XIJIE HUANG (OWEN)

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EDUCATION

Shanghai Jiao Tong University — Shanghai, China
B.E. in Measurement, Control Technology, and Instrumentation — *Sept 2016 - June 2020*
School of Electronics Information and Electrical Engineering

- Overall GPA: 89.4/100 (91.3/100 for junior year) Ranking:2/55
- Advisor: Prof. Cewu Lu, Machine Vision and Intelligence Group, SJTU
- Advisor: Prof. Manhua Liu, Department of Instrument Science and Engineering, SJTU

University of California, Los Angeles — Los Angeles, USA
Visiting Research Student — *June 2019 - Sept 2019*

- Research intern to UCLA ECE department (Cross-disciplinary Scholars in Science & Technology Program)
- Overall GPA: 4.0/4.0
- Best Presentation Award (Among 90 students in CSST Program)
- Advisors: Prof. Mani B. Srivastava, Department of Electrical Computer Engineering, UCLA

RESEARCH INTERESTS

My research interests lie in the general area of artificial intelligence, particularly in deep learning, security and privacy, applications in computer vision and biometrics. More concretely, My research interests focus on human-object interaction (HOI) recognition, backdoor adversarial attack of DNNs, and low-quality fingerprint enhancement.

RESEARCH/PROJECT EXPERIENCE

Machine Vision and Intelligence Group, Department of Computer Science, SJTU
Undergraduate Research Assistant — *Sept 2017 - Present*

· Proposed Transferable Interactiveness Network to tackle the imbalanced distribution in human action recognition problems, especially human-object interaction detection problems
· Designed method that outperforms the previous state-of-the-art methods by 2.38, 3.06, and 2.17 mAP on three Default category sets on HICO-DET, 4.0 and 3.4 mAP on V-COCO
· Built the state-of-the-art knowledge base and engine of human activity understanding **HAKE**. HAKE provides elaborate and abundant with 7 M+ fine-grained part level annotations in a large scale of images and videos. In supervised, few-shot and transfer learning, our approach achieves significant improvements on large-scale activity benchmarks
· One paper has been accepted in CVPR2019, one paper has been accepted in CVPR2020, one paper on arxiv (co-author)

Networked Embedded Systems Laboratory, Department of Electrical Computer Engineering, UCLA
Undergraduate Research Assistant to Professor Mani Srivastava, ACM&IEEE Fellow — *June 2019 - Sept 2019*

· Designed an algorithm to detect Trojan backdoor in deep neural networks (i.e., whether a neural network has been compromised by malware that causes the model to produce incorrect results when the input includes special triggers.)
· Proposed a detection framework called **NeuronInspect**, using visual interpretability technique to effectively detect Trojan backdoors in deep neural networks without restoring the trigger and any backdoor samples
· Evaluate **NeuronInspect** on different attack scenarios and prove better robustness and effectiveness over previous state-of-the-art trojan backdoor detection techniques by a great margin
· One paper on arxiv (first-author)

Biometric Group, Department of Instrument Engineering, SJTU
Undergraduate Research Assistant for Graduation Thesis — *Feb 2019 - Present*

· Designed an end-to-end progressive Generative Adversarial Network to enhance latent fingerprint images. Using multi-scale generators and discriminators to maintain both global and local features of the fingerprint
· Proposed a multi-task loss function for GAN considering the correctness of orientation, quality, and minutiae preservation.
· Optimized the fingerprint segmentation, feature extraction and recognition algorithm based on enhanced results. Achieved state-of-the-art matching accuracy on NIST SD27 dataset
· One paper has been accepted in CVPR2020-Workshop (first-author)

PUBLICATIONS & PRE-PRINT

Transferable Interactiveness Knowledge for Human-Object Interaction Detection
Yong-Lu Li, Siyuan Zhou, **Xijie Huang**, Liang Xu, Ze Ma, Hao-shu Fang, Yanfeng Wang, Cewu Lu
IEEE Conference on Computer Vision and Pattern Recognition (CVPR) 2019 (Acceptance Rate: 25.15%)

Transferable Interactiveness Knowledge for Human-Object Interaction Detection
Yong-Lu Li, Xinpeng Liu, Xiaoqian Wu, **Xijie Huang**, Liang Xu, Cewu Lu
To be appeared on IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)

PaStaNet: Toward Human Activity Knowledge Engine
Yong-Lu Li, Liang Xu, Xinpeng Liu, **Xijie Huang**, Shiyi Wang, Hao-Shu Fang, Cewu Lu
IEEE Conference on Computer Vision and Pattern Recognition (CVPR) 2020 (Acceptance Rate: 22.09%)

Latent Fingerprint Image Enhancement based on progressive generative adversarial network
Xijie Huang, Peng Qian, Manhua Liu
IEEE Conference on Computer Vision and Pattern Recognition (CVPR) 2020 Biometric Workshop

NeuronInspect: Detecting Backdoors in Neural Networks via Output Explanations
Xijie Huang, Moustafa Alzantot, Mani.B.Srivastava
Preprint

HAKE: Human Activity Knowledge Engine
Yong-Lu Li, Liang Xu, Xinpeng Liu, **Xijie Huang**, Ze Ma, Hao-Shu Fang, Cewu Lu
Preprint

SELECTED ACADEMIC ACHIEVEMENTS

National Scholarship (Top 2% students in Shanghai Jiao Tong University)	2017
A Class Scholarship (Top 2% students in Shanghai Jiao Tong University)	2017
Second Prize in China Undergraduate Mathematical Contest in Modeling, Shanghai Division.	2017
Endress+Hauser Scholarship, Endress+Hauser Inc.	2018
B Class Scholarship (Top 10% students in Shanghai Jiao Tong University)	2018
Meritorious Winner in MCM & ICM, Comap.	2018
CSST Scholarship (USD $5,343) University of California, Los Angeles	2019
Best Presentation Award (Among 90 research interns at UCLA)	2019
RongChang Academic Scholarship (Highest honor in Shanghai Jiao Tong University, **Top 20** of 16000 students)	2019
A Class Oversea Research Fellowship	2019
8th place in ICCV 2019 Person In Context Human-Object Interaction Challenge	2019

EXTRACURRICULAR EXPERIENCES

Volunteer in Shanghai International Marathon	Oct, 2016
Volunteer in China-Korea Symposium on Artificial Intelligence and Brain Science	Oct, 2019

COMPUTER AND LANGUAGE SKILLS

Natural Languages	Chinese (native), English (fluent), Japanese(fluent)
Programming Languages	Python, MATLAB, C, C++
Deep Learning Framework	TensorFlow, Keras
Miscellaneous Skills	LaTeX, Altium Designer, Proteus, LabVIEW

STANDARD TEST

TOEFL	105 (Reading:28 Listening:30 Speaking:24 Writing:23)
GRE	322 (Q170+V152) + 3.5(AW)