Qitao Zhao

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Education

- **Shandong University** — Qingdao, China
  Bachelor in Communication Engineering — *Sept. 2019 – June 2023 (expected)*
  *GPA: **94.44**/100, Major GPA: **95.95**/100, Rank: 2/21 in* Chongxin College *(Elite Class in Electronic Engineering)*
  ***95+ Courses:** Machine Learning, Pattern Recognition and Deep Learning; Information Theory, Coding and Security; Labs of Deep Learning; Digital Image Processing; Digital Signal Processing; Communication Principles; Probability and Statistics and 15 others*
  Note: Members from Chongxin College are top 5% engineering students selected across Shandong University in the first year. I was picked mainly because of my outstanding academic performance. (I ranked **1/140** in my original department)

Research Interests

- Computer Vision: 3D vision, human pose estimation, vision transformer, video understanding.
- Interpretability of Deep Learning: Questions such as "why do vision transformers work?".
- Image processing techniques in deep learning e.g., Fourier Transform.

Research Experiences

- **Multi-person 3D Human Pose Estimation** — CRCV, University of Central Florida
  Research Intern, advised by Prof. Chen Chen — *Apr. 2022 – Present*
  - **Paper Review**: Did a thorough survey for progress in multi-person HPE of recent years.
- **Cross-view Gait Recognition** — DPAI Lab, Shandong University
  Research Intern, advised by Prof. Xianye Ben — *Sept. 2021 – Apr. 2022*
  - **Preliminaries**: Read 20+ papers related to gait recognition and implemented state-of-the-art models.
  - **Tutorial**: Gave a talk on CVPR'21 paper "Cross-View Gait Recognition with Deep Universal Linear Embeddings" for graduate students in the group.
  - **Competition**: Worked on HID 2022 (International Competition on Human Identification at a Distance), where I obtained rank top 5 at the best.
  - **Achievement**: Designed a novel time-dilated network, outperforming SOTAs on CASIA-B dataset.

Projects

- **Course Project: Self-driving Assistant System with Car-detection**: Implemented YOLOv4 real-time object-detection model on HUAWEI Atlas 200 Developer Toolkit (powered by Ascend AI processor) and visualized detection results (e.g., pedestrians, cars), a road map and weather information on a web page. Tech: Python, Pytorch, Streamlit, Raspberry Pi (Sept. 2021 — Dec. 2021) github.com/QitaoZhao/Car-Detection-Streamlit
- **Course Project: On Camera Real-time Style Transfer**: Implemented Zhang et al. ECCVW'18 "Multi-style Generative Network for Real-time Transfer" with video stream from web camera as input, achieving real-time style transfer. Tech: Python, Pytorch, Socket. (Dec. 2021)
- **Online Course Learning: Stanford CS231n-2021**: Studied deep learning fundamentals with course videos, read classic deep learning papers (e.g., LeNet-5, ResNet, GAN, Transformer) and finished all assignments. Tech: Python, Pytorch, Numpy (Jul. 2021 – Aug. 2021) github.com/QitaoZhao/Solution-to-CS231n-2021
- **Summer Course Learning: Digital Image Processing**: Studied image processing skills, restored images from their mosaic patterns using Linear Regression in course project and finally got a full mark for outstanding project achievement and presentation. Tech: Python, Numpy (Jul. 2021) Instructor: Prof. Xiaolin Wu
- **Course Project: Electronic Perpetual Calendar**: Created an electronic calendar with LCD from scratch, which gathered environmental information, functioned as an alarm clock and a music player. The whole process included PCB(printed circuit board) design, programming, simulation, electronic devices welding and physical testing. Tech: C, Micro Control Unit (Mar. 2021 – Jul. 2021)

Selected Awards

- **National Scholarship** — Ministry of Education, China
  Awarded top 0.2% undergraduate students national-wide. — *2020*
- **First/Second Class Scholarship** — Shandong University
  Awarded top 5%/10% students across Shandong University. — *2020/2021*

Skills Summary

- **Tools and Languages**: Python, C, Git, LaTeX, Markdown, PCB design
- **Deep Learning Research**: Pytorch, MATLAB, matplotlib, OpenCV, Numpy, Streamlit
- **Platforms**: Linux, Mac-OS, Micro Control Unit