Zhaoying Pan

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Skills

Languages: Python, C, Matlab, Verilog, LaTeX, HTML(familar) and JavaScript(familar).
Libraries: Numpy, PyTorch, OpenCV, Dlib, Matplotlib, TensorFlow(familiar).

Education

University of Michigan Ann Arbor, USA
Master of Science in Electrical and Computer Engineering *2021 - 2023(expected)*

- Major in Computer Vision
- GPA: 4.0/4.0

University of Chinese Academy of Sciences Beijing, China
Bachelor of Engineering in Electronic and Information Engineering *2017 - 2021*

- GPA: 3.59/4.0
- Thesis Title: Image Caption Generating of High-Resolution Remote Sensing images.
- Advisor: Xian Sun, Kun Fu at Chinese Academy of Sciences.

Research Experience

Aerospace Information Research Institute, Chinese Academy of Sciences Mar. 2021 – Aug. 2021
Research Intern *Advisor: Xian Sun*

- Learned and adapted CycleGAN to remove fog in images.

Institute of Computing Technology, Chinese Academy of Sciences Jul. 2020 – Oct. 2020
Research Intern *Advisor: Yiqing Zhou*

- Developed the low-latency I2S controller on FPGA.
- Investigated video compression algorithms based on JPEG XS.

Aerospace Information Research Institute, Chinese Academy of Sciences Aug. 2020 – Oct. 2020
Summer Research Intern *Advisor: Xian Sun, Kun Fu*

- Reviewed object detection algorithms, including Faster-RCNN, YOLO v3, and YOLO v4.
- Applied YOLO v3 to the DOTA dataset(a remote-sensing dataset) to detect objects in remote sensing images.

Aerospace Information Research Institute, Chinese Academy of Sciences Jul. 2019 – Aug. 2019
Summer Research Intern *Advisor: Xian Sun, Kun Fu*

- Learned and adapted simple CNN and LSTM on MNIST dataset with PyTorch, *show and tell* algorithm on UCM dataset with TensorFlow.

Projects – Computer Vision

Facial Expression Editing Oct. 2021 – Dec. 2021

- Adapted the first order motion model to edit facial expressions.
- Designed and implemented a weighting mechanism to improve the performance.

DeepFake Images Detection Oct. 2021 – Dec. 2021

- Designed and implemented a simple classifier and a Siamese network from scratch to detect DeepFake images.
- Reimplemented a EfficientNet-based classifier with Siamese-style training strategy.

Thesis: Image Caption Generating of High-Resolution Remote Sensing images Nov. 2020 – Apr. 2021

- Reviewed image captioning algorithms, including show and tell, show attend and tell, transformer, attention on attention
- Applied the above four algorithms to three remote-sensing image dataset(Sydney-Captions Dataset, UCM-Captions Dataset, RSICS Dataset)
- Compared and analysed the results qualitatively and quantitatively.

Location and segmentation of license plate's characters Jun. 2020

- Designed and implemented algorithms to locate the license plate and segment the characters in Matlab.

Projects – Hardware and else

Development of portable ECG machine based on FPGA Feb. 2020 – May. 2020

- Designed and developed the portable ECG(Electrocardiogram) machine in a group of 5
- Involved in PCB design, signal processing simulation on Matlab, and FPGA Bluetooth communications.

FPGA-based developing experiment Sept. 2019 – Dec. 2019

- Designed and implemented Verilog programs on Xilinx EGO1, including sequence detector, keyword statistics, frequency meter, and UART serial port transceiver.

Gobang game program based on C language Aug. 2018 – Jan. 2019

- Developed a Gobang game program in C, supporting two-player mode and player-machine mode.

iGEM Project: Light-regulated expression system of multiple pigment proteins Sept. 2017 – Sept. 2018

- Conducted experiments for modeling.
- Organized hardware design to assist wet lab experiments.
- Involved in developing our website in HTML to present our project (our wiki).

Awards and Honors

Thesis with Distinction, *University of Chinese Academy of Sciences* 2021

Academic Excellence Scholarship of Second class, *University of Chinese Academy of Sciences* 2019

Merit Student, *University of Chinese Academy of Sciences* 2018 – 2019

Gold Medal, Best Open Project, *International Genetically Engineered Machine (iGEM) Foundation* 2017 – 2018