

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: 91.25/100, 3.95/4.0; Major Ranking: 3/153.

RELEVANT COURSES (Grades out of 100)

Artificial Intelligence (93), Machine Vision and Machine Learning (97), Computer Vision (98), Special Topics on Mixed Reality (91), Data Analysis and System Identification (94), Mathematical Modeling & Simulating (96), Data Structure (96), Robotics (91), Embedded System (93), Linear Algebra (91), Probability and Mathematical Statistics (97), Fundamentals of Programming (96), Complex Variable Functions & Integral Transformation (97), Partial Differential Equations (94)

HONORS AND AWARDS

- Zhejiang Government Scholarship (top 3%)
- Zhejiang University Scholarship – First Prize (top 3%)
- Excellent Student Award (top 5%)
- Scholarship for Pilotage (top 5%)
- Zhejiang University Public Service Award (top 10%)

RESEARCH INTERESTS

Computer Vision; Data-efficient Learning; Semantic Segmentation.

PUBLICATION

- **Ruifei He***, Jihan Yang*, Xiaojuan Qi. “Re-distributing Biased Pseudo Labels for Semi-supervised Semantic Segmentation: A Baseline Investigation.” In Proceedings of the IEEE International Conference on Computer Vision (ICCV), 2021, under review.
- 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 Proceedings of the IEEE conference on computer vision and pattern recognition (CVPR), 2020.

RESEARCH EXPERIENCE

Semi-supervised Semantic Segmentation with Calibrated Pseudo Labels *May 2020-Now*
Project Leader (Advisor: Professor Xiaojuan Qi, [CVMI Lab](#), The University of Hong Kong)

- Designed a novel method to re-distribute biased pseudo labels
- Proposed a progressive data augmentation and labeling strategy to facilitate iterative training with pseudo-labeled data
- Using a small portion of labeled data to achieve comparable performance

Self-supervised Optical Flow Estimation using Transformations

Dec. 2018-Apr. 2020

Co-Researcher (Advisor: Professor Yong Liu, [April Lab](#), Zhejiang University)

- Used transformations 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, [April Lab](#), Zhejiang University)

- 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

PROJECTS

- Robotics- developed path programming and traced layout of differential robots
- Special Topics on Mixed Reality- built an interactive rendering virtual environment with stereo vision
- Artificial Intelligence- won 4th place in the trash classification competition
- Computer vision- built a face recognition and rebuilding system using Eigenvalue decomposition
- 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

ACTIVITIES

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

- Conducted field investigation, 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

Social Practice with “Smart City” as the Theme

- As the team leader, contacted and visited 6 famous technological companies in Shenzhen to collect the real, first-hand materials in the area of smart city, and wrote a report discussing the achievements in the field

Learning and Exchanging Program in Singapore

- Attended seminars and lectures in Nanyang Technological University, National University of Singapore, and had deeper understanding about the area of electromagnetics, Artificial-Intelligence, three-dimensional outdoor navigation, and computer vision

SKILLS

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