YUDA FAN

mistergalahad@gmail.com ⋄ Homepage

EDUCATION

Shanghai Jiao Tong University *Sep. 2016 - Jun. 2020*
Bachelor of Engineering in Computer Science, ACM Honor Class
GPA: 3.92/4.30, 90.3/100 (Rank 6/38)

ETH Zürich *Sep. 2021 -*
Master of Science in Computer Science, D-INFK
Direct Doctorate Program in Computer Science

RESEARCH EXPERIENCE

MVIG, Shanghai Jiao Tong University Jul. 2018 - Jun. 2020
Research Assistant to Prof. Cewu Lu *Shanghai, China*

· **CyberPanda: A Universal Robotic Arm Simulator Towards Photorealistic Visual Perception**: Propose a novel universal robotic arm simulator with photorealistic visual feedback;
Integrate the remote procedure call system, rendering pipeline and physics engine in the platform.
Empower users to construct scene, collect data and conduct simulation. *Undergraduate Thesis*

· **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. *ICRA 2020*

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.

Meituan - Sankuai Technology Co., Ltd. Jul. 2020 - Feb. 2021
System Architecture Group *Beijing, China*

· **AutoVision**: A platform to automatically conduct neural architecture search, model compression and hyperparamters optimization.

· **Memory-Efficient Neural Architecture Search**: Propose a training scheme to eliminate the performance collapse in memory-efficient fashion. *Awarded with the highest level patent in 2020 Q4.*

CADMO, ETH Zürich Sep. 2021-
Emo Welzl's Group *Zürich, Switzerland*

· **Unique Sink Orientation and USO Polytope**: We study the combinatorial structure of all the USOs of the same cube. We characterize the symmetric difference map between any oridnary USO and the uniform USO. We figure out all the affine transformations under which the USO polytope remain the same.

· **Hidden Points and Hidden Vertices in Class of Polygons**: We study the hidden point and hidden vertex problem from two perspectives:

From the global perspective, we prove that the hidden point problem is in existential theory of the reals, and it can be decomposed into exponential number of QCQPs. Further, we proved that the VC-dimension of visible area set system is bounded by the logarithm of reflex vertices, and so on.

From the local view, we introduce novel techniques such as convex/reflex chains, continuous visibility graph and rectilinear visibility decomposition. We found (partial) solutions for spiral polygons, funnel polygons, pseudo-triangles, 2-convex polygons, terrains, and staircase polygons. We propose the first approximation scheme for hidden points in polygon with holes.

PUBLICATIONS

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

Xiaoxing Wang*, Xiangxiang Chu*, **Yuda Fan**, Zhexi Zhang, Junchi Yan, *ROME: Robustifying Memory-Efficient NAS via Topology Disentanglement and Gradients Accumulation, ICCV 2023*

AWARDS & HONORS

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

2016-2018 The First Prize Scholarship: Top 5% of SJTU

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

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

1st Runner Up, ACM-ICPC 2021-2022 Swiss Subregional, Individual *Nov. 2021, Zürich*

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*

COMMUNITY SERVICE

Problem Setter: CCF NOI 2019, CCPC 2018, ICPC EC Final 2021 *2018-2022*

Coordinator: ICPC Swiss Subregional 2022, 2023

Competitive REL Judge: Pro tour Bacelona, Preliminary PTQ, Regional PTQ *2023*

Broadcast Talent: ITSL 2021, TS Chinese Open Cup 2020, TS Chinese Master 2021

TEACHING EXPERIENCE

Lecturer & TA   CS477 Combinatorics (Spring 2020)

PROGRAMMING PROFICIENCY

Expert: Pascal
Efficient: C, C#, Rust, Python