Yang HUANG

Tel: +8613261611722; E-mail: m13210889156@outlook.com

Education

Beijing Jiaotong University (BJTU), Beijing, P.R. China 09/2017-06/2021

• Major: Electronic Engineering & Computer Science (dual major)

• Current accumulative GPA: 3.81/4.00; Weighted average score: 89.4/100

• Relevant Coursework: Probability and Mathematical Statistics (98); Geometry & Algebra (93); Calculus B I & II (92 & 91); Complex Function and Integral Transform A (91); Object-oriented Programming & C++ (91); Signals & Systems (91); Data Structure A (89); Analog Electronics Technique (88); Digital Signal Processing (85).

Publication

Miaoran Chen, Duojia Yang, Ziyi Yuan, **Yang Huang**, Shunchang Liu; *Heterogeneous face recognition: Multi-model fusion and Siamese Network*, ICMIP 2020 -EI Conference.

Project Experience

Non-Rigid 3D Shaperetrieval Based on Points Cloud Neural Network (Mentor: Zhouhui LIAN) 04/2019- Ongoing

- Developed a non-rigid 3D models with a expanded data sets to deformed postures based on SHREC11; collected and made models for creating a large-scale 3D model point cloud dataset based on 3Dmax and Meshlab and provided multiple data formats.
- Designed and trained a new network module for extracting features of non-rigid 3D models based on its postural invariance
- Retrieved and segmented the model based on non-rigid 3D model; combined the characteristics of geometric with the point neural network to analyze the main features of the non-rigid 3D model and achieved efficient retrieval.

Design of a Low-rank Convolutional Neural Networks (Mentor: Zhouhui LIAN) 06/2019- 09/2019

- Designed a low-rank point cloud convolutional neural networks in python to achieve plugin and play for image quality improvement, noise reduction, and the reduction of contour contortion.
- Implemented the tests on several SOTA models and data sets: acades, cityscapes to improve the quality of the low frequency part and significantly lower the FIDscore.

Next:

- Balance the low-rank component and sparse part on high resolution atlas with less loss of high frequency detail in image.
- Conduct the experience on the coarse to fine network; respectively generated the low-frequency contour and realistic details; observe the quality of the low resolution part and verify its feasibility as high resolution pictures.

Heterogeneous Face Recognition: Multi-model Fusion and Siamese Network 05/2019- 011/2019

- Aimed to advance the efficiency of the heterogeneous face recognition in capturing the common features of images.
- Designed an end-to-end network with fused neural networks to extract face features, improving the identification ability of the model.
- Adopted the Pseudo-Siamese Network, integrated contrastive loss and binary cross entropy loss to complete the identification work.
- Applied the Caricature-Visual dataset which well-performed on identifying unseen images of people in datasets, and work well on identifying new images of people that are not included in dataset.

Research on Shooting Compilation Clipping Method of Football Match Videos 03/2019-03/2020

- Developed a program which could upload unprocessed fixed-view panoramic videos of the same field through a visual interface, auto-identify and locate football shooting actions using algorithm and edit them into video compilations.
- Carried out pre-processing modeling and deblurring based on background priori information to separate moving object from original background, then used the algorithm to extract current frame position and trajectory of the football.
- Utilized frame difference method and background difference method to conduct experiments and make adjustments, so that the soccer under panoramic video could be accurately identified from a large number of targets, and implemented the experimental exploration on the generated class model and discriminant class mode.

- Took into consideration the characteristics of soccer and players in football matches to improve the algorithm based on OpenCV and Visual Studio experiments and seek the optimal solution for football trajectory tracking.

Modeling Transportable Response Drone System for Medical Supply and Video Reconnaissance 02/2019

- Divided the problem into the model of searching for best location, 3D container packing problem and path planning model with multiple goals.
- Simulated real conditions through improved genetic algorithm, accumulating the shortest path and locate the best loci.
- Took heuristic algorithms and genetic algorithm as reference to achieve the best space utilization.
- Adopted the combined algorithm and multi-objective optimization along with analysis of the requirements of Puerto Rico to provide optimal strategy for the combo of medical packages and drones, as well as optimal space utilization.
- Incorporated square searching model and path planning model to design flight route and time schedule for individual drones and the best road network with low coincidence.

Electronic Organ *(Mentor: Wenxiu FU)* 08/2019

- Chose JD-51 single chip computer to design an electronic organ, which integrated remote control keys, music playing and recording functions.
- Realized the signal remote control by linking the control button with infrared remote controller in the test box, while the music playback and recording realized the analog keys of the electronic organ based on remote control button 1-8.
- Selected P2.4 as the I/O foot to generate square wave on the single chip computer. Connected the driving circuit of the buzzer to P2.4 of the single chip computer through jumper selector, which made the buzzer produce different sound according to the output square wave of different frequencies.

Analog Sound Console *(Mentor: Rui WANG)* 07/2019

- Designed and made an analog sound console which could select, amplify and mix the dual-channel audio signal input through audio line and the speech signal input through the electret microphone, and had a certain output driving ability.
- Achieved circuit amplification with single power supply inverted-phase amplifier, used a single power supply reverse adder to realize three-way mixing and dual-channel to mono-channel, and obtained results through TINA simulation.
- Accomplished mode conversion and signal reception of key circuit by touching switch and single chip computer software, and controlled the power switch with the single chip computer.
- Connected the two keys controlling “volume+” and “volume-” to the MCU, and manipulated the resistance of the NC potentiometer X9313 through increasing or decreasing the direction of resistance of the MCU, which set up 8 volume files with each possessing 4 step resistance changes.
- Simulated the function of adding and subtracting the volume of MCU to realize the switching between high and low volumes. Wrote the program about key switch scanning and NC potentiometer control.
- Tested the amplifier, hybrid and background music suppression circuits, mode control and digital volume control.

Awards

- Awarded Meritorious Winner in the Mathematical Contest in Modeling. 04/2019
- Won 2nd prize of natural science thesis in BJTU’s 13th “Wei Lian Cup” technological innovation competition. 2018

Programming Language

Proficient in C, C++, Java, Python, Matlab & Multisim.