

# Yuxin Tang

Department of Computer Science  
Rice University  
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## SKILLS

### Programming

- Python, C++, CUDA.
- Expertise with deep learning system performance optimization

### Framework

- PyTorch, PostgreSQL, Spark, Flutter, MongoDB, Android/iOS
- Familiar with machine learning system design and database system design

## EDUCATION

- Ph.D.                Computer Science, Rice University, 2018-Present  
                      Advisor: Chris Jermaine
- B.S.                Computer Science, Shanghai Jiao Tong University, 2014-2018

## RESEARCH AREAS

Large-scale machine learning, data management for machine learning  
Distributed machine learning, on-device machine learning, federated learning

## INTERNSHIP

- 2022                ByteDance Inc, Mountain View, CA  
                      Graph Learning Team - Applied Research Center
- Worked on self-supervised learning (SSL) on graphs and implemented the multi-view graph contrastive learning model (MVGRL) on large graph datasets.
  - Worked on the scalability issues of graph diffusion by approximating personalized PageRank. End-to-end training time is reduced 60%.
  - Worked on the sparse tensor representation for graph preprocessing, graph training and inference. Peak memory usage is reduced to only 29%.
- 2018                Pygmal Technologies, Shanghai
- Formalized one cryptocurrency trading platform front-end design
  - Developed one cryptocurrency trading platform mobile application using Flutter 2.0
- 2017-2018        Intel Asia-Pacific Research & Development Ltd, Shanghai  
                      Javascript Technology Center
- Improved average page load speed by around 5% for JavaScript engine in Chrome V8
  - Submitted 10 more patches for Chromium Speedometer 2.0 benchmark
  - Identified possible performance optimization for web-assembly (wasm) opencv.js benchmark by JIT compilation

## PUBLICATION

- 2023      **Auto-Differentiation of Database Queries for Very Large Scale Machine Learning.**  
Yuxin Tang, Zhimin Ding, Dimitrije Jankov, Binhang Yuan, Daniel Bourgeois, Chris Jermaine.  
*In submission.*
- 2022      **Distributed learning of fully connected neural networks using independent subnet training.**  
Binhang Yuan, Cameron R. Wolfe, Chen Dun, Yuxin Tang, Anastasios Kyrillidis, Chris Jermaine.  
*VLDB'22*
- 2021      **Federated Multiple Label Hashing (FedMLH): Communication Efficient Federated Learning on Extreme Classification Tasks.**  
Yuxin Tang, Zhenwei Dai, Chen Dun, Anastasios Kyrillidis, Anshumali Shrivastava.  
*ICML-FL'21*
- 2021      **Tensor Relational Algebra for Machine Learning System Design.**  
Binhang Yuan, Dimitrije Jankov, Jia Zou, Yuxin Tang, Daniel Bourgeois, and Chris Jermaine.  
*VLDB'21*
- 2020      **Programmable In-Network Security for Context-aware BYOD Policies.**  
Qiao Kang, Lei Xue, Adam Morrison, Yuxin Tang, Ang Chen, Xiapu Luo.  
*USENIX Security'20*
- 2018      **A Programmable, Hardware-Assisted Network Protocol Fuzzer.**  
Yuxin Tang, Ang Chen.  
*OSDI'18*
- 2017      **Exploring Simulation of Software-Defined Underwater Wireless Networks.**  
Li Wei, Yuxin Tang, Yuching Cao, Zhaohui Wang, Mario Gerla.  
*MobiCom'17 Workshop on Underwater Networks*

## AWARDS

- 2022      ICML travel grant
- 2020      Ken Kennedy Institute Computational Science and Engineering Fellowship (\$15,000/4 years)
- 2017      Hongyi Scholarship (¥25,000)
- 2016      Gold Medal, International Genetically Engineered Machine Competition
- 2015      Chun-Tsung Scholar (funded by Nobel Prize Winner T. D. Lee) (¥15,000)
- 2014      Scholarship of Academic Excellence of SJTU

## SERVICE

Conference Reviewer:  
*ICML 2021, ICML 2022, NeurIPS 2022, AISTATS 2023*