TING-WU (RUDY) CHIN

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RESEARCH INTERESTS

Resource-constrained Machine Learning, Computer Vision, and Computer Systems

EDUCATION

Carnegie Mellon University *August 2017 - Present*
Ph.D., Electrical and Computer Engineering
Advisor: Diana Marculescu

National Chiao Tung University *2011-2017*
M.S. in Computer Science, Advisor: Shiao-Li Tsao
B.S. in Computer Science

PUBLICATIONS

Under Review

- **T. Chin**, C. Zhang and D. Marculescu, "Layer-compensated Pruning for Resource-constrained Convolutional Neural Networks," in arXiv preprint, 2018.
- **T. Chin**, R. Ding and D. Marculescu, "AdaScale: Towards Real-time Video Object Detection Using Adaptive Scaling," 2018.

Conference

- D. Stamoulis, **T. Chin**, A. K. Prakash, H. Fang, S. Sajja, M. Bognar and D. Marculescu, "Designing Adaptive Neural Networks for Energy-Constrained Image Classification, " in Proceedings of the 37th International Conference on Computer-Aided Design (ICCAD), IEEE Press, 2018.

Journal

- **T. Chin**, C. Yu, M. Halpern, H. Genc, S. Tsao and V. J. Reddi, "Domain-Specific Approximation for Object Detection," in IEEE Micro, vol. 38, no. 1, pp. 31-40, January/February 2018.
- H. Genc, Y. Zu, **T. Chin**, M. Halpern and V. J. Reddi, "Flying IoT: Toward Low-Power Vision in the Sky," in IEEE Micro, vol. 37, no. 6, pp. 40-51, November/December 2017.

EXPERIENCE

Microsoft Research May 2018 - August 2018
Research Intern (Mentor: Cha Zhang) *Redmond, WA*

- Developed a novel algorithm for filter pruning in convolution neural networks that is **8x** faster in searching a better pruning solution compared to prior art.

AILabs.tw May 2017 - August 2017
Software Engineering Intern (Mentor: Jie-Zhi Cheng) *Taipei, Taiwan*

- Dockerized a face swapping open source project and contributing back to upstream by fixing bugs.
- Used deep learning to accelerate the face swapping application by 20x.

Trinity Lab, UT Austin August 2016 - October 2016
Visiting Student (Mentor: Vijay Janapa Reddi) *Austin, TX*

- Analyzed the trade-off brought by image resolution on both the accuracy and speed of object detectors.

– Analyzed the performance, power, and accuracy of UAV running object detectors with various hardware and software.

ACHIEVEMENTS

3^{rd} Place for Siemens FutureMakers Challenge at CMU *Spring 2018*
2^{nd} Place Course Project for Energy-aware Computing (18743) at CMU *Fall 2018*
MediaTek Domestic PhD Fellowship (One of five recipients) *Fall 2016*
Award of Outstanding Teaching Assistant, NCTU *Fall 2016*
Outstanding Award in Programming Language course, NCTU *Spring 2012*

COURSE WORK

•Machine Learning •Convex Optimization •Deep Reinforcement Learning and Control
•Advanced Multimodal Machine Learning •Energy-aware Computing

TEACHING EXPERIENCE

Hardware Architecture for Machine Learning Fall 2018
Lead TA *Carnegie Mellon University*

– Bootstrapped the materials including slides and homework for the class that is offered for the first time.

Operating System Design and Implementation Fall 2015
Lead TA *National Chiao Tung University*

– Helped design the homework and gave recitation lectures.