YUSHUO WANG

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EDUCATION

Jilin University Sept.2016 - present

Information Engineering GPA: 85/100

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

EXPERIENCE

Research Assistant：Artificial neural networks in medical diagnosis Jul.2018 - present

- Applied the normalized layer to the network by using Python in order to improve the accuracy of lung nodule tumor recognition.
- Cooperated with the Second Hospital of Jilin University and improved the Siamese Network based on the Tensorflow framework to detect abnormal sperm.
- Realized the SGD algorithm from the lowest layer via python, customized the loss function and combined it with the optimization operator to fit data.
- Cooperated with the Department of Ultrasound of the Second Hospital of Jilin University, tried to diagnose whether some patient had collateral blood vessels through the traits of the blood pressure waveform.
- Worked with the First Hospital of Jilin University, trying to segment the results of MR scan by using the method of video co-segmentation.

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

- Realized a model based on LSTM attention, which automatically learned to describe input images.
- Used R Language for data cleaning.
- Categorized signals in terms of image processing (first turned signals into constellation diagram and then classified them through fine-tuned InceptionV3).
- Got and analyzed user's data in the same WLAN using Wireshark, and bypassed the server's encryption port and got the data from the target server.

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

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

- Put forward a new algorithm to split objects in the video by improving the existing algorithm model. By adopting this algorithm, the accuracy could reach 69.0% according to the dataset published by YouTube-VOS Challenge
- Learnt from the Paper of ICCV2018 Champion Team (PREMVOS) and realized the champion model.
- Designed an algorithm to generate the bounding box of the object on the basis of the first one and first two data frames, thus improving the accuracy as well as efficiency.
- Added optical flow method, mask R-CNN module to improve the accuracy of the algorithm.
- Participated ICCV2019 workshop with the new algorithm.

Visiting Scholar: Manufacturing Technology Research Laboratory, University of Manchester Mar.2019

PROJECTS

Project Leader: Baby-monitoring System using facial recognition May.2018

- Led a four-people team to realize a recognition system, which can identify whether the baby is crying or having a painful expression.
- Built program framework using different algorithm: InceptionV3 and SqueezeNet with Keras to extract the facial feature of the baby.
- Added a crying recognition chip to the project to determine if the baby is crying.

Project Leader: Implementation of Network Sniffer Dec.2017

- Led a four-people team to take advantage of python to design a baby monitoring system that was based on baby expression recognition and crying detection, and lightweight network was used in the expression recognition part to facilitate its application.
- 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.2017

- 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 Sept.2017

- 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

SKILLS

Programming Language: Python, Matlab, Java, R
Computer Software: LaTeX, Spyder, Pycharm, Jupyterbook, Lingo