YUDA FAN

+86 18951228326 ◇ KurodaKanbei@sjtu.edu.cn ◇ Homepage
1605 Melrose Valley Ct ◇ Urbana, IL 90024

EDUCATION

Shanghai Jiao Tong University *Sep. 2016 - Present*
Bachelor of Engineering in Computer Science
GPA: 3.90/4.30 (Rank 7/37)

ACM Honor Class is an elite CS program for top 5% students at SJTU

Visiting Students at University of Illinois at Urbana Champaign *Jul. 2019 - Present*
Research Assistant to Prof. Bo Li

· Focused on adversarial machine learning, robust verification, and defending deepfakes.

RESEARCH EXPERIENCE

MVIG, Shanghai Jiao Tong University Jul. 2018 - Present
Research Assistant to Prof. Cewu Lu *Shanghai, China*

· **3D Indoor Scene Understanding**: Combine PointNet with MaskRCNN to utilize different representations of objects, bettering the instance level semantic segmentation;
Establish an efficient tool to eliminate the wrong examples generated by the failure of rendering.

· **3D Active Vision For Grasping and New Benchmarking**: Build up a brand new dataset to bridge the gap between the synthetic and real world. Employ Wide-ResNet, Inplace-ABN,and MaskRCNN to evaluate the quality of the dataset. Utilize reinforcement learning with reward function constructed by visual difference to solve viewpoint optimization. *paper submitted to CVPR 2019*

· **3D Real Embodied Dataset and Transferable Active Grasping**: Based on the previous work, improve the viewpoint optimization stage to overcome the sparse reward in grasping problem, getting more reliable grasping algorithm and better success rate. *paper submitted to ICRA 2020*

Visiting Students, University of Illinois at Urbana-Champaign Jul. 2019 - Present
Research Assistant to Prof. Bo Li *Urbana, IL*

· **Expose Deepfake's Artifacts via Temporal Consistency**: Follow the prior work 'AdvIT: Adversarial Frames Identifier', try to detect face forensics by comparing the warped frame with original frame via downstream tasks.

· **Improve Ensemble Robustness by Diversifying Gradients**: Employ gradients spanning volume, centered kernel alignment of logits as the measure of diversity, greatly improving the robustness under heuristic evaluation.

· **Improve Semantic Segmentation Robustness via Spatial Dropout**: Mask out part of the input image to defend the adversarial attacks, improving benign accuracy on cityscapes dataset.

Visiting Students, University of Illinois at Urbana-Champaign Sep. 2019 - Present
Research Assistant to Prof. Bin Hu *Urbana, IL*

· **Efficient Estimation of Lipschitz Constant of Recurrent Neural Networks**: Employ semidefinite programming to efficiently estimate the upper bound of Lipschitz Constant of RNNs, getting a non-trivial bound under the condition that the spectral radius of weights matrix is less than 1.

PUBLICATIONS

Xiangyu Chen*, Zelin Ye*, Jiankai Sun, **Yuda Fan**, Fang Hu, Chenxi Wang, and Cewu Lu, 'Transferable Active Grasping and Real Embodied Dataset', *submitted to ICRA 2020* * denotes equal contribution

SELECTED COURSE PROJECTS

CS492: Reinforcement Learning Jun. 2019
Prof. Zhihua Zhang *Shanghai, China*

· Fight with Landlord: Combine hand decomposition module and Hierarchy Reinforcement Learning to learn the subgoals of card games.
· 95/100, Rank:2/67.

MS208: Compiler Design and Implementation Jun. 2018
Dr. Rong Ma *Shanghai, China*

· Mx* Compiler: Designed a compiler implemented in Java from scratch, translating Mx* code into x64-nasm code.
· Implemented optimizations for the compiler, faster than gcc O1 on test set.
· 97/100, Rank: 4/41.

MS110: Operating System Jun. 2018
Prof. Alei Liang *Shanghai, China*

· NachOS: Implemented the whole kernel of a UNIX operating system, including threads, file system, network, virtual memory, etc.
· 96/100, Rank: 8/41.

AWARDS & HONORS & NOMINATION

2017 Rong Chang Scholarship: Top 0.02% of Shanghai Jiao Tong University *Oct. 2017, SJTU*

2016-2018 The First Prize Scholarship: Top 5% of Shanghai Jiao Tong University

1st Runner Up, ACM-ICPC 2017-2018 Hua-Lien Regional Contest *Nov. 2017, Taiwan*

Gold Medal 19th place, ACM-ICPC 2017-2018 Asia ECL Final *Dec. 2017, Shanghai*

Gold Medal 6th place, ACM-ICPC 2017-2018 Xi'an Regional Contest *Oct. 2017, Xi'an*

Gold Medal 9th place, ACMICPC 2016-2017 Myanmar Regional Contest *Dec. 2016*

Gold Medal 9th place, CCPC 2017 Hangzhou Regional Contest *Nov. 2017*

Gold Medal 7th place, ACM-ICPC 2016-2017 Xi'an Invitation Contest *May. 2017*

Gold Medal 16th place, CCPC 2016 Hefei Regional Contest *Oct. 2016*

Problem Setter of NOI 2019 *Jun. 2019*

TECHNICAL STRENGTHS

Programming Languages	C++, Java, Python, Lua, Verilog
Deep Learning Frameworks	TensorFlow, Theano, PyTorch, Torch