

Kunlin Liu

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"Every day without hard working is a disappointment to life"

Summary

Current master student at University of Science and Technology of China, specializing in the deep learning for 2 years. Interested in manipulated face detection, adversarial examples, and other new challenges in information security.

Education

Bachelor of Engineering in Information Science and Technology in USTC

UNDERGRADUATE STUDENT

Hefei, China

Sep. 2014 - Jun. 2018

Master of Engineering in Cyberspace Security in USTC

GRADUATE STUDENT

Hefei, China

Aug. 2018 - Jun. 2021

Experience

Object Detection

COMPUTER VISION RESEARCH INTERN

Shenzhen, China

Feb. 2018 - Aug. 2018

- Doing a graduation project about object detection.
- Analyzing the negative samples with the affinity propagation clustering algorithm.
- Leveraging online hard example mining(OHEM) to improve the performance of Faster-RCNN from 75% to 77% in the dedicated dataset.

Adversarial Examples

STUDENT

Hefei, China

Mar. 2017 - Mar. 2019

- Analyzing the principle of adversarial examples.
- Proposing several effective methods, such as adding filters for pre-processing and enhancing logit-pair loss, to defend adversarial examples.

Computer Graphic

GRADUATE STUDENT

Hefei, China

Mar. 2019 - Aug. 2019

- Enhancing the result of Invertible Grayscale, a special kind of grayscale from which the original color can be recovered but not robust to JPEG.
- Leveraging a JPEG layer which simulates JPEG compression in a differentiable way into the training process and improving the robustness to JPEG compression.
- Adopting two GANs to increase performance globally.

Audio Adversarial Examples

GRADUATE STUDENT

Hefei, China

Aug. 2019 - Oct. 2019

- Realizing a boundary-based audio adversarial attack which can be implied in any cloud and any languages.
- This project was meant to take part in Geekpwn2019 Audio CAAD. However, this project was canceled for some reason.

Facial Manipulation Detection

GRADUATE STUDENT

Hefei, China

Sep. 2019 - Present

- Analyzing the open-source methods of face manipulation and digital forensics.
- Face manipulation detection is my main interest in progress.

Few-shot Learning in Endoscopic Images Classification.

GRADUATE STUDENT

Hefei, China

Oct. 2019 - Present

- Realizing self-supervised learning in medical data.
- Utilizing 26,000 unlabeled images as self-supervised training dataset, 1,000 labeled images as classification training dataset, and 1,000 labeled images as test dataset.
- Achieving great performance in medical image classification.

Honors & Awards

INTERNATIONAL

2018 **5th Place**, Geekpwn CAAD2018 Defense competition

Shanghai, China

DOMESTIC

2013 **First Prize**, National high school mathematics league first prize

Hunan, China

2017 **Second Prize**, National college student information security contest.

Shanxi, China

2019 **First Prize**, USTC Scholarship

Hefei, China

Papers

JPEG Robust Invertible Grayscale.

Transactions on Image Processing

Kunlin Liu, Dongdong Chen*, Jing Liao, Weiming Zhang, Hang Zhou, Jie Zhang, Wenbo Zhou, and Nenghai Yu.*

In Peer Review