# Jinlai Xu
*Curriculum Vitae*

*Room 410, IS Building, 135 Bellfield Ave.*
*Pittsburgh, PA 15213*
📞 *+1 412 539 6094*
✉ *xujinlai@gmail.com*
🖰 *jinlaixu.net*

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## Education

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| Aug. 2015– Jul. 2021 | **PhD in Information Science (expected)**, *University of Pittsburgh*. <br> Advisor: Balaji Palanisamy <br> Thesis: Geo-distributed Edge and Cloud Resource Management for Low-latency Stream Processing |
| Sep. 2012– Jun. 2015 | **M.E in Software Engineering**, *China University of Geosciences (211)*. <br> Advisor: Zhongwen Luo <br> *GPA – 89.9/100, Major GPA – 91.9/100,* <br> Thesis: MapReduce Performance Acceleration and Analytic with Intermediate Results Reusing. |
| Sep. 2008–Jun. 2012 | **B.E. in Software Engineering**, *China University of Geosciences (211)*. <br> *GPA – 88.6/100, Major GPA – 92.9/100*, ranked 1st/96, <br> Thesis: the Design and Implementation of the Quadrotor Autopilot and 3-D Point Cloud Generation and Processing System. |

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## Research Interests

I am broadly interested in Distributed Systems, Edge Computing, and Cloud Computing with specific focuses on Resource Management, Stream Processing, Reinforcement Learning on Systems, and Intensive Design for Resource Management

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## Publications

### Jounal Publications

[JPDC] **Jinlai Xu**, Balaji Palanisamy, Qingyang Wang, Heiko Ludwig, and Sandeep Gopisetty. Amnis: Optimized stream processingfor edge computing.Journal of Parallel and Distributed Computing**(under review after major revision)**, 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 (Special Issue), 28(14):3814–3829, 2016.

### Conference Publications

[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)**(in submission)**. IEEE, 2021.

[CODASPY 21' D/T] 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)**. ACM, 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). IEEE, 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), pages 47-54. IEEE, 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), pages 238-245. IEEE, 2017.

[IEEE CIC 17'] **Jinlai Xu**, Balaji Palanisamy, Yuzhe Tang, and SD Madhu Kumar. PADS: Privacy-preserving auction design for allocatingdynamically priced cloud resources. In 2017 IEEE 3rd International Conference on Collaboration and Internet Computing(CIC), pages 87-96. IEEE, 2017.

## Honors & Awards

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

## 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

## Work Experience

2019 May.–Jul. **Software Engineer Intern**, *Facebook*.
Software Engineer Intern in Stream Processing Team

## Professional Services

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| Journal Review | ○ 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 |
| | ○ TELKOMNIKA (Telecommunication, Computing, Electronics and Control) |
| Conference Review | ○ IEEE INTERNATIONAL CONGRESS ON INTERNET OF THINGS (ICIOT) |
| | ○ International Conference on Electrical Engineering, Computer Science and Informatics (EECSI) |
| | ○ International Workshop on Internet-scale Clouds and Big Data (ISCBD) |
| | ○ IEEE International Conference on Communications (ICC) |
| Conference External Review | ○ IEEE World Wide Web |
| | ○ 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 Webmaster | ○ IEEE 19th International Conference on Information Reuse and Integration (IEEE IRI 2018) |
| | ○ IEEE 18th International Conference on Information Reuse and Integration (IEEE IRI 2017) |
| | ○ International Workshop on Internet-scale Clouds and Big Data (ISCBD 2018) |
| | ○ International Workshop on Internet-scale Clouds and Big Data (ISCBD 2017) |
| | ○ International Workshop on Internet-scale Clouds and Big Data (ISCBD 2016) |

## Research Experience

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| 2015–Present | **Graduate Student Researcher**, THE LABORATORY FOR EDUCATION AND RESEARCH ON SECURITY ASSURED INFORMATION SYSTEMS (LERSAIS), University of Pittsburgh, Pittsburgh. |
| | ○ Reviewed related literature (mainly in Edge Computing, Cloud Computing, and Stream Processing) |
| | ○ Focus on resource management and allocation problems in Edge and Cloud Computing for Low-latency Stream Processing |
| | ○ Publish papers on these topics. |

2012–2015 **Research Assistant**, Robotics and Artificial Intelligence Laboratory, China University of Geosciences, Wuhan.
  ○ Reviewed related literature (mainly in Cloud Computing)
  ○ Constructed the cloud computing platform for our faculty:
    – Designed the virtualization solution for the cluster. (based on Xen)
    – Deployed Hadoop and related application(Hive, Spark, Solr ...) on the cluster.
  ○ Studied MapReduce programming model and did research on it:
    – Read the source code of MapReduce in Hadoop project.
    – Proposed a new method to reuse the intermediate results automatically and data-awarenessly and implemented the prototype system by modifying the core code of MapReduce.
    – the paper is published on Concurrency and Computation: Practiceand Experience (CCPE) (Title: **MEMoMR: Accelerate MapReduce via Reuse of Intermediate Results**)
  ○ Managed the cluster in our faculty:
    – Allocated the virtual machines and network resource.
    – Supported a mirror site on the cluster (http://mirrors.cug.edu.cn).

2009–2012 **Undergraduate Research Assistant**, Robotics and Artificial Intelligence Laboratory, China University of Geosciences, Wuhan.
  ○ Reviewed related literature (mainly in Computer Vision and Robotics).
  ○ Participated in The 9th Robot Soccer Tournament of China and The Tryouts for FIRA in Changchun in freshmen year.
  ○ Studied the architecture and implementation of ROS(The Robot Operating System) and preliminarily deployed it on the robots control panel (Version: RB100 by RoBoard).
  ○ Successfully applied for The National College Students Innovation Experiment Program:
    – **Topic: Small Model Aircraft Autopilot System and Aerial Photo Research**
    – Chose Quadrotor(an aircraft with four rotors) as the carrier platform of the research.
    – Studied the theory of balancing the Quadrotor with MikroKopter(one of the most famous open source UAV projects).
    – Studied and implemented the point clouds registration algorithm ICP and RANSAC on ROS.
    – Used ASUS Xtion PRO (a device like Kinect) to get the point cloud data and evaluated the algorithm.
    – Wrote graduation thesis based on this topic.(Title: the Design and Implementation of the Quadrotor Autopilot and 3-D Point Cloud Generation and Processing System)

## Languages

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| Chinese | **Native proficiency** | |
| English | **Professional working proficiency** | *Conversationally fluent* |

## Skills

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| Basic | java, C++ |
| Intermediate | python, LaTeX, Linux, Emacs, GitHub, Hadoop, Storm |
| Advanced | Cloud Computing Infrastructure, Cloud Resource Virtualization, Computer Vision |