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Qitao Zhao

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Education

Shandong University 2019.9 — 2023.6 (expected)
Bachelor in Communication Engineering
Overall GPA: 93.94/100 Major GPA: 95.95/100 Rank: 2/21 in Chongxin College
Relevant Courses: Machine Learning, Pattern Recognition and Deep Learning (95); Information Theory, Coding and Security (95); Labs of Deep Learning (97); Digital Signal Processing (97); Digital Image Processing (100); Probability and Statistics (100);

Research Interests

My research interests mainly lie in computer vision, including human pose estimation, cross-view gait recognition. I am also interested in applying conventional signal processing techniques in computer vision, which I believe may bring new insights to many computer vision tasks.

Project Experiences

3d Human Pose Estimation **2022.4 — Present**
Research Intern Advisor: Prof. Chen Chen *CRCV, University of Central Florida*

- We designed a novel method to efficiently utilize long input sequence for 3d human pose estimation from a perspective in frequency domain. We showed that low-frequency coefficients are compact representation for input 2d joint series.
- "PoseFormer V2: Scaling Up Receptive Field with Adaptive Sampling and Low-pass Filtering" (first authored) is in the process for CVPR 2023. We hope this work would draw more attention to frequency-based method in skeleton-based tasks.

Cross-view Gait Recognition **2021.9 — 2022.4**
Research Intern Advisor: Prof. Xianye Ben [An intermediate summary] [Slide] *DPAI Lab, Shandong University*

- Reproduction of SOTA models: Implemented state-of-the-art models (*e.g.* GeitSet, GLN, GaitPart) on multiple GPUs.
- Contest: Ranked 5th on HID 2022 (International Competition on Gait Recognition) at best with a transformer-based model.
- National patent: Authorship of patent "Multi-stage pyramid network for cross-view gait recognition".
- I served as a student reviewer for several journal papers on gait recognition.

Course Project: Self-driving Assistance System with Car-detection **2021.9 — 2021.12**

- Implemented a real-time YOLOv4 model on hardware using a web camera as video input with a 3d-printed container.
- Designed a webpage using *Streamlit* to visualize detection results and system information plus weather condition and road map.
- Source code for the project has been released on GitHub.

Course Project of DL Experiments: Real-time Style Transfer **2021.12**

- Read conference papers of Style Transfer.
- Implemented the model based on *Zhang et al*. "Multi-style Generative Network for Real-time Transfer" in ECCV 2018 workshop.
- Inference on RTX 2080ti and transfer resulting images using *Socket*.
- Webpage design using HTML and VUE.

Online Course Learning: Stanford CS231n-2021 **2021.7 — 2021.8**

- Learned Deep Learning basics via videos and assignments.
- Read classic Deep Learning papers, *e.g.* LeNet-5, ResNet, GAN, Transformer.
- My solution to CS231n-2021 assignments has been released on GitHub.

Summer Course Learning: Digital Image Processing **2021.7**
Instructor: Prof. Xiaolin Wu

- Learned Digital Image Processing basics.
- Course Project: Demosaic using Linear Regression with Python.
- I got a full mark for impressive project achievements and presentation.

Selected Awards

National Scholarship Awarded top 0.2% students national-wide by Ministry of Education of P.R. China, 2020
First-class Scholarship Awarded students of excellent academic performance (top 5% in Shandong University) in 2020, 2022

Skills

- Tools and Languages
  - Python, C, Git, LaTeX, MarkDown, Microcontroller Unit
- Deep Learning Research
  - Pytorch, MATLAB, matplotlib, OpenCV, Numpy, Streamlit