YUSHUO WANG

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EDUCATION

Jilin University Sept.2016 - 2020

Information Engineering GPA: 87/100

- **Relevant Courses:** Signal and Image Processing, Signal And Linear System, Object-Oriented Programming Technology, Artificial Intelligence, IoT.

Nanyang Technological University Dec.2020 - 2021

Computer Control and Automation

- **Relevant Courses:** Computer Control Systems, Machine Vision, Process Control.

EXPERIENCE

Research Assistant：Artificial neural networks in medical diagnosis Jul.2018 – Jul.2020

- Use Tensorflow to build the basic the Siamese network, use the labeled sperm images provided by the hospital to train the network, and classify the sperm according to the activity of the sperm to detect the abnormal sperm
- Based on Python, using InceptionV3 framework to extract features from blood pressure waveforms of blood vessels, to diagnose whether the patient produces side blood vessels.
- Worked with the First Hospital of Jilin University, trying to segment the results of MR scan by using the method of video co-segmentation(Graduate Peoject).

Research Participant：Cybersecurity Workshop, University of Miami Jul.2018 - Sep.2018

- Participate in machine learning algorithm courses, independently implement gradient descent, back propagation and other algorithms.
- Based on Python, using Keras to build a network for identifying benign/malignant lung nodule tumors, reduce the false positive rate of the network by reasonably adding a normalization layer, and use R language for the data cleaning.
- Introduced an attention mechanism model based on LSTM to realize: image input and output the text information of the content contained in the image.

Visiting Researcher: Built Environment City Analytics Laboratory, UNSW Dec.2018

Visiting Researcher: Manufacturing Technology Research Lab, University of Manchester Mar.2019

Visiting Researcher: Robotics Innovatory Lab, Sungkyunkwan University Nov.2019

Algorithm Engineer Intern：PanoAI, Chengdu, China Sep.2020 - Dec.2020

- Developed a neural network model based on InceptionV3 to identify the types of flowers, solve the problem of noise in the prediction samples.
- Developed the Simply-Drag-N-Drop-Tool for image registration. Used wildly in the project for checking the accuracy of the model.
- Contributed to airPLS – a baseline correction method on GitHub, which is a famous algorithm.
- Participated the GIS Image Registration Contest, ranked 50th in China.

PROJECTS

Research Leader：2nd Large-scale Video Object Segmentation Challenge, ICCV2019(Participated) Jul.2019

- Based on Python and model from a CVPR2018 paper, put forward a new video object segmentation algorithm.
- Introduce PWC-Net to realize the optical flow method to calculate the target possible area in the next frame, use the Mask R-CNN frame to select the target area, and use the Refinement Network model to accurately segment the target at the pixel level and output the target mask.
- The accuracy rate reached 69% on the data set released by the 2019 YouTube-VOS Challenge.
- The new algorithm was included in the ICCV2019 YouTube-VOS Challenge and won the ninth place, participated ICCV2019 workshop with the new algorithm.

Project Leader: Crawler and Web server development Feb.2020

- Use Scrapy to get the title and url of Stack Overflow specific questions and sort it, output it as a json file as back-end data, and use Django to build a web back-end, design the front-end and integrate the crawled data to display on the local server.

Project Leader: Baby Monitoring System Dec.2018

- Led a four-people team to design a baby monitoring system that was based on baby expression recognition and crying detection using keras, and using lightweight network in the expression recognition part to facilitate its application.
- Added audio-detection chip. Established the MFCC feature codebook for baby crying, extracted the MFCC parameters of audios to vectorize baby crying, and calculated and used the vector errors of the codebook for reference to predict whether a baby was crying.

Project Leader: Wi-Fi Deauther with ESP8266 Sept.2018

- Realized a deauthentication by utilizing a weakness in the 802.11 protocol with the help of C++, leading all clients around to disconnect WI-FI.
- Used ESP8266 to establish a batch of WI-FI, which could be combined with a specially designed scheme of network sniffer to capture package in WLAN.

Project Leader: Multi-threading Network Chat System Oct.2019

- Realized a multithreading chat system based on TCP by using C++, allowing users to have real-time communication via socket.
- Designed a file transmission module, and realized block transmission of files by turning files into binary stream.

ACTIVITIES

2018 Summer Research Program, University of Miami	June.2019
Mathematical Contest in Modelling (MCM)	Dec.2018
International Conference on Computer Vision, Seoul, South Korea	Nov.2019

HONORS/AWARDAS

The Scholarship of Modeling Competition, Excellent Student of college	June.2019
9th Place Award in the 2nd Large-scale Video Object Segmentation Challenge, ICCV 2019	Jul.2019
Individual Scholarship, Excellent Student of the College	Nov.2019
Individual Scholarship, Excellent Student of the College	Mar.2020
Excellent Student of the University from 2018-2020	Mar.2020

SKILLS

Programming Language: Python, Java ,Matlab, , R

Computer Software: IDEA, LaTeX, Spyder, Pycharm, Jupyterbook, Lingo

*During the undergraduate period, I studied and exchanged in 6 countries, assisted in establishing cooperative projects between colleges and laboratories, I have strong English communication skills and respect all cultures.