The Past 60 Years of Ningxia” as the Theme**

- Conducted field investigation by visiting local villages, companies, museum, community residents committee etc.
- Designed a questionnaire regarding the integration between the Han and Hui nationality and distributed it on various social platforms; analyzed the collected data with my teammates
- Wrote two reports summarizing the development of Ningxia in the recent 60 years and posted these two reports on our WeChat official account

### **Social Practice with “Smart City” as the Theme**

- Consulted lots of documents related to the theme and visited 6 large companies in Shenzhen to collect the real, first-hand materials; make a horizontal comparison with the information we got in two different ways
- Wrote a report discussing the achievement of enterprises in Shenzhen in the area of smart city

### **Learning and Exchanging Program in Singapore**

- Attended seminars and lectures in Nanyang Technological University, Singapore University of Technology and Design, National University of Singapore, Agency for Science, Technology and Research (A\*STAR) and International Intelligent Machines Co.,Ltd
- Had deeper understanding about the area of electromagnetics, Artificial- Intelligence, three-dimensional outdoor navigation, and computer vision

## **HONORS AND AWARDS**

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- Zhejiang government scholarship (top 3%)
- First-Class Scholarship for Outstanding Merits (top 3%)
- Excellent Student Award (top 5%)
- Winner Award-Zhejiang University Graduate Student Smart City Creative Design Competition (top 10%)
- Third prize of Zhejiang University Students' physics innovation (Theory) competition
- Zhejiang University Public Service Award (top 10%)

## **SKILLS**

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- Programming: Python, C, C++, Matlab, Linux, Docker, Pytorch, Tensorflow, Protobuf, Keil, Solidworks