Xueren Ge

•Tel: +1 470-662-2854 •Email: gexueren@gatech.edu •Github: https://github.com/masqueraderx

EDUCATION BACKGROUND

Georgia Institute of Technology *Aug. 2020 - Now*

Major: Electrical and Computer Engineering Degree: Master of Science **GPA:** 4.0/4.0

Chongqing University *Sep. 2016 – Jun. 2020*

Major: Electrical Engineering and Automation Degree: Bachelor of Engineering

GPA: 3.58/4.0 **GRE**: 325(VR159+QR166+AW3.5) **TOEFL**: 103(R28+L28+S21+W26)

Scholarships: 2020 Georgia Tech Shenzhen Campus Level A "Merit-Based Scholarship" (5%);
2018 Yangtze Power Scholarship (2/324);
2016, 2018, 2019 Excellent Second Undergraduate Comprehensive Scholarship (6%)

Awards: 2018 Chongqing University Excellent Student (5%);
2018 Chongqing University Science and Technology Innovation Advanced Individual (5%);
2019 Chongqing University Excellent Undergraduate (10%)

PUBLICATIONS & PATENT

FANG Xinxin, WANG Bingkai, KONG Hang, **GE Xueren**, YANG, YU, LV, CHEN, LI "Human Posture Feature Recognition Method for Neuropsychological Comprehension Test", accepted by Journal of Chongqing University.

Yuqing Ma, **Xueren Ge**, "An Effective Method for Defect Detection of Cooper Coated Iron Wire Based on Machine Vision", accepted by the 6th International Forum on Electrical Engineering and Automation 2019 (IFEEA 2019).

Xueren Ge, Heyaojing Huang, "An Effective Method for Dynamic Global Optimal Scheduling of RGV Based on Probability Function", accepted by the 2019 5th International Symposium on Mechatronics and Industrial Informatics (ISMII 2019).

An Action Recognition Method Based on Tensorflow Target Detection, CN111860103A

A Posture Automatic Recognition System for AD Scale Comprehension Ability Test, CN111652076A

Hand-Painted Cross-Pentagon Classification Method of AD Scale Based on DCNN, CN111652287A

INTERNSHIP

Company: **Sensetime** ***Occupation:*** **Algorithm Developer** *Dec. 2020 – Jun. 2021*

Intro.: Designed, evaluated, tuned algorithms on non-contacted breath rate (BR), heat rate (HR) and body temperature (temp) measurement; Part of work about 'Chess Robot' camera and coordinate systems. Part of codes repo is available here.

- In BR measurement, use FFT, smoothing and bandpass filters to extract weak signals from continuous thermal images
- In HR measurement, extract vessel area as ROI by top-hat transformation and anisotropic filtering, then combine CNN, attention module together, using both phase, amplitude as supervisory label to recover rPPG signal
- In temp measurement, extract ROI from face and use CNN to find mapping relation between surface temp and real temp
- Auxiliary work: Coordinates system transformation, lens distortion correction, bi/trinocular camera calibration

ACADEMIC EXPERIENCES

Visualize, Understand BERT *Aug. 2021 – Now*

Type: CS4650 Project Advisor: Prof. Diyi Yang

Intro.: Understand each layer's importance in BERT and use BERT to do text classification, code repos are available here.

- Built evaluation metrics to visualize "anisotropy" problem and validate reasonability of word embedding in each layer
- Compared performances of inference classifiers on SNLI dataset in the basis of different BERT backbones

Phishing Websites detection based on Machine Learning *Jan. 2021 – May. 2021*

Type: ECE 6612 Project Advisor: Prof. Frank, Li

Intro.: Designed phishing websites detection algorithms and a phishing web inquiry application, codes are available here.

- Extracted multiple features (domain, IP address, DNS record, redirection, protocol and etc.) from URL
- Trained SVM, RF, GDBT and etc. models separately, then built ensemble model to boost overall performances
- Developed a web application based on ensemble model interface and PhishTank API

Xueren Ge

•Tel: +1 470-662-2854 •Email: gexueren@gatech.edu •Github: https://github.com/masqueraderx

Intelligent Diagnosis of Alzheimer's disease Based on AI Image Technology *Jul. 2019 – Nov. 2019*

Type: Research Assistant Advisor: Prof. Juan Yu

Intro.: Established an intelligent diagnosis system to assess the severity of Alzheimer's disease for patients automatically.

- Developed a human eye state recognition GUI based on eye aspect ratio and Dlib toolkit
- Built a human pose model based on Openpose, then use LSTM to classify the time-series data preprocessed by human pose model, and also use Faster R-CNN tool to track extra props used in test, combing all to evaluate series of behavior
- Developed CNN with Resnet-50 as backbone, attention module by Pytorch to classify hand-drawn geometric figures

Application Practice of Computer Vision and Image Processing in Industrial Robots *Mar. 2019 – Jul. 2019*

Type: Company Level Advisor: Associated Prof. Cong Wang

Intro.: Built a computer vision system for online detection and decision making of the quality status of industrial robot products for the specific technical needs of an enterprise and published "IFEEA 2019" paper.

- Extracted copper wire from the image with bearing interference by image morphology and HSV descriptor and then distinguished quality of copper wire by setting threshold for extracted maximum connected area
- Detected the uniformity of winding copper wires based on Hough transform and SIFT through OpenCV tools

Dynamic Scheduling Strategy of Intelligent Rail Guide Vehicle *Sep. 2018 – Nov. 2018*

Type: School Level Advisor: Prof. Guanghui He

Intro.: Designed a global optimal scheduling strategy of Rail Guide Vehicle (RGV) to maximize operating efficiency of the industrial automation intelligent production line. Codes and "ISMII 2019" paper repo are available here.

- Built a quasi-global optimal scheduling model for RGV based on greedy algorithm and improved work efficiency further by combining roulette wheel algorithm with greedy algorithm
- Designed algorithms to simulate the scheduling model with MATLAB in cases of single/double-process material processing, and part of machine failures

Research on Bus Station Waiting People Statistics Based on Wireless Interactive System *Jun. 2017 – Jul.2018*

Type: Student Research Training Program (SRTP) Advisor: Associated Prof. Yuxing Mao

Intro.: Developed a wireless interactive terminal to get around the problem of difficulty in dispatching campus sightseeing buses in Chongqing University and random number of waiting people.

- Implemented wireless communication, LCD display and other logical C programming based on STM32 core
- Designed and soldered circuit board with STM32 as the core and ZigBee wireless transmitter, matrix keyboard module, power module and LCD display module as the peripheral circuit
- Modeled campus bus dispatching as TSP problem and derived optimal solution by ant colony algorithm on MATLAB

ACADEMIC COMPETITIONS

2018 Mathematical Contest in Modeling (MCM) *Feb. 2018*

- Designated as Meritorious Winner
- Defined the energy economic factor and made quantitative evaluation of energy condition
- Data Cleaning: used the grey predictive modeling method to supplement the missing data, exclude outliers
- Used NARX autoregressive neural network to predict energy development and discussed the model Robustness
- Converted energy development strategy into nonlinear optimization problem and solved with Genetic Algorithm

EXTRACURRICULAR ACTIVITIES

Class Monitor *Mar. 2018 – Oct. 2019*

College "Multicolored" Volunteer Team *Sep. 2016 – Jun. 2017*

Teaching Assistant ECE 6254 Machine Learning *Jan. 2022 – May.2022*

SKILLS

Python, PyTorch, C/C++, Java, Linux System, MATLAB/Simulink, OpenCV, OpenMP, OpenGL, Latex, MySQL, Keil