Yuhan Wang

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EDUCATION

Zhejiang University (ZJU), Hangzhou, Zhejiang, China

- B.S. in **Computer Science and Technology** — Sep 2017 – Jun 2021
- Member of **Chu Kochen Honors College**, Mixed Class
  - selects top 6% of students in ZJU
- Advisor: Prof. Deng Cai and Prof. Can Wang
- **GPA:** 4.59/5, 3.97/4, **Rank:** 1/145 (at CKC) Top 5% (at ZJU)
- **TOEFL:** 109 (R: 29, L: 28, S: 24, W: 28)   **GRE:** 323 (V: 153, Q: 170, W: 4)
- **Core Courses:** Introduction to Data Mining (99), Linear Algebra (98), Fundamentals of Data Structures (98), Probability and Mathematical Statistics (97), Digital Logic Design (97), Numerical Analysis (96), Computer Vision (95), Compiling Principle (94), Object-Oriented Programming (94), Advanced Data Structure and Algorithm Analysis (94), Mathematical Analysis (94), B/S Software Design (93), Discrete Mathematics and Application (93), Image Analysis and Artistic Processing (93), Computer Organization (92), Operating System (91), Database Systems (90)

University of California, Los Angeles(UCLA), USA

- UCLA CSST Program, Research Intern — Jul 2020 – Sep 2020, Cancelled
- Cross-disciplinary Scholars in Science and Technology (**CSST**)
- Select 90 students out of 1000+ candidates from top-tier universities in China and Japan to conduct research. **This program is cancelled due to 2020 COVID-19 situation.**

RESEARCH INTERESTS

- Computer Vision: Face Manipulation and Generation, Face Classification, Multi-Object Tracking
- Auto Machine Learning: Neural Architecture Search
- Graph: Graph Structure Learning, Unsupervised Learning on Graph

PUBLICATIONS

[1] **Yuhan Wang***, Xu Chen*, Junwei Zhu, Wenqing Chu, Ying Tai, Chengjie Wang, Jilin Li, Yongjian Wu, Feiyue Huang, Rongrong Ji "RealFace: 3D Shape and Semantic Prior Guided High Fidelity Face Swapping," Under review of *IJCAI 2021*, Aug 2021.

[2] Yuge Huang, **Yuhan Wang**, Ying Tai, Xiaoming Liu, Pengcheng Shen, Shaoxin Li, Jilin Li, Feiyue Huang "CurricularFace: Adaptive Curriculum Learning Loss for Deep Face Recognition," in *CVPR 2020*, Virtual Online, Jun 2020.

SELECTED RESEARCH EXPERIENCE

Tencent Youtu Lab, Tencent Shanghai

- Supervisor: Dr. Ying Tai and Junwei Zhu — Nov 2020 – Now
- *Research on High Fidelity Face Swapping Method that supports Face Shape Preserving.*
  - Proposed an one-stage face swapping model, called RealFace, that can well preserve the face shape of the source face and generate photo-realistic forgery images.
  - Introduced 3D shape-aware identity and Semantic Facial Fusion Module (SFF) for the generative model, which are respectively designed for face shape control and background inpainting.
  - Used 3DMM and 3D face reconstruction method to realize geometric supervision for face shape control.
  - Conducted extensive experiments on both qualitative and quantitative comparison with SOTA methods, showing our advantages in fidelity and identity (especially face shape) preserving.

Active Robotic Sensing (ARoS) Laboratory, North Carolina State University

- Supervisor: Prof. Edgar Lobaton and Dr. Yuhan Chen — Jul 2020 – Sep 2020
- *Tracking-by-Detection Based Pedestrian Recognition in Infrared Video*
  - Used YOLOv3 and YOLOv4 as the detector, combining with Deep SORT algorithm as the tracker.
  - Our model achieves a 25% recall performance on a very low resolution scenario and has no person ignorance case.
  - Designed for railway alert system on both day and night. This work is still under optimization and will be published.

Tencent Youtu Lab, Tencent Shanghai

- Supervisor: Dr. Ying Tai — Jul 2019 – Sep 2019

- *Research on Deep Face Classification and Neural Architecture Search.*
  - Focused on applying mobile setting NAS algorithms to the feature extraction backbone for deep face classification.
  - Proposed a restriction allowed backbone optimization structure using one-shot NAS and evolutionary algorithm.
  - Focused on optimizing the loss function for deep face classification, based on an insight of addressing easy samples in the early training stage and hard ones in the later stage.
  - Proposed a novel Adaptive Curriculum Learning loss (CurricularFace) that embeds the idea of curriculum learning into the loss function to achieve a novel training strategy for deep face recognition.

AWARDS & SCHOLARSHIPS

Sensetime Scholarship (**21** students in China)	Jan 2021
National Scholarship (top **1.5**%)	Nov 2020
Provincial Government Scholarship, Zhejiang Province (top **2**%)	Oct 2019
Chu Kochen Honors College Top Student Scholarship – Innovation Prize (10/500+)	2019, 2020
Zhejiang University Scholarship - First Prize (top **3**%)	2020
Zhejiang University Scholarship - Second Prize (top **10**%)	2018, 2019
Four gold medals and two silver medals in ICPC and CCPC contests.	2017 – 2018

DISCIPLINE COMPETITION

ZJU ACM ICPC (International Collegiate Programming Contest) Team,
Member, Advisor: Prof. Can Wang   2017 – 2019

- I participated in 6 ICPC/CCPC Asia Regional Contest, won 4 gold medals and 2 silver medals. I also have a 2017 EC-Final (East Continental Final) experience and won a bronze medal.
- Gold medal is awarded to top 10% teams of a contest, while there are normally 200 - 300 teams of three.
- Gold Medal List
  - ACM-ICPC Asia Regional Contest Xi'an Site 2017, rank 17/357
  - ACM-ICPC Asia Regional Contest Nanning Site 2017, rank 9/227
  - ACM-ICPC Asia Regional Contest Shenyang Site 2018, rank 10/190
  - China Collegiate Programming Contest (Hang Zhou), 2017, rank 12/190

OTHER WORK EXPERIENCE

Fabu Technology, Hangzhou, Zhejiang, China

- Software Engineer in System Engineering Group and Perception Group   Dec 2018 – Jun 2019
  - In system engineering group, wrote codes to apply new message service system to a conti-radar.
  - In perception group, conducted experiments on feature extraction backbones for 3D object detection under autonomous driving problem. Researched on global view segmentation.

OPEN-SOURCE PROJECTS

Our Pascal Compiler, [code]

- Implement a Pascal Compiler using C++ and LLVM backend, roughly 7000 lines in total.
- Very robust to syntax error and achieve most features of Pascal language, including recursively defined functions and local variables access.

My MUA, [code]

- Implement a MUA Interpreter using Java, where MUA is a functional language designed by Kai Weng.

MiniSQL Database Engine, [code]

- Implemente a SQL database engine using B+ trees and supported storing and loading of the data.
- Developed in C++ and have only two developers. Support efficient query and modification using indexes.

Book Management System, [code]

- Use Java and JDBC to design a GUI program of book management system for libraries.

Pumpkin Battle, [code]

- A first perspective shooting pumpkin game in a scene with breakable and bouncing walls.
- Developed in C++ and OpenGL with no help from any game engines. Support light tracking and shadow.

SKILLS

Programming: C, C++, Java, Python, Linux Bash, Verilog

Research Tool: PyTorch, LaTeX

INTERESTS

Sports: All ball games, especially basketball and badminton.

Go Game: I am an amateur level 3 player in China.

[CV compiled on 2021-04-18]