Zhenghao PENG

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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.

The Affiliated High School of South China Normal University *September 2012 - July 2015*

- Received the title of outstanding graduate of this top 1 high school in Guangdong Province.

RESEARCH EXPERIENCE

SIAT[1], Chinese Academy of Sciences *June 2018 - Present*

Research Intern *Shenzhen, China*

- Recommended by Prof. Li Jiang, I am visiting 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, SJTU[2] *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 consultant, I have joined more than 5 projects, provided suggestions with Machine Learning knowledge and led to 2 works [1,2].

PROJECT EXPERIENCE

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.
- I am paying effort on this project with 30+ paper read and 12+ hours work each day.

Approximate Random Dropout *Feburary 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-multipication in matrix computation.
- This work is in progress and targeted to AAAI this year [2].

Wire Routing on Integral Circuits by Multi-agent Reinforcement Learning *February 2018 - June 2018*

- Applying Multi-agent Reinforcement Learning in a competitive and cooperative environment, which is formulated from classic wire routing problem.
- Wire routing problem is a typicle NP-hard problem, and hopefully can be solved by Reinforcement Learning.

Neural Network Based Approximate Computing Framework: AXNet *September 2017 - May 2018*

- I proposed a novel archtecture to conduct approximate computing, which highly reduces the training time and improves the performance compared to previous work.
- This work [1] was accepted by the top conference in computer archtecture ICCAD18, and before that it was also accepted as poster in DAC18.[3]

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 by ICCAD18) [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, etc.
ML Frameworks	TensorFlow, PyTorch, etc.
Research Tools	macOS, Git, LaTeX, OmniFocus, PyCharm, Zotero, Keynote, Matplotlib, etc.
Languages	Mandarin Chinese (Native), Cantonese (Native), English (TOEFL 100)

[1] Shenzhen Institutes of Advanced Technology.
[2] Shanghai Jiao Tong University.
[3] DAC: Design Automation Conference. ICCAD: International Conference on Computer-Aided Design.