Xiaochen Ma

mxch1122@126.com · (+86)1880-1199-730 · bjmxch1122
https://github.com/Sunnyhaze

Education

Sichuan University *Chengdu, China*
Bachelor of Computer Science *Aug. 2019 – Present*
GPA: 3.57/4.0 (First 6 Semester)

Honors and Awards

Merit Student Award, Sichuan University *2019-2020*
Single aspect First-class Scholarship, Sichuan University *2019-2020*
Comprehensive Second-class Scholarship, Sichuan University *2020-2021*
National Second Prize in "China software cup" College Student Software Design Competition *Oct. 2022*
MCM/ICM Honorable Prize *Feb. 2022*
Provincial Gold Medal in China International College Students "Internet+" Innovation and Entrepreneurship Competition *Dec, 2021*
Provincial First-Class Price in Contemporary Undergraduate Mathematical Contest in Modeling *Sep. 2021*

Area of Interest

Computer Vision, Machine learning in Multi-media, Image Manipulation Detection.

Research Projects

Self-supervised Vision Transformer for Limited Dataset in Image Tampering Detection

Research intern, Data Intelligence and Computing Art Lab, Sichuan University *Jan. 2022-Present*

- Advisor: *Jizhe Zhou*
- A PyTorch version reproduction of a baseline model for Image manipulation detection(IMD) called Mantra-Net has gained 8 stars from other researchers on Github (https://github.com/SunnyHaze/ManTraNet-Pytorch).
- Inspired by Masked auto encoder, using self-supervised VIT to improve the performance in IMD.
- Most of experiments are done, paper are still in Progress.

Machine Learning Model for Masked-Unmasked Face Recognition *Online*

Summer workshop, School of Computing, National University of Singapore *June 2022- July 2022*

- Led a 4 student group to develop a model can match a masked face image with corresponding faces in unmasked-face dataset, which is a very common need that has emerged during COVID-19 pandemic.
- Because of the limited dataset, traditional PCA(principal components analysis) and HOG(Histogram of Oriented Gradient) methods were used to extract features and used SVM for classification.
- The accuracy of the results reached over 90% under 5 fold cross validation.

Remote Sensing Image Interpretation Platform Based on PaddlePaddle *Chengdu, China*

National second prize of "China Software Cup" competition *Apr. 2022-June. 2022*

- Led a team of 4 members to build a web platform that can perform change detection, target extraction, feature classification and target detection of remote sensing images.
- Responsible for reproducing the SOTA models(Deeplab V3+, PP-YOLO) with Paddlepaddle, a deep learning framework developed by Baidu. To improve the performance of the model, many pre-processing and post-processing tricks were applied to it, such as Test-Time-Augmentation and Morphology Operations.
- Chinese version website is deployed on `http://110.40.183.212:8081/`.

Medical Equipment Failure Prediction Based on LSTM *Chengdu, China*

Research intern, Medical Device Center of West China Hospital, SCU *Sep. 2021-Dec. 2021*

- Participated as group member, developed a algorithm based on LSTM, which can predict the occurrence of medical device failure.
- Timing data generated during the operation of medical devices is used as input, such as voltage, temperature or electric current for CT/MRI. Predicts failures up to 3 days in advance with an accuracy of 87%.

Image Based Fast Solution Concentration Recognition for Mobile Terminals *Chengdu, China*

College Students' Innovation and Entrepreneurship Program *Nov. 2020-Jun. 2021*

- Responsible for design the model and the pipeline. The recognition is mainly based on the fact that different solution concentrations bring different colors. And it is robust to complex lighting environments
- I developed an edge detection-based algorithm to frame the test tubes in the image and subsequently feed them into a VGG19 deep neural network to predict their concentrations. The accuracy can reach 0.92.

LEADERSHIP EXPERIENCE

Covariant Innovation Computer Association of Sichuan University *Chengdu, China*

President of academic student association *Sep. 2021-Jun. 2022*

- Led to hold lectures and classes periodically for junior students to share knowledge of program development that cannot be learned in class, which was well received by students.
- Led members to develop application software for the school's teaching staff, mainly using C++ to develop a network communication application that automatically changes the wallpaper of classroom computers.
- Create a good atmosphere for open source software collaboration within Sichuan University

SKILLS

- **Programming Languages**: C, C++, Python, PyTorch, LaTeX, Java, HTML(JavaScript, Vue)
- **Language** : English - Fluent (IELTS 7.0), Mandarin - Native speaker