Tianning YUAN

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EDUCATION

University of Chinese Academy of Sciences (UCAS), Beijing, China *Sep. 2019 - Present*
Master Candidate in Electronic and Communication Engineering
Supervisor: Prof. Qixiang Ye
Core Courses: Fundamentals of Pattern Recognition, Machine Learning Methods and Applications

Tsinghua University (THU), Beijing, China *Sep. 2015 - Jul. 2019*
Bachelor of Engineering in Electronic Information Science and Technology
Core Courses: Discrete Mathematics, Probability and Stochastic Processes, Computer Program Design, Advanced Matlab Programming and Application, Data and Algorithm, Digital Image Processing

EXPERIENCE

Huawei Technologies Co., Ltd., Shenzhen, China *Jun. 2021 - Present*
Intern in Noah's Ark Lab
Mentor: Songcen Xu

University of Chinese Academy of Sciences, Beijing, China *Jul. 2019 - Present*
Researcher in Pattern Recognition and Intelligent System Development Laboratory
Supervisor: Prof. Qixiang Ye

Tsinghua University, Beijing, China *Oct. 2018 - Jul. 2019*
Research Assistant in 3D Image Lab
Supervisor: Prof. Huimin Ma

IEIT in Tianjin, Tsinghua University, Tianjin, China *Jun. 2018 - Aug. 2018*
Intern in Huaqing Ruishi (Tianjin) Technology Co., Ltd.
Mentor: Congxin Liu

RESEARCH INTERESTS

Computer Vision	Object Detection, Image Classification
Machine Learning	Active Learning, Semi-supervised Learning, Feature Learning

PUBLICATIONS (GOOGLE SCHOLAR)

[1] Multiple Instance Active Learning for Object Detection
Tianning Yuan, Fang Wan, Mengying Fu, Jianzhuang Liu, Songcen Xu, Xiangyang Ji, Qixiang Ye
IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2021

[2] Nearest Neighbor Classifier Embedded Network for Active Learning
Fang Wan, **Tianning Yuan**, Mengying Fu, Xiangyang Ji, Qingming Huang, Qixiang Ye
Thirty-Fifth AAAI Conference on Artificial Intelligence (AAAI), 2021

[3] Agreement-Discrepancy-Selection: Active Learning with Progressive Distribution Alignment
Mengying Fu, **Tianning Yuan**, Fang Wan, Songcen Xu, Qixiang Ye
Thirty-Fifth AAAI Conference on Artificial Intelligence (AAAI), 2021

PROJECTS

Object Detection Based on Weakly Supervised Learning *Jul. 2019 - Present*
Unifying of distribution alignment and sample selection for active learning
Risk reduction of over-estimating unlabeled samples in active learning
Informative image selection by re-weighting instance uncertainty with multiple instance learning

Algorithm Design of Zero-shot Learning in Occlusion Image Recognition

Oct. 2018 - Jul. 2019

Association establishment between visual space, semantic description space and class space
Sub-dataset generation with occlusion information (occlusion parts and geometric occluding objects)
Implementation of image recognition and classification with occlusion

Leision (Optic Disc) Segmentation of Fundus Photos *Jun. 2018 - Aug. 2018*
Data augmentation of high-resolution fundus photos
Cropping, rotation and background filtering of large-scale photos
Dilation and erosion of the segmentation results to improve recall and precision

Object Tracking Based on Infrared Images *May. 2018 - Jun. 2018*
Denoising and binarization of the image difference between frames
Placement of the tracking bounding box according to the center of gravity
Calculation of histogram similarity of the tracking bounding box between frames

Human-computer Interaction System Based on Kinect Equipment and SDK Tools

Mar. 2018 - Jun. 2018

Construction of Kinect somatosensory control system based on key points of the skeleton
Design of lock variables in continuous frames for instant action
Introduction of calibration and depth coordinates for immersion and substitution

Face Detection Based on Color Histogram *Jun. 2017 - Sep. 2017*
Determination of the face standard using the frequency of color appearance
Judgment of the similarity between the feature of a certain region and the face standard
Compromise between robustness and accuracy after the spatial processing

TECHNICAL SKILLS AND CERTIFICATES

Programming Languages	Python, MATLAB, C/C++
Deep Learning Frameworks	PyTorch, TensorFlow, Keras
Tools	LaTeX, MS Office, Ubuntu, Pycharm, Visual Studio, Vim
Python Packages	NumPy, Matplotlib, Scikit-learn
Simulator	NI Multisim, ModelSim, Xilinx Vivado, Altium Designer
Certificates	CET-6, NCRE in Level 2 (MS Office Advanced Application, C Language Programming, C++ Language Programming)

AWARDS

Merit Student of University of Chinese Academy of Sciences *2021, 2020*
The Second Prize Scholarship of University of Chinese Academy of Sciences *2021, 2020, 2019*
The Third Prize of the 9th and 8th Chinese Mathematics Competition (Non-mathematics) *2017, 2016*
The Third Prize of the 33rd Chinese College Student Physics Competition (Non-physics) *2016*