Rui LIN

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APPOINTMENTS

Huawei Hong Kong Research Center **Dec. 2022 - present**
Researcher in the AI Framework & Data Tech. Lab.
Explainable and trustworthy AI, data processing technologies and framework design

EDUCATION

The University of Hong Kong **Sept. 2018 - Sept. 2022**
Ph.D. in the Dept. of Electrical and Electronic Engineering.
Supervised by Prof. Ngai Wong and Prof. Graziano Chesi.

Wuhan University **Sept. 2014 - Jun. 2018**
B.S. in the School of Mathematics and Statistics.
GPA: 3.52/4.00.

PUBLICATIONS

JOURNAL

- Xiao, X., Wang, J., **Lin, R.**, Hill, D. J., & Kang, C. (2020). Large-scale aggregation of prosumers toward strategic bidding in joint energy and regulation markets. Applied Energy, 271, 115159. [PDF]
- Tao, C.*, **Lin, R.***, Chen, Q., Zhang, Z., Luo, P., & Wong, N. (2021). FAT: Learning Low-Bitwidth Parametric Representation via Frequency-Aware Transformation. IEEE Transactions on Neural Networks and Learning Systems (to be appeared). arXiv preprint arXiv: 2102.07444. [PDF] [Codes]
- Mao, R., Wen, B., Arman, K., Zhao Y., Ann Franchesca, L., **Lin, R.**, Wong, N., Michael, N., Hu, X., Sheng, X., Catherine, G., John Paul, S. & Li, C. (2022). Experimentally Realized Memristive Memory Augmented Neural Network. Nature Communications. [PDF]

CONFERENCE

- Huang, B., Tao, C., **Lin, R.**, Wong, N. (2023). Frequency Regularization for Improving Adversarial Robustness. In proceedings of the 2nd International Workshop on Practical Deep Learning in the Wild at the AAAI Conference on Artificial Intelligence (Workshop at AAAI'23) [PDF][Codes]
- Ran, J., **Lin, R.**, Li, C., Zhou, J., Wong, N. (2023). PECAN: A Product-Quantized Content Addressable Memory Network. Design, Automation and Test in Europe Conference (DATE'23) [PDF]
- **Lin, R.**, Cong, C., & Wong, N. (2022). Coarse to Fine: Image Restoration Boosted by Multi-Scale Low-Rank Tensor Completion. In 2022 26th International Conference on Pattern Recognition (ICPR'22), IEEE. [PDF][Codes]
- **Lin, R.** *, Ran, J. *, Chiu, K.H., Chesi, G., Wong, N. * (2021). Deformable Butterfly: A Highly Structured and Sparse Linear Transform. Proceedings of the Advances in Neural Information Processing Systems (NeurIPS'21) [PDF][Codes][Slides][Poster]
- **Lin, R.***, Ran, J.*, Wang, D., Chiu, K. H., & Wong, N. (2021). EZCrop: Energy-Zoned Channels for Robust Output Pruning. In proceeding of the Winter Conference on Applications of Computer Vision (WACV'22).[PDF][Codes][Slides][Poster]
- Cheng, Y., **Lin, R.**, Zhen, P., Hou, T., ... & Wong, N. (2021). FASSST: Fast Attention Based Single-Stage Segmentation Net for Real-Time Instance Segmentation. In proceeding of the Winter Conference on Applications of Computer Vision (WACV'22).[PDF][Slides][Poster]

- Yuan, R.*, **Lin, R.** *, Ran, J., Liu, C., Tao, C., Wang, Z., Li, C. & Wong, N *. (2021). BATMANN: A Binarized-All-Through Memory-Augmented Neural Network for Efficient In-Memory Computing. In proceeding of IEEE 14th International Conference on ASIC (ASICON'21). [PDF][Codes][Slides]
- Ran, J.*, **Lin, R.***, So, H. K., Chesi, G., & Wong, N. (2021). Exploiting Elasticity in Tensor Ranks for Compressing Neural Networks. In 2020 25th International Conference on Pattern Recognition (ICPR'20) (pp. 9866-9873). IEEE. [PDF][Codes][Slides]
- **Lin, R.**, Ko, C. Y., He, Z., Chen, C., Cheng, Y., Yu, H., ... & Wong, N. (2020). HOTCAKE: Higher Order Tucker Articulated Kernels for Deeper CNN Compression. In 2020 IEEE 15th International Conference on Solid-State & Integrated Circuit Technology (ICSICT'20) (pp. 1-4). IEEE. [PDF][Codes][Slides]
- Ko, C. Y., **Lin, R.**, Li, S., & Wong, N. (2019). MiSC: mixed strategies crowdsourcing. Proceedings of the Twenty-Eighth International Joint Conference on Artificial Intelligence Main track (IJCAI'19) (pp. 1394-1400). [PDF][Codes][Slides]

* Equal Authorship Statement

PROFESSIONAL ACTIVITIES

TALKS

IJCAI 2019 Workshop "Humanizing AI" **Aug. 2019**
An invited lightning talk about crowdsourcing

AI Chip Center for Emerging Smart Systems (ACCESS) Seminar **Feb. 2022**
An invited talk about a newly proposed linear transform

Tsinghua University "AI TIME" **Mar. 2022**
An invited talk about a newly proposed linear transform

TEACHING

The University of Hong Kong **Fall 2019, Fall 2020, Fall 2021**
MATH1853: Linear Algebra, Probability and Statistics *Course Tutor*
Selected Materials: Slides-1, Slides-2, Slides-3

Wuhan University **Spring 2018**
Advanced Algebra and Analytic Geometry *Course Tutor*

DUTIES

Part Time Research Assistant **2022.6 - 2022.8**
The University of Hong Kong
Help with additional projects including my regular research tasks

Conference Reviewer **2021**
NeurIPS'22, ICML'22, CVPR'22, ICPR'22, CVPR'21, ICCV'21

Contest Problem Designer & Judge **2021**
EDAthon'21 *Problem 2*
EDAthon is a whole-day programming contest in Electronic Design Automation (EDA)

RESEARCH INTERESTS

- Neural network compression.
- Tensor applications for computation & memory cost reduction.
- Transformer in computer vision field.
- Model robustness analysis.

AWARDS AND SCHOLARSHIPS

Postgraduate Scholarship (PGS) **2018 - 2022**
The University of Hong Kong

French Learning Scholarship in the School of Mathematics and Statistics **2015, 2016, 2017**
Wuhan University

Winter Exchange Program Scholarship to University of Cambridge **2016**
Wuhan University

Third-class Scholarship for First-year Freshmen **2014**
Wuhan University

ADDITIONAL

- **Programming Languages:** Python, MATLAB, R.
- **Languages:** Mandarin (native), English (fluent), Cantonese (conversational), French (basic).