

Jinlai Xu

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Appointments

ByteDance

Researcher/Engineer

Infrastructure System Lab

2022.1–present

University of Pittsburgh

Graduate Student Researcher

School of Computing and Information

2020.8–2021.12 & 2019.8–2019.12

Facebook

Software Engineer Intern

2019.5–2019.7

Education

University of Pittsburgh

PhD in Information Science

Advisor: Balaji Palanisamy

Thesis: Geo-distributed Edge and Cloud Resource Management for Low-latency Stream Processing

School of Computing and Information

2015.8– 2021.12

China University of Geosciences

M.E in Software Engineering

Advisor: Zhongwen Luo

GPA – 89.9/100, Major GPA – 91.9/100,

Thesis: MapReduce Performance Acceleration and Analytic with Intermediate Results Reusing.

2012.9– 2015.6

China University of Geosciences

B.E. in Software Engineering

Advisor: Zhongwen Luo

GPA – 88.6/100, Major GPA – 92.9/100, ranked 1st/96,

Thesis: Design and Implementation of the Quadrotor Autopilot and 3-D Point Cloud Generation and Processing System.

2008.9–2012.6

Research Interests

I am broadly interested in Distributed Systems, Edge Computing, and Cloud Computing with specific focus on Resource Management, Stream Processing, Reinforcement Learning for Systems, Incentive Design for Collaborative Resource Sharing, and Blockchain-based Resource Management

Publications

[JPDC]: Jinlai Xu, Balaji Palanisamy, Qingyang Wang, Heiko Ludwig, and Sandeep Gopisetty. Amnis: Optimized stream processing for edge computing. *Journal of Parallel and Distributed Computing (JPDC)*, 2021.

[TSC]: Jinlai Xu, and Balaji Palanisamy. Optimized contract-based model for resource allocation in federated geo-distributed clouds. *IEEE Transactions on Services Computing (TSC)*, 2018.

[CCPE]: Hong Yao, Jinlai Xu, Zhongwen Luo, and Deze Zeng. MEMoMR: Accelerate mapreduce via reuse of intermediate results. *Concurrency and Computation: Practice and Experience (CCPE)*, 2016.

[CCGrid 22']: Jinlai Xu, Balaji Palanisamy, Qingyang Wang, Heiko Ludwig and Sandeep Gopisetty. Decentralized Allocation of Geo-distributed Edge Resources using Smart Contracts. In 2022 *The 22nd IEEE/ACM International Symposium on Cluster, Cloud and Internet Computing (CCGrid)*. 2022.

[HiPC 21']: **Jinlai Xu**, Balaji Palanisamy. Model-based reinforcement learning for elastic stream processing in edge computing. In *2021 28th IEEE International Conference on High Performance Computing, Data, and Analytics (HiPC) (Best Paper Candidate)*. 2021.

[CCGrid 21']: **Jinlai Xu**, Balaji Palanisamy, and Qingyang Wang. Resilient stream processing in edge computing. In *2021 IEEE/ACM International Symposium on Cluster, Cloud and Internet Computing (CCGrid)*. 2021.

[CIC 21']: **Jinlai Xu**, Balaji Palanisamy. Cost-aware & Fault-tolerant Geo-distributed Edge Computing for Low-latency Stream Processing. In *2021 7th IEEE International Conference on Collaboration and Internet Computing (CIC) (Vision Paper)*. 2021.

[CODASPY 21']: Chao Li, Balaji Palanisamy, Runhua Xu, **Jinlai Xu** and Jingzhe Wang. SteemOps: Extracting and Analyzing Key Operations in Steemit Blockchain-based Social Media Platform. In *2021 ACM Conference on Data and Application Security and Privacy (Dataset/Tool Paper)*. 2021.

[IEEE CIC 20']: Jingzhe Wang, Balaji Palanisamy, and **Jinlai Xu**. Sustainability-aware resource provisioning in data centers. In *2020 IEEE International Conference on Collaboration and Internet Computing (CIC)*. 2020.

[IEEE Edge 17']: **Jinlai Xu**, Balaji Palanisamy, Heiko Ludwig, and Qingyang Wang. Zenith: Utility-aware resource allocation for edge computing. In *2017 IEEE international conference on edge computing (EDGE)*, 2017.

[IEEE Cloud 17']: **Jinlai Xu** and Balaji Palanisamy. Cost-aware resource management for federated clouds using resource sharing contracts. In *2017 IEEE 10th International Conference on Cloud Computing (CLOUD)*, 2017.

[IEEE CIC 17']: **Jinlai Xu**, Balaji Palanisamy, Yuzhe Tang, and SD Madhu Kumar. PADS: Privacy-preserving auction design for allocating dynamically priced cloud resources. In *2017 IEEE 3rd International Conference on Collaboration and Internet Computing (CIC)*, 2017.

Teaching Experience

2017–2020: Teaching Assistant, University of Pittsburgh

- Cloud Computing (2017 Spring, 2018 Spring, 2019 Spring, 2020 Spring)
 - Instructor: Prof. Balaji Palanisamy
- Information Security and Privacy (2017 Fall), Information Security and Privacy (Online Course) (2018 Fall)
 - Instructor: Prof. Balaji Palanisamy
- Algorithm Design (2018 Fall)
 - Instructor: Prof. Hassan Karimi

2013 Fall: Teaching Assistant, China University of Geosciences

- Advanced Programming Language (JAVA)
 - Instructor: Prof. Shengwen Li

Honors & Awards

2021: HiPC 2021 Best Paper Candidate, HiPC 2021

2017: ICDCS 2017 student travel grant, ICDCS 2017, Atlanta, GA, USA

2013–2014: Outstanding Student Award, China University of Geosciences, China

2010–2011: Fellows Scholarship, China University of Geosciences, China

2009–2010: National Scholarship, Ministry of Education, China

2009: The Second Place of AndroSot(Full-autonomous 3vs3 Humanoid Robot Soccer), The 9th Robot Soccer Tournament of China and The Tryouts for FIRA, Changchun, China

2009: The First Prize of AndroSot(Semi-autonomous 3vs3 Humanoid Robot Soccer), The 9th Robot Soc-

cer Tournament of China and The Tryouts for FIRA, Changchun, China

Professional Services

Journal Review:

- IEEE Transactions on Dependable and Secure Computing (TDSC)
- IEEE Transactions on Services Computing (TSC)
- Concurrency and Computation: Practice and Experience (CCPE)
- International Journal of Cooperative Information Systems (IJCIS)
- Information Systems Frontiers (ISFI) : IRI - Special Issue on Foundations of Reuse
- PLOS ONE

Conference Review:

- IEEE INTERNATIONAL CONGRESS ON INTERNET OF THINGS (ICIOT)
- IEEE International Conference on Communications (ICC)

Conference External Review:

- IEEE World Wide Web (WWW)
- International Conference on Distributed Computing Systems (ICDCS)
- IEEE International Conference on Big Data (Big Data)
- ACM International Conference on Information and Knowledge Management (CIKM)

Conference Volunteer:

- IEEE 18th International Conference on Information Reuse and Integration (IRI 2017), San Diego, CA, USA. Aug 4 - 6, 2017
- The 37th International Conference on Distributed Computing Systems (ICDCS 2017), Atlanta, GA, USA. June 5 - 8, 2017
- IEEE 17th International Conference on Information Reuse and Integration (IRI 2016), Pittsburgh, PA, USA. Jul 28 - 30, 2016
- IEEE 2ed International Conference on Collaboration and Internet Computing (CIC 2016), Pittsburgh, PA, USA. Nov 1 - 3, 2016

Conference Web Chair:

- The 7th IEEE International Conference on Collaboration and Internet Computing (IEEE CIC 2021)
- The Third IEEE International Conference on Trust, Privacy and Security in Intelligent Systems, and Applications (IEEE TPS 2021)
- The Third IEEE International Conference on Cognitive Machine Intelligence (IEEE CogMI 2021)

Conference Webmaster:

- IEEE International Conference on Information Reuse and Integration (IEEE IRI 2018, 2017)
- International Workshop on Internet-scale Clouds and Big Data (ISCBD 2018, 2017, 2016)