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Ziniu Liu

Graduate, Computer Science, Columbia University

Education

Columbia University — New York, NY
Master of Science, Computer Science — *Sept.2021 - Dec.2022 (Expected)*
Courses: • Artificial Intelligence • Reinforcement Learning • Computational Aspect of Robotics

Fudan University (FDU), — Shanghai, China
Bachelor of Science, Computer Science and Technology — *Sept.2017 - Jun.2021*
GPA: 3.51/4
Courses: • Mathematical Analysis • Linear Algebra • Introduction to Computer System • Introduction to Algorithms • Pattern Recognition • Computer Vision

Skills

Language: English (Fluent), Chinese (native)
Programming Languages: Python, C, C++, Java, SQL
Framework: Pytorch, OpenCV
Other Tools: Matlab, LaTeX, Github, Adobe Photoshop, Office

Research Experiences

Computer Vision Lab, Fudan University
Supervisor: Prof. Yugang Jiang, Dr. Hao Zhang, Dr. Jingjing Chen — *Sept.2019 - Jun.2021*

- Implemented a novel architecture for AVA actions detection based on I3D and TSM.
- Proposed and implemented a novel three-stream architecture for video action detection, which improved its ability to extract semantic information.
- Created a new video description model using relation and distance to improve performance.
- Proposed and implemented two methods for video action recognition, where the mAP was improved by 90% for a specific dataset. This method won third place in the 2020 ACM MM Grand Challenge.
- Led a team to participate in Tencent Advertising Algorithm Competition, and combined traditional algorithms with deep learning algorithms to greatly improve the performance.

Internship

Shenzhen Wisonic Co., Image Algorithm Intern
Supervisor: Bing Yao, technical director of AI group — *Jul. 2019 - Sept. 2019*

- Used **Matlab** to process data and accomplished a neural network for OB's index plane ultrasonic images' classification. This work, starting from data extraction, covers the entire process of neural network application and achieves an accuracy rate of over 97%.
- Constructed a module for getting saliency maps from feature maps back-propagation, which contributes to the interpretability of medical deep learning.
- Researched the Capsule Network, and tested its performance for ultrasound images classification.

Projects Experience

MiniCovidNet for COVID-19
Created a Lightweight Neural Network with **PyTorch** on chest X-ray images for COVID-19 detection. Achieved 96% accuracy on the test set while maintaining high speed.

Second-hand Information Exchange Platform
Developed a second-hand information exchange platform with **JavaScript** as team leader. This WeChat Mini program is designed for Fudan University's students and is greatly welcome.

Awards & Achievements

2020 Outstanding Member of FDU
2020 Third Prize for Excellent Student Award
2019 Third Prize for Excellent Student Award
2018 Third Prize for Programming Competition of FDU

Publication

Person-level Action Recognition in Complex Events via TSD-TSM Networks
Yanbing Hao, **Ziniu Liu**, Hao Zhang, Jingjing Chen
ACM Multimedia (MM) 2020