Cong Xie

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Education

Ph.D. of Computer Science, University of Illinois at Urbana Champaign 2016–2021
GPA: 3.96/4.0,
Advisor: Indranil Gupta and Sanmi Koyejo

M.S. of Computer Science, Shanghai Jiao Tong University 2013–2016
GPA: 2.59/3.3,
Advisor: Wu-Jun Li and Zhihua Zhang

B.S. of Computer Science, Shanghai Jiao Tong University 2009–2013
GPA: 3.52/4.3, 85.38/100

Research Interests

Distributed Communication-Efficient Machine Learning, Security in Machine Learning

Publication

1. **Cong Xie**, Shuai Zheng, Sanmi Koyejo, Indranil Gupta, Mu Li, and Haibin Lin. CSER: Communication-efficient SGD with Error Reset. *Advances in Neural Information Processing Systems* (*NeurIPS*), 2020. (*Acceptance rate: 20%*). *Preprint:* https://arxiv.org/abs/2007.13221

2. **Cong Xie**, Sanmi Koyejo, and Indranil Gupta. Zeno++: Robust Fully Asynchronous SGD. *International Conference on Machine Learning* (*ICML*), 2020. (*Acceptance rate: 22%*)

3. Beomyeol Jeon, Linda Cai, Pallavi Srivastava, Jintao Jiang, Xiaolan Ke, Yitao Meng, **Cong Xie**, Indranil Gupta. Baechi: Fast Device Placement of Machine Learning Graphs. *Proc. ACM Symposium on Cloud Computing* (*ACM SoCC*), 2020.

4. **Cong Xie**, Sanmi Koyejo, and Indranil Gupta. SLSGD: Secure and Efficient Distributed On-device Machine Learning. *European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases* (*ECML PKDD*), 2019. (*Acceptance rate: 18%*)

5. **Cong Xie**, Sanmi Koyejo, and Indranil Gupta. Fall of Empires: Breaking Byzantine-tolerant SGD by Inner Product Manipulation. *Uncertainty in Artificial Intelligence* (*UAI*), 2019. (*Acceptance rate: 26%*)

6. **Cong Xie**, Sanmi Koyejo, and Indranil Gupta. Zeno: Distributed Stochastic Gradient Descent with Suspicion-based Fault-tolerance. *International Conference on Machine Learning* (*ICML*), 2019. (*Acceptance rate: 23%*)

7. **Cong Xie**, Donglin Yang, Yixiang Huang, and Donglai Sun. Feature Extraction and Ensemble Decision Tree Classifier in Plant Failure Detection. *Annual Conference of the Prognostics and Health Management Society* (*IEEE PHM2015 Data Challenge Winner Paper*), 2015.

8. Wuxuan Jiang, **Cong Xie**, and Zhihua Zhang. Wishart Mechanism for Differentially Private Principle Components Analysis. *The Thirtieth Conference on Artificial Intelligence* (*AAAI-16*), 2015.

9. Shenjian Zhao, **Cong Xie**, and Zhihua Zhang. A Scalable and Extensible Framework for Superposition-Structured Models. *The Thirtieth Conference on Artificial Intelligence* (*AAAI-16*), 2015.

10. **Cong Xie**, Ling Yan, Wu-Jun Li, and Zhihua Zhang. Distributed Power-law Graph Computing: Theoretical and Empirical Analysis. *Advances in Neural Information Processing Systems* (*NIPS*), 2014.

Preprints

1. **Cong Xie**, Sanmi Koyejo, Indranil Gupta, and Haibin Lin. Local AdaAlter: Communication-Efficient Stochastic Gradient Descent with Adaptive Learning Rates. *https://arxiv.org/abs/1911.09030*
2. **Cong Xie**, Sanmi Koyejo, and Indranil Gupta. Asynchronous Federated Optimization. *https://arxiv.org/abs/1903.03934*
3. **Cong Xie**, Sanmi Koyejo, and Indranil Gupta. Phocas: dimensional Byzantine-resilient stochastic gradient descent. *https://arxiv.org/abs/1805.09682*
4. **Cong Xie**, Ling Yan, Wu-Jun Li, and Zhihua Zhang. Distributed Power-law Graph Computing: Theoretical and Empirical Analysis. (*Long version of a conference paper*)
5. **Cong Xie**, Wu-Jun Li, and Zhihua Zhang. S-PowerGraph: Streaming Graph Partitioning for Natural Graphs by Vertex-Cut. *http://arxiv.org/abs/1511.02586*
6. **Cong Xie**, Wu-Jun Li, and Zhihua Zhang. A New Relaxation Approach to Normalized Hypergraph Cut. *http://arxiv.org/abs/1511.02595*

Honors & Awards

J.P. Morgan 2020 AI Research PhD Fellowship Awards *Website link*	2020
National Scholarship *Top 2%*	2015
SJTU Academic Excellence Scholarship Class-B *Top 10%*	2012
SJTU Academic Excellence Scholarship Class-C *2 Times, Top 20%*	2009–2011

Academic Service

Journal Reviewer:

o Journal of Machine Learning Research (JMLR)	2015
o ACM Transactions on Autonomous and Adaptive Systems (TAAS)	2016
o IEEE Transactions on Signal Processing	2019

Conference Reviewer:

o ICML, NeurIPS, UAI, ICLR, DISC, AAAI	2018-

Internship

Amazon Inc. Applied Scientist	2018, 2019

- o Accelerate distributed training of BERT language model via local SGD.
- o Accelerate tensor reduction/averaging on multiple GPUs.

Microsoft(Shanghai) Software Development Engineer in Test	2012

Work Experience

Maxtropy Inc. Data Scientist (part-time) *http://www.maxtropy.com*	2013–2016

- o Mining massive industrial data sets, including fault detection, residual useful life prediction.

Skills

Programming Languages: Python, C/C++, Matlab, JAVA, Verilog, JavaScript

Research Related: Deep Neural Networks, Distributed Computing, Optimization, Graph Mining

Others: Shell, Latex