

# Sikun LIN

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**Programming Languages:** Python, C++, Matlab, R, Java, Javascript  
**ML libraries:** PyTorch, Keras, Tensorflow, Caffe2

## Education

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### University of California, Santa Barbara

CA, US

PHD IN COMPUTER SCIENCE

Sep. 2017 - Present

- GPA: 4.0

### Hong Kong University of Science and Technology

Hong Kong

MPhil in Computer Science and Engineering

Sep. 2015 - Jun. 2017

- Graduated with First Class Honors.

### Hong Kong University of Science and Technology

Hong Kong

B.S. in Physics and Mathematics (Double Major)

Sep. 2011 - Jun. 2015

- Minors: Humanity & Social Science.
- Graduated with First Class Honors.

### The University of British Columbia

Vancouver, Canada

Exchange in the Faculty of Science

Jan. 2014 - Apr. 2014

## Work Experience

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### Research Intern @ Markable.ai

JUNE. 2019 - SEP. 2019

- Object feature fusion from multiple images/frames using graph neural networks with attention mechanisms, as well as quality selection techniques used in person re-identification. (*Working paper*)
- White noise analysis of neural networks for better network understanding, which is inspired by classification images and spike-triggered averaging techniques in neuroscience. (*Submitted paper*)

### Research Intern @ Markable.ai

JUNE. 2018 - SEP. 2018

- Instance segmentation of fashion items using weakly supervised learning.
- Visualization of neural network model representations.
- New direction explorations: NAS (neural architecture search), and Low-shot learning (including meta-learning and metric learning).
- Machine learning library used: PyTorch, Caffe2

### Teaching Assistant

- WNTR 2018: CS165A - Artificial Intelligence @ UCSB
- FALL 2017: CS180 - Computer Graphics @ UCSB
- FALL 2016: COMP4331 - Data Mining @ HKUST

## Research Experience

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### Learning models for coupled networks under domain constraints

Prof. Ambuj K. Singh

PHD RESEARCH, WORKING PAPER

Mar. 2018 - Now

- Data used: Human Connectome Project (HCP) MRI data.
- Modeling brain network models across different tasks using optimization approach with network constraints.
- Investigating interactions between structural and functional edges through their likelihood formulation.
- Joint estimation of multiple models for heterogeneous groups.

### Similarity Network for One-shot one-class learning

Prof. Matthew Turk

PHD RESEARCH

Feb. 2018 - July. 2018

- Solving the granularity problem in image classification using Triplet-like Similarity Networks.
- Finding the optimal branch number and an effective loss function.
- Visualizing the attention area of the Similarity Network.

## DeepCoin: Useful Proof-of-Work

Prof. Amr El Abbadi

### COURSE PROJECT

Feb. 2018 - Mar. 2018

- Replace BitCoin's PoW from finding nonce to training neural networks.
- Build a simple blockchain using our PoW mechanism: node.js for blockchain and python-keras for neural networks.
- Experiment over three training tasks.

## Personalized Attention

Prof. Pan Hui

### MASTERS THESIS

Dec. 2016 - Jun. 2017

- Finding the salient regions in incoming image frames based on personal preference, thus providing better user experience in HCI.
- Combined saliency prediction and object detection (SSD) techniques to build a single CNN for accomplishing the required task.
- Model built using TensorFlow and Keras, trained on augmented MS COCO dataset.
- Thesis: [\[File Link\]](#)

## CloudRidAR: A Cloud-based Architecture for Mobile Augmented Reality (MAR)

Prof. Pan Hui

### MPHIL RESEARCH

Feb. 2016 - Oct. 2016

- CloudAR is a framework for developers to develop, deploy and perform maintenance of MAR applications more easily.
- Developed the computer vision module of the framework.
- Implemented a fast and high mAP image retrieval pipeline by combining binary image descriptors, FV encoding and LSH.
- Designed the Tracking-Recovery algorithm for recovering the position offsets caused by offloading.

## Ubii: Ubiquitous interface and interaction

Prof. Pan Hui

### MPHIL RESEARCH

Aug. 2015 - Feb. 2016

- Developed an AR system on wearable devices that provides a more natural way of interaction with multiple devices.
- Implemented the overall system (Android platform), and server side vision algorithms, including hand detection, gesture recognition, device pose estimation and tracking.

## Evolutionary Computation for Optimization

Prof. Kwok Yip Szeto

### UNDERGRADUATE RESEARCH OPPORTUNITIES PROGRAM (UROP)

Sep. 2013 - Jan. 2014

- Research project using genetic algorithms to optimize Random Walk Problems in complex networks.
- Developed programs for the Random Walk simulations and data analysis.

## ASM conjecture and Gog, Magog triangles

Prof. Yilong Han

### UNDERGRADUATE RESEARCH OPPORTUNITIES PROGRAM (UROP)

May 2012 - Sep. 2012

- Research project to study the geometry expression of ASM conjectures, including major sphere stacking models and their implications.
- Developed programs to collect and analyze the data of different configurations.

## Publications

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- Zhang, W., Lin, S., Bijarbooneh, F. H., Cheng, H. F., Hui, P. *CloudAR: A Cloud-based Framework for Mobile Augmented Reality. Thematic Workshops'17, Oct. 23-27, 2017, Mountain View, CA, USA* [\[File Link\]](#)
- Lin, S., Cheng, H. F., Li, W., Huang, Z., Hui, P., & Peylo, C. *Ubii: Physical World Interaction Through Augmented Reality. IEEE Transactions on Mobile Computing, ISSN :1536-1233, 13 May 2016.* [\[File Link\]](#)

## Honors & Awards

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2017-2018	Lopker Family Foundation Fellowship	UCSB
Dec. 2016	2nd place in Global AI Hackathon held by IBM	Korea
2015-16	HKTIIT Post-Graduate Excellence Scholarships	Hong Kong
2012-15	Scholarship Scheme for Continuing Undergraduate Students	HKUST
2013-14	Shun Hing Group Scholarships	Hong Kong
2012-14	Dean's List Awardee	HKUST
2011-12	School of Science Scholarship	HKUST

## Activities

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Sep. 2019	<b>2019 Grace Hopper Celebration</b>	Orlando, FL
Apr. 2018	<b>CRA-W Grad Cohort for Women workshop</b>	San Francisco, CA
Jan. 2015	<b>Service Learning Trip to Cambodia</b> Activities design & Teaching	Cambodia
Jun. 2013	<b>Volunteer in Nepal</b> Teaching & Organizing	Nepal
2012-2013	<b>Volunteer in Hong Kong</b> Elderly center & Flag sale & English Day	Hong Kong
2011-2014	<b>Mainland Students and Scholars Society (MSSS)</b> Executive committee: Promotion Secretary	HKUST
2011-2012	<b>Student Social Service Society (SSSS)</b> Sub-committee	HKUST