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## Education

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**Georgia Institute of Technology**, Atlanta, GA, USA

Ph.D. in Computer Science (GPA: 3.92/4.0) 2015.8 - 2020.8

**University of Science and Technology of China**, Hefei, Anhui, China

M.Eng. in Communication and Information Systems (GPA: 3.81/4.3) 2012.9 - 2015.6

B.Eng. in Electronic Information Engineering (GPA: 3.75/4.3) 2008.9 - 2012.6

## Intern Experiences

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**Facebook Inc**, Menlo Park, CA, USA

2019.5 - 2019.8

Intern

Mentor: Alex Eckert

Built a user-friendly tool to assist fast yet robust software deployment processes for switches.

**Alibaba Group (U.S.) Inc**, Bellevue, WA, USA

2018.5 - 2018.8

Intern

Mentor: Gang Cheng

Built a highly scalable multi-tenant BGP tool as an important component of a high-performance and high-availability SDN based hybrid cloud network solution.

**AT&T Labs Research**, Bedminster, NJ, USA

2016.5 - 2016.7

Research Intern

Mentor: He Yan and Zihui Ge

Developed tools to automate the dynamics analysis in services supported by virtualized environment.

## Projects

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**Set Reconciliation**

2019.2 - 2020.7

- Designed a novel set reconciliation scheme that has both a low computational complexity and a low communication overhead of roughly twice the theoretical minimum. (**submitted to VLDB 2021**)

- Built an efficient benchmark tool (in C++) for set reconciliation.

**Similarity Search**

2019.2 - 2020.7

- Designed a new framework to Approximate Nearest Neighbor Search (ANNS), a solution based on which can have both a low index size and a low query time complexity. (VLDB 2020)

- Built an efficient benchmark tool (in C++) for ANNS in Hamming and edit distances.

**Crossbar Scheduling**

2016.2 - 2020.7

- Designed a series of simple distributed/parallel crossbar scheduling algorithms that are low in time complexities, yet have excellent (throughput and delay) performances. (SIGMETRICS 2017, HPSR 2020, and Valuetools 2020)

- Built an efficient and flexible simulator (in C/C++) for crossbar scheduling in input-queued switches.

**Time Capsule for Online Social Activities**

2015.9 - 2017.7

- Designed a hybrid streaming-sampling algorithm for high accurate measurements of Online Social Networking (OSN) cascade statistics, using limited memory, which decreased the errors (measured in  $\ell_2$ ) by more than one order of magnitude. (ICCCN 2017)

**Network Virtualization**

2012.2 - 2015.6

- Proved the first inapproximability result of the location-constrained virtual network embedding (LC-VNE) problems, and designed efficient algorithms for solving LC-VNE, which achieved much better performance (in terms of both resource consumption and fairness). (IEEE/ACM Transactions on Networking)

- Built the first OpenFlow-based network virtualization platform where the underlying infrastructure is the flexible-grid elastic optical networks. (Master Thesis)

## Selected Publications [\[Google Scholar\]](#)

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1. **Long Gong**, Huayi Wang, Mitsunori Ogihara, and Jun Xu. iDEC: Indexable distance estimating codes for approximate nearestneighbor search. In *PVLDB*, volume 13, August 2020
2. **Long Gong**, Jun (Jim) Xu, Liang Liu, and Siva Theja Maguluri. QPS-r: A cost-effective iterative switching algorithm for input-queued switches. In *Proceedings of the 13th EAI International Conference on Performance Evaluation Methodologies and Tools, VALUETOOLS '20*, pages 19–26, 2020
3. **Long Gong**, Liang Liu, Sen Yang, Jun (Jim) Xu, Yi Xie, and Xinbing Wang. SERENADE: A parallel iterative algorithm for crossbar scheduling in input-queued switches. In *2020 IEEE 21st International Conference on High Performance Switching and Routing (HPSR)*, pages 1–6, May 2020
4. **Long Gong**, Lanxi Huang, Paul Tune, Jinyoung Han, Chen-Nee Chuah, Matthew Roughan, and Jun Xu. ForestStream: Accurate measurement of cascades in online social networks. In *2017 26th International Conference on Computer Communication and Networks (ICCCN)*, pages 1–9, July 2017
5. **Long Gong**, Paul Tune, Liang Liu, Sen Yang, and Jun (Jim) Xu. Queue-proportional sampling: A better approach to crossbar scheduling for input-queued switches. *Proceedings of the 2017 ACM SIGMETRICS/International Conference on Measurement and Modeling of Computer Systems*, 1(1):3:1–3:33, June 2017
6. **Long Gong**, Huihui Jiang, Yixiang Wang, and Zuqing Zhu. Novel location-constrained virtual network embedding (LC-VNE) algorithms towards integrated node and link mapping. *IEEE/ACM Transactions on Networking*, 24(6):3648–3661, December 2016
7. **Long Gong**, Yonggang Wen, Zuqing Zhu, and Tony Lee. Toward profit-seeking virtual network embedding algorithm via global resource capacity. In *IEEE International Conference on Computer Communications (INFOCOM)*, pages 1–9, April 2014
8. **Long Gong** and Zuqing Zhu. Virtual optical network embedding (VONE) over elastic optical networks. *Journal of Lightwave Technology*, 32(3):450–460, February 2014
9. **Long Gong**, Yonggang Wen, Zuqing Zhu, and Tony Lee. Revenue-driven virtual network embedding based on global resource information. In *IEEE Global Communications Conference (GLOBECOM)*, pages 2294–2299, December 2013
10. **Long Gong**, Wenwen Zhao, Yonggang Wen, and Zuqing Zhu. Dynamic transparent virtual network embedding over elastic optical infrastructures. In *IEEE International Conference on Communications (ICC)*, pages 3466–3470, June 2013
11. **Long Gong**, Xiang Zhou, Xiahe Liu, Wenwen Zhao, Wei Lu, and Zuqing Zhu. Efficient resource allocation for all-optical multicasting over spectrum-sliced elastic optical networks. *IEEE/OSA Journal of Optical Communications and Networking*, 5(8):836–847, August 2013
12. **Long Gong**, Xiang Zhou, Wei Lu, and Zuqing Zhu. A two-population based evolutionary approach for optimizing routing, modulation and spectrum assignments (RMSA) in O-OFDM networks. *IEEE Communications Letters*, 16(9):1520–1523, September 2012

## Selected Talks

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1. SERENADE: A Parallel Iterative Algorithm for Crossbar Scheduling in Input-Queued Switches, IEEE HPSR 2020, virtual
2. Queue-Proportional Sampling: A Better Approach to Crossbar Scheduling for Input-Queued Switches, ACM SIGMETRICS 2017, Urbana-Champaign, Illinois, USA
3. Toward Profit-Seeking Virtual Network Embedding Algorithm via Global Resource Capacity, IEEE INFOCOM 2014, Toronto, Canada
4. Revenue-Driven Virtual Network Embedding Based on Global Resource Information, IEEE GLOBECOM 2013, Atlanta, GA, USA
5. Dynamic Transparent Virtual Network Embedding over Elastic Optical Infrastructures, IEEE ICC 2013, Budapest, Hungary

## Professional Skills

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*Programming Languages:* C++ (proficient), PYTHON (fluent), JAVA (prior experience)

## Honors and Awards

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### Student Travel Grant Award

ACM SIGMETRICS 2017

### Excellent Graduate

University of Science and Technology of China, Hefei, Anhui, China 2015

### National Scholarship (for Master Students)

University of Science and Technology of China, Hefei, Anhui, China 2013

### Best Paper Award

ONS Symposium, IEEE GLOBECOM 2013 2013

ONS Symposium, IEEE ICC 2013 2013

## Professional Service

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*Reviewer:* IEEE INFOCOM 2016, IEEE COMMUNICATION LETTERS, IEEE TRANSACTIONS ON PARALLEL AND DISTRIBUTED SYSTEMS, IEEE/ACM TRANSACTIONS ON NETWORKING, IEEE/OSA JOURNAL OF OPTICAL COMMUNICATIONS AND NETWORKING