Jun Wang

PERSONAL INFORMATION

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EDUCATION

University of Pennsylvania - *GPA*: 3.96/4.0 Philadelphia, PA, USA
Master of Science in Engineering, Robotics (Computer Science Track) 08/2019-05/2021
Coursework: Machine Learning(A+), Principle of Deep Learning (A), Machine Perception(A), Data Mining(A), Linear Systems(A), Dynamical Systems(A), Linear/Nonlinear and Integer Optimization

Sun Yat-Sen University - *GPA*: 3.8/4.0 Guangdong, China
Bachelor of Engineering, Software Engineering 09/2015-06/2019
Thesis: Combined Detection Approach to DNS Spoofing Attacks
Coursework: Data Structures and Algorithms, Computer Systems, Operating System, Database, Cloud Application, Computer Networks, Real-Time Systems, Embedded System

Sungkyunkwan University - *GPA*: 3.8/4.0 Suwon, Republic of Korea
Exchange Program, Computer Engineering 02/2018-07/2018
Coursework: Data Mining, Computer Vision

RESEARCH EXPERIENCE

Model-Based Robust Semantic Segmentation 06/2020-Now
GRASP Lab, University of Pennsylvania Philadelphia, PA, USA
Advisor: George Pappas, Hamed Hassani
Master Thesis

- Tackled the difficulties on the robustness of 2D semantic segmentation under natural variations
- Utilized current state-of-the-art semantic segmentation architecture and domain adaptation methods
- Achieved higher prediction accuracy on mainly used semantcic segmentation datasets(Cityscapes, ADE20K) than PSPNet

Convolutional Gated Recurrent Network for Video Matting 09/2020-12/2020
University of Pennsylvania Philadelphia, PA, USA

- Modified current state-of-the-art image matting method with RNN
- Proposed a video matting method using Encoder-Decoder based CNN and Convolutional GRU
- Managed to capture the temporal information among frames in a video
- Improved prediction accuracy by 4% on sequential images than mainstream image-matting method

Scale Invariant Detection 04/2020-05/2020
University of Pennsylvania Philadelphia, PA, USA

- Detected blobs without knowing the size of the blobs
- Generated a Laplacian of Gaussian filter (LoG) by applying the Difference of Gaussians (DoG)
- Implemented blob detector by using the rotationally symmetric version of 1D LoG filter

Recommendation System 03/2020-04/2020
University of Pennsylvania Philadelphia, PA, USA

- Designed strategies for movie recommendation formulated as multi-armed bandit problem
- Applied UCB1, Thompson, EXP3 and multiplicative weight algorithms using Python
- Generated recommendation outputs using multi-weight algorithms that match ground truth results

Video Logo Projection 01/2020-02/2020
University of Pennsylvania Philadelphia, PA, USA
- Implemented homography algorithm mapping between video images and logo coordinates
- Managed to project the Penn Engineering logo onto the goal in a football match video

Combined Detection Approach to DNS Spoofing Attacks 09/2018-05/2019
Sun Yat-Sen University Guangdong, China
Excellent Undergraduate Graduation Thesis
- Proposed a comprehensive DNS spoofing detection approach which is able to detect spoofing attack based on different kinds of implementation such as traditional and Kaminsky spoofing attack.
- Improved the calculation mechanism of passive detection into a version which calculates the difference of total packet number between response and request packets specified to each domain

Loan Defaults Detection 05/2018-06/2018
Sungkyunkwan University Suwon, Republic of Korea
- Applied R to analyze a 300k data set of 9099 clients' initial information consisting of 31variables to predict whether the new users qualify for loan
- Conducted data classification based on logistic regression, CART decision tree, KNN algorithm and hierarchical clustering as well as non-hierarchical clustering
- Concluded that data classification with KNN algorithm reaches optimal effect with AUC curve
- Synthesized and eliminated partial irrelevant variables through PCA to enhance accuracy

Multicycle CPU Design 09/2017-10/2017
Sun Yat-Sen University Guangdong, China
- Used Vivado to implement multicycle CPU based on Verilog HDL to implement binary operation
- Implemented the whole CPU including the following operations: acquiring instruction, parsing instruction, executing instruction, accessing memory and writing back result in one clock cycle respectively

Six-axis Unmanned Aerial Vehicle 07/2017-08/2017
Sun Yat-Sen University Guangdong, China
- Implemented and improved the IMU of an unmanned aerial vehicle on the basis of stm32 and MPU6050
- Replaced Euler angle representation using Quaternion to avoid Gimbal lock
- Implemented Cascade PID controller to reduce the error caused by accelerometer result distortion

Intelligent Unmanned Car 07/2016-08/2016
Sun Yat-Sen University Guangdong, China
- Established a simulation model of unmanned car with FPGA, infrared sensor and ultrasonic sensor
- Detect and react to obstacles with ultrasonic sensor and implement detection module using C++
- Used PID algorithm to control the motor speed of the car to improve its obstacle avoiding performance

Topology Performance Evaluation Based on Improved Dijkstra's Algorithm 10/2015-08/2016
Sun Yat-Sen University Guangdong, China
- Modified Dijkstra's algorithm for the condition of multi-optimal routes in the network using C++ by averaging the probability to choose among each optimal routes
- Used R to analyze multiple stochastic networks including erdos-renyi model, barabasi model
- Proposed an evaluation system based on star schema to measure the time before reaching congestion

WORKING EXPERIENCE

Teaching Assistant(CIS 419/519: Applied Machine Learning) 01/2021-Present
University of Pennsylvania
- Hold remote weekly office hour with 150 students from 35 majors at Penn
- Grade homework and generate weekly lecture quizzes

Graduate-Level Course Grader 09/2020-Present
University of Pennsylvania
- ESE 547: Legged Locomotion
- ESE 512: Dynamical Systems
- ESE 500: Linear Systems

Industrial and Commercial Bank of China, Guangzhou Branch 07/2018-08/2018
Software Development Engineer Intern
- Engaged in the Smart Library Project Based on Face Recognition, PC and PAD
- Applied the bank's internal system CTPX and CTP to implement a series of smart library's functions including recording, modifying, inquiring and deleting with Vue.JS, HTML/CS and SQL
- Assisted other colleagues in completing a face recognition system based on Vue.JS
- Served as team leader, assigned tasks to team members according to their strengths and independently finished user interface optimization as well as code testing

GuangDong Poya Information & Technology Co., LTD. 07/2017-08/2017
Algorithm Engineer Intern
- Used OpenCV to implement face detection with C++
- Based on the concept of eigenface and PCA, we trained a new face detection model using haar classifier from OpenCV as baseline and achieved high detection accuracy

SKILLS

- Skillful programming using **Python**, **C++**, **Matlab**,**PyTorch**, R
- Capable of work both independently and collaboratively
- Competent in Linux, Windows and MacOS
- Language: Mandarin, Cantonese, English & Korean

LEADERSHIP & EXTRACURRICULAR ACTIVITIES

Official WeChat Account "Zhangui Cantonese Culture" 06/2016-present
- Teach Cantonese as well as Cantonese culture to people from outside of Guangdong Province
- Market and advertise our official account and its events by designing posters, writing articles and display boards for involvement fairs

English Debate Society 09/2015-05/2019
Sun Yat-Sen University
- Organize and participate in recruiting new members activities
- Plan internal social events for members to bond and facilitate teamwork among

HONORS

2016, 2017 Third-class Prize Scholarship for Academic Excellence, Sun Yat-sen University
2017, 2018 Third Prize in the Mathematical Contest in Modeling