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EDUCATION

Shanghai Jiao Tong University

September 2015 - Present

- Senior Student in Naval Architecture and Ocean Engineering, the top 1 school in this filed world-widely.
- Member of Zhiyuan Honors Program (Top 10% students at whole university).
- Won Zhiyuan Honors Scholarship for 2 consecutive years.

University of California, Berkeley

July 2017 - August 2017

- Summer school, enrolled in two elective humanities courses.

RESEARCH EXPERIENCE

SIAT¹, Chinese Academy of Sciences

June 2018 - Present

Research Intern

Shenzhen, China

- Recommended by [Prof. Li Jiang](#), I am visiting Center for Multimedia Technologies, SIAT to conduct a project on weakly-supervised action detection, under the supervision of [Prof. Xiaoou Tang](#) and [Prof. Yu Qiao](#). Please see below for details.

Advanced Computer Architecture Laboratory, SJTU²

September 2017 - Present

Research Assistant

Shanghai, China

- Working on fields like neural network based approximate computing, neural network computing acceleration, and machine learning aided IC design. I work more than 70 hours each week in lab, under the supervision of [Prof. Li Jiang](#).
- Contributing as a Machine Learning (ML) consultant, I have joined more than 5 projects, provided suggestions on ML and led to 2 works [1,2]. [Here](#) is a sample providing mathematical proof of a phenomena occurred in experience.

PROJECT EXPERIENCE

Neural Network Based Approximate Computing Framework: AXNet

September 2017 - May 2018

- I proposed a novel architecture to conduct approximate computing, which highly reduces the training time and improves the performance compared to previous work.
- This work [1] was accepted to the top conference in computer architecture ICCAD'18, and before that it was also accepted as poster in DAC'18.³
- 15 minutes speech has been made in CTC'18⁴ on this work. See [blog post](#).

Reinforcement Learning based Weakly-supervised Video Action Detection

July 2017 - Present

- Proposed a Reinforcement Learning system to conduct temporally detection of actions in videos, with only video-level annotations and without temporal localization label (Weakly-supervised).
- I am paying effort on this project with 30+ paper read and 12+ hours work each day.

Wire Routing on Integral Circuits by Multi-agent Reinforcement Learning

February 2018 - June 2018

- Formulate classic wire routing problem to a competitive-cooperative multi-agent reinforcement learning problem.
- Wire routing problem is a typical NP-hard problem, and hopefully can be solved by Reinforcement Learning.
- Due to the lack of experience and the hard of the problem, this project is currently on hold.

Approximate Random Dropout

February 2018 - Present

- By replacing random dropout mechanism in neural network training procedure with predefined dropout patterns, we can foreknow dropped neurons and thus reduce redundant zero-multiplication in matrix computation.
- This work is in progress and targeted to AAAI this year [2].

PUBLICATION

[1] Z. Peng, X. Chen, C. Xu, N. Jing, X. Liang, C. Lu, and L. Jiang, "AXNet: ApproXimate computing using an end-to-end trainable neural network," *ArXiv e-prints*, July 2018 (Accepted to ICCAD'18) [[arXiv](#), [pdf](#)]

[2] Z. Song, D. Ru, R. Wang, H. Huang, Z. Peng, J. Ke, X. Liang, and L. Jiang, "Approximate random dropout," *CoRR*, vol. abs/1805.08939, 2018 (In Progress) [[arXiv](#), [pdf](#)]

SKILLS

Programming Languages

Python, C++, Matlab, HTML, CSS, etc.

ML Frameworks

TensorFlow, PyTorch, Keras, etc.

Tools

macOS, Git, L^AT_EX, OmniFocus, PyCharm, Zotero, Keynote, Matplotlib, Photoshop, Final Cut, etc.

Languages

Mandarin Chinese (Native), Cantonese (Native), English (TOEFL 100)

¹Shenzhen Institutes of Advanced Technology.

²Shanghai Jiao Tong University.

³DAC: Design Automation Conference. ICCAD: International Conference on Computer-Aided Design.

⁴China Testing Conference, 15 of August, 2018, Harbin.