Tianyu Xiong

PHD. Applicant

☐ 13641055086 | ✉ tianyu.xiong@mail.utoronto.ca | ⌂ https://timsyqqx.github.io/ | ☐ https://github.com/TimSYQQX

Education

University of Toronto *St. George*
Honors Bachelor of Science *2017 - 2021*
- Computer Science Specialist (GPA3.65)

Publications

Xiong, T., Yu, X. Multi-Tower Multi-Interest Learning for Candidate Matching in Recommender Systems. ACM/SIGIR. (2024)

Huang, G., Ge, C., **Xiong, T.** et al. Large-scale air pollution prediction with deep convolutional networks. Sci. China Inf. Sci. 64, 192107 (2021). https://doi.org/10.1007/s11432-020-2951-1

Zhao, Y., **Xiong, T.**, Zheng, L., Li, Y., Chen, X. The effect of similarity on the evolution of fairness in the ultimatum game. Chaos, Solitons Fractals, 131, 109494.(2020)

Experience

Huawei Research - 2012 Poisson Lab *Beijing, China*
Recommender System Algorithmic Engineer *May 2022 - Now*
- Enhancing long-term user behavior modeling through the introduction and utilization of a novel technique called Long Short-term Self Attention resulted in a noteworthy 3.9% increase in the Hitrate@200
- Enhancement of Multi-Interest user behavior modeling: Designed and implemented Inverted Distance loss and successfully applied Multi-Interest Learning to Vector Retrieval, improved Hitrate@200 by 1.1%
- Enhancement of Multimodal Recommendation
- Daily maintenance and upgrades of WiseDataOps.

The Hong Kong Polytechnic University *Hong Kong, China*
Research Assistant *August, 2021 - January, 2022*
- Project: *"Text Driven Image Cropping using CLIP"*. Designed and implemented an esthetic-aware natural language-guided image cropping program.
- Speed up backpropagation through *"Partial Sampling of Convolution Feedback"*.
- *"Parallelisable Feedback Mechanisms"*, learned and analyzed Direct Feedback Alignment based asynchronous feedback mechanism.

Tsinghua University - Prof. Huanggao *Beijing, China*
Research Intern *May. 2019 - August 2019*
- Publication: "Large scale air pollution prediction with deep convolutional networks. " Make spatiotemporal air pollution prediction using deep convolutional neural network. Our model attained state-of-the-art performance.

Beihang University - Prof. Zhen Xiantong *Beijing, China*
Research Intern *May. 2018 - August 2018*
- Group Project with Ming Fengwan: "MURA Bone Image Classification with CliqueNet." Implemented CliqueNet on MURA radiographic image classification challenge.

Professional Toolkit

Programming Language:, Python, C, Julia
Machine Learning:, PyTorch, JAX, Sci-kit Learn
Computer Vision:, OpenCV, Skimage, PIL
Scientific Computing:, Numpy, Pandas, Sci-py
Parallel Computing:, OpenMP, MPI, CUDA
Visualization:, Matplotlib, Wandb

Teaching Experience

Fall 2021   **COMP2011 Data structures**, Teaching Assistant   *PolyU*

Presentations

Fall 2021. Xiong, T. *Parallelizable Feedback Mechanisms*. Research Presentation@PolyU.

Fall 2021. Xiong, T. Wang, Z. *Progressive Real-Time Rendering of One Billion Points Without Hierarchical Acceleration Structures*. COMP6706@PolyU.

Fall 2020. Xiong, T. *Memory-Efficient High-Resolution Image Analysis with Bionic Reinforcement Learning*. West Lake University.

Fall 2019. Xiong, T. Wang, L. *Cloud Image Segmentation and Classification*. CSC420H1@UofT

Outreach & Professional Development

OPEN SOURCE PROJECTS

Slideextractor, Convert lecture video to slides.

Jmd2notebook, Julia markdown to ipython notebook converter.

Context-Free-Grammar-Generator, Generates CFG in an intuitive and pythonic manner.