

## Education

- **Duke University** NC, U.S.A  
*Ph.D. student in Computer Science;* Aug. 2018 – NOW
- **Xi'an Jiaotong University** Xi'an, China  
*Master Degree in Computer Science-GPA: 86.42/100;* Sep. 2013 – Jun. 2017
- **Xi'an Jiaotong University** Xi'an, China  
*Bachelor Degree in Computer Science-GPA: 85.69/100;* Sep. 2009 – Jun. 2013
- **The Chinese University of Hong Kong** Hong Kong, China SAR  
*Exchange Student Program-GPA: 3.675/4.0;* Jan. 2012 – Jun. 2012

## Internship Experience

- **Cloud Analytics and Service Team** IBM China Research Laboratory  
*Research Assistant Intern* Jul. 2015 – Jul. 2018
  - Work with IBM Senior Research Staff Member Fanjing Meng and Senior Research Manager Jingming Xu;
  - Research on performance anomaly detection in both process-level within an OS, and also host-level within a PaaS/IaaS cloud platform via unsupervised learning methods;
  - Research on log transaction discovery and log template mining with statistical based machine learning methods;
  - During the internship, published 5 related papers, 6 related patents and won the IBM Fellowship.

## Research Project

- **Proactive Anycast Measurement** Duke University  
*Supervised by Professor Bruce and Professor Xiaowei* Sep. 2018 – NOW
  - Joint Program with Akamai and University of Virginia;
  - Pattern Mining of devices behavior in Akamai's web access logs;
  - Design and implement Anycast simulation environment;
  - Develop tunneled BGP advertising infrastructure with GoBGP and Bird;
  - Plan to deploy in Akamai's environment;
  - Design and implement proactive measurement instrumentation VM for Vantage Point.
- **Anomaly Detection at Host-level in PaaS/IaaS Platform** IBM Research China  
*Cloud Analytics and Service Team* Jul. 2015 – Jul. 2018
  - Pinpoint the malicious hosts in cloud environment in a platform which contains about 2K hosts;
  - Take the durability of model into consideration;
  - Find the simultaneously drifts among several different hosts;
  - Deployed in multiple commercial banks and also IBM Cloud.
- **Anomaly Detection at Process-level in Cloud** IBM Research China  
*Cloud Analytics and Service Team* Jul. 2015 – Jul. 2016
  - Pinpoint abnormal processes in cloud management host in an IBM IaaS platform;
  - Take multi-process and multi-thread into consideration;
  - Cluster different status of process with process-level performance profiling with DBSCAN;
  - Implement a tool to collect fine-grain thread-level metrics within the OS;
- **VRAM Re-allocation of Virtual Machine Monitor** Xi'an Jiaotong University  
*The Institution of Computer Software and Theory* Mar. 2013 – Aug. 2013
  - Research on the VRAM allocation of prototype Virtual Machine Monitor;
  - Manipulate Linux boot RAM space allocation;
  - Use AMD nested paging instruction set.

## Scholarship

- IBM Fellowship of the year 2016-2017, IBM, 2016
- PengKang Scholarship (Top 5%), Xi'an Jiaotong University, 2012
- SiYuan Scholarship (Top 15%), Xi'an Jiaotong University, 2011
- SiYuan Scholarship (Top 15%), Xi'an Jiaotong University, 2010

## Awards

- National 2nd Award in IBM Smart Earth- IoT Contest, IBM, 2014
- Excellent Award of China Northwest Region in Tencent WeChat Public Platform Development Contest, Tencent, 2013
- Outstanding Graduate, Xi'an Jiaotong University, 2013
- Excellent Bachelor Graduation Thesis (Limited to Top 1%), 2013

## Publication and Patent

- **Zhang, X.**, Meng, F., & Xu, J. (2018, June). PerfInsight: A Robust Clustering-based Abnormal Behavior Detection System for Large-Scale Cloud. In Cloud Computing (CLOUD), 2018 IEEE 11th International Conference on (pp. 896-899). IEEE.
- Meng, F., **Zhang, X.**, Chen, P., & Xu, J. (2017, June). DriftInsight: Detecting Anomalous Behaviors in Large-scale Cloud Platform. In Cloud Computing (CLOUD), 2017 IEEE 10th International Conference on (pp. 230-237). IEEE.
- **Zhang, X.**, Meng, F., Chen, P., & Xu, J. (2016, June). TaskInsight: A fine-grained performance anomaly detection and problem locating system. In Cloud Computing (CLOUD), 2016 IEEE 9th International Conference on (pp. 917-920). IEEE.
- Meng, F. J., Wegman, M. N., Xu, J. M., **Zhang, X.**, Chen, P., & Chaffe, G. (2017). IT troubleshooting with drift analysis in the DevOps era. IBM Journal of Research and Development, 61(1), 6-62.
- Meng, F. J., Xu, J., **Zhang, X.**, Yang, L., Chen, P., Wang, Y., ... & Galambos, G. (2018, March). Opportunities and Challenges Towards Cognitive IT Service Management in Real World. In Service-Oriented System Engineering (SOSE), 2018 IEEE Symposium on (pp. 164-173). IEEE.
- Transaction discovery in a log sequence, 2016, US Patent App. 15/357,649
- Method, system, and computer program product for application identification in a cloud platform, 2016, US Patent App. 15/400,383

## Skills

**Languages:** C/C++,Python

**Packages:** jupyter;pandas;sklearn;scipy;numpy