

# HAONAN QIU

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## RESEARCH INTERESTS

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Adversarial Machine Learning, Deep Generative Models

## EDUCATION

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**Bachelor of Engineering in Computer Science** Aug 2015 - May 2020  
The Chinese University of Hong Kong, Shenzhen, CGPA: 3.63/4.00, **MGPA: 3.95/4.00**

**Summer Session** Jun 2017 - Aug 2017  
University of California, Berkeley, GPA: 4.00/4.00

## PUBLICATIONS

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**SemanticAdv: Generating Adversarial Examples via Attribute-conditional Image Editing**  
**Haonan Qiu**, Chaowei Xiao, Lei Yang, Xincheng Yan, Honglak Lee, Bo Li  
ArXiv preprint, 2019.

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

## RESEARCH EXPERIENCE

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**Research Intern, Remotely Corporate With Prof. Bo Li at UIUC** May 2019 - Present

- **PaintMal**. Applied inpainting in pdf malware generation whose results evaded the most real-world Anti-virus detectors on VirusTotal. (under review)
- **SemanticAdv**. Achieved semantic attack by **feature-space interpolation**, which owned the **strongest** attack performance compared to all other semantic attack methods. (under review)
- **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. (under review)
- 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, Super-Resolution Group 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)

## PROJECTS

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### 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 defect of PPO and proposed potential solutions. Won the Best Team Award.

### 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 ICCV (responsible for the algorithm part).

### 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.

### Form Reader and Handwriting Characters Recognition Software

Jan 2017 - May 2017

*Cooperation with Admissions Office at School*

- Designed a form reader software which could use phone to replace scanner for Admissions Office.
- Developed some effective functions for data processing on forms automatically.
- Tried to add OCR functions but failed due to the complexity of handwritten Chinese characters.

## TEACHING EXPERIENCE

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### Undergraduate Teaching Assistant at CUHK(SZ)

CSC1002: Computational Laboratory

Spring 2017

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

CSC3002: Introduction to Computer Science: Programming Paradigms

Fall 2017, Spring 2018

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

## SELECTED HONORS

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Dean's List

2016, 2017, 2018

Undergraduate Research Award

2016, 2017, 2018

Undergraduate Student Teaching Fellow

2017, 2018

Academic Performance Scholarship

2018

Tencent WeChat Campus Card "Digital Star"

2017

## SKILLS

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### Programming Languages

Python, C++, Java, R, Matlab, HTML, CSS, etc

### Packages

Pytorch, Tensorflow, OpenCV