FUYUAN LYU

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SUMMARY

I'm currently a Ph.D. candidate at McGill University. I am fortunate to be advised by Prof Jin Guo and Prof Xue Liu.

Prior to joining McGill, I got my bachelor's degree of Computer Science and Zhiyuan Honour Degree of Engineering from Shanghai Jiao Tong University(SJTU). I was advised by Prof Li Jiang and Prof Xiaokang Yang.

My research interest lies in utilizing Recommendation System and Graph Neural Network in the Software Engineering domain.

EDUCATION

- PhD, Computer Science, McGill University, 2019-2024(exp.)
- BEng, Computer Science, Shanghai Jiao Tong University, 2015-2019
- Zhiyuan Honor Degree for BEng, Shanghai Jiao Tong University, 2015-2019

PUBLICATIONS & PREPRINT

Fuyuan Lyu, Xing Tang*, Huifeng Guo, Ruiming Tang, Xiuqiang He, Rui Zhang, Xue Liu, "Memorize, Factorize, or be Naïve: Learning Optimal Feature Interaction Methods for CTR Prediction", *submitted to ICDE 2022*

Ke Li, Junzheng Wu, Huanlai Xing, **Fuyuan Lyu**, Pingzhi Fan and Chao Zhang, Mobility-Aware Online Content Caching for Vehicular Networks based on Deep Reinforcement Learning, submitted to IEEE Internet of Things Journal.

Fuyuan Lyu, Shien Zhu, and Weichen Liu. "Cross-filter compression for CNN inference acceleration." arXiv preprint arXiv:2005.09034 (2020).

RESEARCH EXPERIENCE

Huawei Noah's Ark Lab **March 2021 to August 2021**
Research Intern *Advisor: Dr. Xing Tang*
- Optimal Modelling Methods for Feature Interaction in CTR Prediction: Study the influence of modelling methods for feature interaction. Propose a novel deep CTR prediction framework including various modelling methods and a two-stage learning algorithm to select the optimal for each feature interaction automatically.

McGill University **Sept 2019 to present**
Research Assistant *Advisor: Prof. Jin Guo & Prof. Xue Liu*
- Hardware Adaptive Pruning: Studied the pruning problem in the resource-contrained secanrios. Propose a Hardware Adaptive Pruning method that effectively prunes the models considering hardware constraints as part of the loss function. Adopt model transferability as an additional evaluation metric for pruning methods to reflect practical concerns when deploying.
- Recommending Repositories to Support Reproducibility: Studied the reproducibility of different ML papers. Utilized Recommendator System on GitHub to support reproducing ML papers.

Shanghai Jiao Tong University **Feb 2019 to Aug 2019**
Research Assistant *Advisor: Prof. Li Jiang*
- Dual-flow Training Framework to Exploit Structured Sparsity: Support structured sparsity from framework level. Propose a flexible dual-flow mechanism to decouple the non-zero data and the sparse network structure. Integrate the dual-flow mechanism into the deep learning compiler stack built on TVM.

Nanyang Technological University **Aug 2018 to Feb 2019**
Research Assistant *Advisor: Prof. Weichen Liu*
- Cross-filter Compression: Address the conflict between uniform quantization and compact network design when speedup CNN. Explored CNN spatial-adjunct layer property and proposed cross-filter compression method.

Shanghai Jiao Tong University **Jun 2017 to Feb 2018**
Research Assistant *Advisor: Prof. Xiaokang Yang*
- Explored the possibility of more realistic cloth transfer by generating and transferring structure in 3D dimension.
- Designed a specific generative adversarial network to animate cartoon figures.

TEACHING AND MENTORING EXPERIENCE

- 2020 Winter - COMP303 Teaching Assistant

- Reviewer of *Transaction on Service Computing*

SELECTED AWARDS

- Wolfe Fellowship in Sci & Tech, 2019-2022
- Grad Excellence Award of McGill University, 2019-2022
- Zhiyuan Honor Degree of Engineering of Shanghai Jiao Tong University(1%), 2019
- Zhiyuan Oversea Research Scholarship (1st class) of Shanghai Jiao Tong University, 2019
- Zhiyuan Outstanding Student Scholarship of Shanghai Jiao Tong University(5%), 2019
- Microsoft Intelligence Award , awarded to 4/438 participants in the 1st HACKxFDU Hackathon, 2016.

SKILLS

Software Python, C++, Java
Languages English: professional proficiency. Mandarin: native.