Shenglin Zhang

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Education

2012.9 – 2017.7 **Tsinghua Univertsity, Beijing, China**.
Ph.D. in Computer Science
GPA: 89.76/100, Outstanding Doctoral Dissertation of Tsinghua University
Advisors: Prof. Dan Pei and Prof. Ying Liu

2016.1 – 2016.5 **Georgia Institute of Technology, Atlanta, GA, USA**.
Visiting Scholar, Computer Science
Advisor: Prof. Jun (Jim) Xu

2008.8 – 2012.7 **Xidian University, Xi'an, China**.
B.S. in Network Engineering
GPA: 90.07/100, 1/77

Internship

2014.1 – 2014.6 **Algorithm Engineer**, *OP, Baidu, Inc*, Beijing.
Detect anomalies in the KPIs of services and servers

- Introduce CUmulative SUM (CUSUM) algorithm and Multi-scale Robust Local Subspace (MRLS) algorithm to detect behavior changes in the KPIs of services and servers.

2014.9 – 2015.6 **Algorithm Engineer**, *OP, Baidu, Inc*, Beijing.
Design and implement a system for rapid and robust impact assessment of software changes

- Improve the performance of Singular Spectrum Transforms (SST), and develop a method that detect behavior changes in KPIs rapidly with low computational cost.
- Introduce the difference-in-difference (DiD) method to determine whether the behavior changes are caused by software changes
- Implement the system, FUNNEL, for impact and robust impact assessment of software changes
- Finish the paper "Rapid and Robust Impact Assessment of Software Changes in Large Internet-based Services", which was accepted by CoNEXT 2015
- Extended paper "FUNNEL: Assessing Software Changes in Web-based Services" was accepted by IEEE Transactions on Service Computing

2015.7 – Now **Algorithm Engineer**, *OP & SYS, Baidu, Inc*, Beijing.
Design and implement a system, PreFix, towards syslog-based failure prediction for switches in datacenter

- Develop a model, Frequent Template Tree, to incrementally learn templates from syslogs
- Define the four features for failure prediction, *i.e.,* frequency, sequence, seasonality, and surge
- Propose a LCS based method to extract the sequence feature
- Use Random Forest for training data and predicting failures
- The prototype achieves the accuracy of 87.35% and the recall of 74.36%
- Finish the paper "PreFix: Switch Failure Prediction in Datacenter Networks", which received the "one-shot revision" chance in SIGMETRICS 2017
- Finish the paper "Syslog Processing for Switch Failure Diagnosis and Prediction in Datacenter Networks", which was accepted by IWQOS 2017

Research Project

2014.1 – Now **A research on a multi-AS IPv6 address generation algorithm which is embedded with a scalable network identity**, *founded by NSFC*.

Developed a multi-AS IPv6 address generation algorithm that is embedded with a scalable network identity.

- Develop a scalable network identity based on network user's identity.
- Propose an IPv6 address generation algorithm based on the network identity.
- Raise a multi-AS validation method based on the traceable IPv6 address.

2014.7 – 2014.8 **A data catching system in Android**.

Implement the data caching part of a information management system in Android.

- Apply XML files to cache the data.
- Apply SQLite to cache the data.
- Apply a 3-level buffer in RAM to cache the most-recently used data.

Selected Honors and Awards

2009 **National Encouragement Scholarship**.

2010 **National Scholarship**.

2010 **First-class of Shaanxi Province in the National Mathematical Modeling Contest**.

2011 **National Scholarship**.

2011 **Honorable Mention of the Mathematical Contest in Modeling (USA)**.

2014 **Guanghua First-class Scholarship**.

2015 **China Aerospace Science and Technology Corporation (CASC) Scholarship**.

2016 **Souhu Research and Development Scholarship**.

2017 **Outstanding Doctoral Dissertation Award of Tsinghua University**.

English

CET-4 604 CET-6 567

Skills

- Familiar with C/C++/Java/Python/Shell/AWK
- Familiar with Linux system

Publications

1. **Shenglin Zhang**, Ying Liu, Dan Pei, Yu Chen, Xianping Qu, Shimin Tao, Zhi Zang, Xiaowei Jing, Mei Feng. "FUNNEL: Assessing Software Changes in Web-based Services", IEEE Transactions on Service Computing, 2016 (SCI Indexed, Impact Factor: 3.049).
2. **Shenglin Zhang**, Ying Liu, Dan Pei, Yu Chen, Xianping Qu, Shimin Tao, and Zhi Zang. "Rapid and Robust Impact Assessment of Software Changes in Large Internet-based Services", ACM International Conference on emerging Networking EXperiments and Technologies (CoNEXT), Heidelberg, Germany, December, 2015 (accept ratio 20.92%, 41/196).
3. **Shenglin Zhang**, Weibin Meng, Jiahao Bu, Sen Yang, Ying Liu, Dan Pei, Jun (Jim) Xu, Yu Chen, Hui Dong, Xianping Qu, Lei Song. "Syslog Processing for Switch Failure Diagnosis and Prediction in Datacenter Networks", IEEE/ACM International Symposium on Quality of Service (IWQOS) 2017, VILANOVA I LA GELTRÚ, SPAIN, June 2017 (accept ratio 19.99%, 29/146).
4. **Shenglin Zhang**, Ying Liu and Dan Pei. "A Measurement Study on BGP AS Path Looping Behavior", IEEE Internation Conference on Computer Communications and Networks (ICCCN), Shanghai, China, August, 2014 (accept ratio 28%).
5. Ying Liu, **Shenglin Zhang**, and Hongying Liu. "A bottleneck-free model for P4P", SCIENCE CHINA Information Sciences, Volume 58, Issue 10, pp 1-15, October 2015 (SCI Indexed, Impact Factor: 0.850).

6. **Shenglin Zhang**, Ying Liu, Dan Pei, and Baojun Liu. "Measuring BGP AS Path Looping (BAPL) and Private AS Number Leaking (PANL)", Journal of Tsinghua University (Science and Technology), 2017 (EI Indexed)
7. Ying Liu, **Shenglin Zhang**, and Hongying Liu. "An Improved Cooperative Model of P2P and ISP", ICoC 2013, Zhangjiajie, China, July, 2013. Published in Communications in Computer and Information Science (CCIS), 401: 85-96, 2013, LNCS, Springer (EI Indexed).
8. **Shenglin Zhang**, and Ying Liu. "Analysis of AS path looping", Journal on Communicatoins, 2013(z2), pp. 17-22 (EI Indexed).
9. Hui Su, Tong Li, Ke Xu, **Shenglin Zhang**, Xiaoliang Wang. "TSP: A Traffic Sharing Platform for Mobile Networks" (poster), IEEE/ACM International Workshop on Quality of Service (IWQoS), Portland, OR, USA, June 2015
10. Ying Liu, Gang Ren, Jianping Wu, **Shenglin Zhang**, Lin He, Yihao Jia. "Building An IPv6 Address Generation and Traceback System With NIDTGA in Address Driven Network", SCIENCE CHINA Information Sciences, Volume 58, Issue 12, pp 1-14, December 2015 (SCI Indexed, Impact Factor: 0.850)