

# YUCHEN LIU

<https://lychenyoko.github.io>

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## EDUCATION

### Princeton University

*Doctor of Philosophy in Electrical Engineering (expected August 2022)*

Research interest: Generative Networks, Efficient Deep Learning, Machine Learning for Systems

Supervisor: Prof. S.Y. Kung and Prof. David Wentzlaff

September 2017 – Present

*Princeton, NJ, U.S.*

### Hong Kong University of Science and Technology

*Bachelor of Engineering in Electronic Engineering*

Minor: Business, Information Technology

Major GPA: 4.078/4.30

September 2013 – June 2017

*Hong Kong*

## EXPERIENCE

### Adobe Research

*Research Intern in Computer Vision*

Supervisor: Dr. Zhixin Shu

May – November 2021

*San Jose, CA, U.S.*

### Adobe Research

*Research Intern in Computer Vision*

Supervisor: Dr. Federico Perazzi and Dr. Zhixin Shu

May – November 2020

*San Francisco, CA, U.S.*

### Massachusetts Institute of Technology

*Summer Research Student*

Supervisor: Prof. Dina Katabi

June – August 2016

*Cambridge, MA, U.S.*

## PUBLICATIONS

**P.1.** Yuchen Liu, Zhixin Shu, Yijun Li, Zhe Lin, Federico Perazzi, and S.Y. Kung. “Content-Aware GAN Compression”. In Proceedings of the *Conference on Computer Vision and Pattern Recognition, CVPR 2021*. ([paper](#))

**P.2.** Yuchen Liu, David Wentzlaff and S.Y. Kung. “Class-Discriminative Network Compression”. ([arxiv](#)).

**P.3.** Yuchen Liu, S.Y. Kung and David Wentzlaff. “Evolving Transferable Pruning Functions”. ([arxiv](#)).

**P.4.** Yuchen Liu, David Wentzlaff and S.Y. Kung. “Rethinking Class-Discrimination Based CNN Channel Pruning”. *ArXiv 2020*. ([arxiv](#))

**P.5.** S.Y. Kung, Zejiang Hou and Yuchen Liu. “Methodical Design and Trimming of Deep Learning Networks: Enhancing External BP learning with Internal Omnipresent-Supervision Training Paradigm”. In Proceedings of the *International Conference on Acoustics, Speech, and Signal Processing, ICASSP 2019*. ([paper](#))

**P.6.** Chen-Yu Hsu, Yuchen Liu, Zachary Kabelac, Rumen Hristov, Dina Katabi, and Christine Liu. “Extracting Gait Velocity and Stride Length from Surrounding Radio Signals”. In Proceedings of the *Conference on Human Factors in Computing Systems, CHI 2017*. ([paper](#))

## RESEARCH PROJECTS

### 3D-IP GAN: Achieving 3D-Controllable Identity-Preserved Face Synthesis

Supervisor: Dr. Zhixin Shu

May – November 2021

*Adobe Research, Adobe, U.S.*

- Develop a conditional GAN with StyleGAN2 generator for 3D-controllable and identity-preserved face synthesis.
- Keyword: StyleGAN2, 3DMM, conditional GAN, controllable image manipulation. Paper in submission.

### Content-Aware GAN Compression

Supervisor: Dr. Federico Perazzi and Dr. Zhixin Shu

May – November 2020

*Adobe Research, Adobe, U.S.*

- Develop a content-aware strategy to compress state-of-the-art generative adversarial networks (GANs), StyleGAN2.
- Keyword: StyleGAN2, network compression, image editing. Paper published in *CVPR 2021* ([paper](#)).

### Evolving Transferable Pruning Functions

Supervisor: Prof. David Wentzlaff

August 2019 – June 2020

*ELE Dept., Princeton University, U.S.*

- Learn novel and transferable closed-form pruning functions by an evolution strategy.
- Keyword: MobileNet-V2, channel pruning, genetic programming. Paper at ([arxiv](#)).

## Class-Discriminative CNN Compression

Supervisor: Prof. S.Y. Kung

November 2020 – March 2021  
*ELE Dept., Princeton University, U.S.*

- Develop a class-discriminative approach for pruning and distillation to compress classification CNNs.
- Keyword: MobileNet-V2, channel pruning, discriminant functions, knowledge distillation. Paper at ([arxiv](#)).

## Methodical Design and Trimming of Deep Learning Networks

Supervisor: Prof. S.Y. Kung

August 2018 – February 2019  
*ELE Dept., Princeton University, U.S.*

- Introduce an internal omnipresent-supervision training paradigm for neural network's growing and trimming.
- Keyword: Channel pruning, channel growing, hidden layer's supervision. Paper published in *ICASSP 2019* ([paper](#)).

## Gait Parameters Extraction Using RF Signal

Supervisor: Prof. Dina Katabi

June 2016 – November 2016  
*CSAIL, MIT, U.S.*

- Extract gait velocity and stride length using wireless signals reflected from the human body.
- Keyword: Wireless sensing, continuous monitoring. Paper published in *CHI 2017* ([paper](#)).

## Evolving Neural Networks for Memory Prefetching

Supervisor: Prof. David Wentzlaff

September 2020 – Present  
*ELE Dept., Princeton University, U.S.*

- Evolve neural network structures for memory prefetching.
- Keyword: SPEC CPU benchmark, evolution strategy, workload analysis, memory access pattern.

## HONORS & AWARDS

### HKUST Outstanding Undergraduate

Awarded to top 3% of graduating undergraduate students.

May 2017

### The 14th National Challenge Cup, National Round, Third Prize

Innovation competition joined by more than 2.5 million students from over 3,000 institutions

October 2015

### HKUST 2015 President's Cup, Gold Award

University undergraduate innovative research competition, involving more than 40 groups of students

June 2015

### The 6th HKUST Robot Design Contest, Silver Prize

University robot design contest with over 100 participants

December 2014

### Scholarship Scheme for Continuing Undergraduate Students

Awarded to the top 5% of students

2013 – 2017

### Dean's List

Acknowledgement from HKUST's dean to students with excellent academic performance

2014 – 2017

### HKSAR Reaching Out Award

Awarded to students with international research experience

June 2016

## EXCHANGE/VISITING

Massachusetts Institute of Technology, MA, U.S.

June – August 2016

Cornell University, NY, U.S.

August – December 2015

Peking University, Beijing, China

June – August 2014

## SKILLS & TEST SCORES

Programming	C/C++, Python, HTML/CSS, Javascript, VHDL, Verilog, Android, UNIX shell script
Tools and libraries	TensorFlow, PyTorch, OpenCV, MATLAB, Mathematica, iPython, ROS
Languages	Mandarin (Native), Cantonese (Native), English (Proficient)