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: 91.1/100，3.95/4.0 (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

RESAERCH INTERESTS

Computer Vision; Deep Learning; Machine Learning

RESEARCH EXPERIENCE

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

Co-Researcher (Advisor: Professor Yong Liu)

- Used knowledge distillation to self-supervise the process of augmented optical flow estimation
- 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

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

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.

COURSEWORK PROJECTS

- 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

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

- 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

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