

# YUDA FAN

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## EDUCATION

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### Shanghai Jiao Tong University

Sep. 2016 - Jun. 2020

*Bachelor of Engineering in Computer Science*

GPA: 3.91/4.30 (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 - Dec. 2019

*Research Assistant to Prof. Bo Li*

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

## RESEARCH EXPERIENCE

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### MVIG, Shanghai Jiao Tong University

Jul. 2018 - Jun. 2020

*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 - Dec. 2019  
*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 - Dec. 2019

*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

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

## SELECTED COURSE PROJECTS

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### 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

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**Outstanding Graduate of Shanghai Jiao Tong University** *Jul. 2020, SJTU*

**Problem Setter of Chinese Computer Federation NOI 2019** *Jun. 2019*

**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*

## TEACHING EXPERIENCE

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**Lecturer & Teaching Assistance**

CS477 Combinatorics (Spring 2020)