HAONAN QIU

Nanyang Technological University, 50 Nanyang Ave, 639798
+65 84235485 ⋄ qhnmoon@gmail.com

RESEARCH INTERESTS

Deep Generative Models, Adversarial Machine Learning, Forgery Detection

EDUCATION

PhD program in Computer Science and Engineering Aug 2021 - Present
Nanyang Technological University

Bachelor of Engineering in Computer Science Aug 2015 - May 2020
The Chinese University of Hong Kong, Shenzhen, CGPA: 3.69/4.00, **MGPA: 3.96/4.00 (Ranking: 1/71)**

SELECTED PUBLICATIONS

SemanticAdv: Generating Adversarial Examples via Attribute-conditional Image Editing
Haonan Qiu*, Chaowei Xiao*, Lei Yang*, Xinchen Yan, Honglak Lee, Bo Li
European Conference on Computer Vision (ECCV), 2020.

Two-phase Hair Image Synthesis by A Self-Enhancing Generative Model
Haonan Qiu, Chuan Wang, Hang Zhu, Xiangyu Zhu, Jinjin Gu, Xiaoguang Han
Computer Graphics Forum (CGF), 2019.

Can Shape Structure Features Improve Model Robustness under Diverse Adversarial Settings?
Mingjie Sun, Zichao Li, Chaowei Xiao, **Haonan Qiu**, Bhavya Kailkhura, Mingyan Liu, Bo Li
International Conference on Computer Vision (ICCV), 2021.

RESEARCH EXPERIENCE

Research Consultant, at SenseTime Nov 2020 - July 2021

- Proposed the first benchmark of the few-shot forgery detection and a novel SOTA method for this task.
- Designed a highly controllable hair editing method with high image quality and multiple modes.

Research Intern, Remotely Corporate With Professor Bo Li at UIUC May 2019 - Nov 2020

- **PaintMal**. Applied inpainting in pdf malware generation whose results evaded the most real-world Anti-virus detectors on VirusTotal.
- **SemanticAdv**. Achieved semantic attack by **feature-space interpolation**, which owned the **strongest** attack performance compared to all other semantic attack methods. (published in ECCV)
- **EdgeGANRob**. Used robust edge features to improve the robustness of CNNs without adversarial training. Applied GAN to compensate for the loss of information caused by edge extraction. (published in ICCV)
- Explored how to use the additional unlabelled data from other domains to improve the robustness of classification models. Researched the extraordinary overfitting phenomenon in adversarial training.

Research Intern, at SenseTime Sep 2018 - May 2019

- Surveyed the state-of-the-art approaches of image denoising and super-resolution.
- Reproduced some influential algorithms of denoising and super-resolution. Integrated them into a unified framework.
- Explored the advanced methods of denoising and super-resolution, mainly for real scenes rather than using the simulated data as before.

Research Assistant, Shenzhen Research Institute of Big Data at CUHK(SZ) Jan 2018 - Sep 2018

- Paper retrieval and presentation in seminars. Main topics were about GAN and its related applications.
- Created a high quality dataset for hair synthesis. Tested almost all state-of-the-art generative models.
- Created a self-enhancing generative model for Sketch2Hair. (published in CGF)

SELECTED PROJECTS

Reinforcement Learning Project June 2018
Lab Activity of Visiting Program to Tsinghua University

· Learned the basic knowledge of reinforcement learning within one week.
· Implemented PPO algorithm and tuned the parameters to solve some Mujoco tasks in OpenAI Gym.
· Summarized the defects of PPO and proposed potential solutions.
· Won the Best Team Award by Professor Andrew Chi-Chih Yao.

Selfie Style Transfer Software Development Feb 2018 - May 2018
In-class Project

· Surveyed existing style transfer approaches and tested some of them.
· Transferred human face into cartoon or animal style by Neural Style Transfer and Cycle-GAN.

Unmanned Aerial Vehicle -Assisted Unmanned Ground Vehicle Systems Jun 2017 - Dec 2017
Advised by Professor Simon Pan in Wireless Communication Lab at School

· Designed an algorithm for automatic path planning, which took into account potential target points.
· Optimized route for the unmanned ground vehicle. Corrected the route with Kalman Filter.
· One paper accepted by IEEE International Conference on Computer and Communications (ICCC).

CUHK(SZ) Wechat Campus Card Development Jun 2017 - Oct 2017
Cooperation with Information Technology Services Office at School

· Learned the Front-End technology and Wechat mini program language. Developed CUHK(SZ) mini program.
· More than two-thirds of students were our users and won the Digital Star Award by Tencent.

TEACHING EXPERIENCE

Undergraduate Teaching Assistant at CUHK(SZ)

CSC1002: Computational Laboratory Spring 2017

Helped to give tutorials (how to use Python) and answered questions in office hours.

CSC3002: Introduction to Computer Science: Programming Paradigms Fall 2017, Spring 2018

Helped to give tutorials (how to use C++) and answered questions in office hours.

SELECTED HONORS

Dean's List	2016, 2017, 2018
Undergraduate Research Award	2016, 2017, 2018
Undergraduate Student Teaching Fellow	2017, 2018
Academic Performance Scholarship	2018

SKILLS

Programming Languages	Python, C++, Java, R, Matlab, HTML, CSS, etc
Packages	Pytorch, Tensorflow, OpenCV