

# Chong Tang

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## Contact Information

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## Research Interesting

Software Synthesis  
Security in Software System  
Model-Driven Development  
Software Analysis  
Wireless Communication

## Education

**University of Virginia**, Charlottesville, Virginia USA  
Ph.D., Computer Science, 2018 (expected)

**University of Southern Mississippi**, Hattiesburg, Mississippi USA  
M.S., Computer Science, May 2012

**Xi'an Institute of Post & Telecommunications**, Xi'an, Shaanxi China  
B.E., Network Engineering, June 2009

## Experience

### University of Virginia

*Graduate Research Assistant* (Aug 2012-Present)

- Mined one-year treatment data from UVA hospital. Explored a way to reduce care variations by computing cosine similarities among congestive heart failure patients.
- Built a system to dynamically evaluate large sets of SQL schemas. Reduced the evaluation time from 2 months to 5 days with a self-setup Spark cluster. Developed a synthesis technique that synthesize database schema with about 50% performance improvement than Ruby on Rails and Django.
- Performance Evaluation of a software synthesis technique. Built a JAVA EE web application to synthesize, evaluate, and select database schemas. The features include a job queue, authentication and authorization, a RESTful interface, synthesis based on a SAT solver, Pareto optimal selection, results display.
- Automatically summarize code changes with natural language processing techniques.

### @WalmartLabs

*Research Intern* (June 2016-Aug 2016)

- Built several machine learning models to predict the performance of MapReduce jobs, including memory consumption and CPU time. The random forest model has the best prediction accuracy around 0.90.

### comScore, Inc.

*Software Engineer Intern* (May 2015-Aug 2015)

- Developed a web application based on JIRA's REST APIs to assist Sprint planning. This tool is being used everyday at comScore.
- Rewrote a Silverlight application with HTML5 techniques.

### The University of Southern Mississippi

*Graduate Research Assistant* (Aug 2010-May 2012)

- Worked on MAC layer algorithms based on non-uniform back-off and cross-layer bit rate adaptation to achieve opportunistic access. Improved Wi-Fi throughput by 6% while maintaining

fairness.

- Conducted extensive measurements of IEEE 802.11 channel variations on a Linux test bed to study link characteristics such as signal-to-noise ratio variation, delivery, mutual-information, etc.

#### **NEC Advanced Software Technology CO. LTD (NEC-AS)**

*Software Engineer* (July 2009 - July 2010)

- Built a software to distribute and execute batch files across heterogeneous servers by predefined dependencies and logic among batch files.
- Built a management system for NEC's next generation switch which allows system administrators to control flows with programmed rules, so called software-defined networking.

#### **NEC Advanced Software Technology CO. LTD (NEC-AS)**

*Intern* (Feb 2009-June 2010)

- Designed and implemented a project management system that allows a manager to dispatch tasks, auto-reminds task owners of unfinished tasks, and tracks the progress of each task.

#### **Publications**

Hamid Bagheri, **Chong Tang**, Kevin Sullivan

Automated Synthesis and Dynamic Analysis of Tradeoff Spaces for Object-Relational Mapping  
*IEEE Transactions on Software Engineering (TSE)*, 2016

Yi Zhu, **Chong Tang**, Lixing Song, Shaoen Wu, Saad Biaz

Analytical and comparative investigation of 60 GHz wireless channels  
*Telecommunication Systems, Volume 60, Number 1, September 2015*

Ke Dou, Xi Wang, **Chong Tang**, Adam Ross, Kevin Sullivan

An Evolutionary Theory-Systems Approach to a Science of the Ilities  
*2015 Conference on Systems Engineering Research (CSER 2015) Hoboken, NJ USA, March 17-19, 2015*

Hamid Bagheri, **Chong Tang**, Kevin Sullivan

Trademaker: Automated Dynamic Analysis of Synthesized Tradespaces

*36th International Conference on Software Engineering (ICSE 2014) Hyderabad, India, May 31 - June 7, 2014 (acceptance rate: 20%, 99 out of 495)*

**Chong Tang**, Lixing Song, J. Balasubramani, Shaoen Wu, Saad Biaz, Qing Yang, Honggang Wang

Comparative Investigation on CSMA/CA-Based Opportunistic Random Access for Internet of Things  
*IEEE Internet of Things Journal, Volume 1, Issue 2, April 2014*

Yi Zhu, Lixing Song, **Chong Tang**, Shaoen Wu, Biaz, S.

Analytical and comparative investigation of 60 GHz wireless channels  
*7th International Symposium on Wireless and Pervasive Computing, 2012*

Yi Zhu, **Chong Tang**, Lixing Song, Qingmei Yao, Shaoen Wu

Cooperative Binary Relaying and Combining for Multi-hop Wireless Communication  
*IEEE Global Communications Conference 2012 (GLOBECOM 2012), Anaheim, CA, Dec., 2012*

**Chong Tang**, Shaoen Wu, Honggang Wang

Measurement Based Outdoor Link Level Investigation on IEEE 802.11 channels  
*International Journal of Computer Theory and Engineering (IJCTE), Aug 2012*

Qingmei Yao, **Chong Tang**, Shaoen Wu

Frame Fountain: Coding and Decoding MAC Frames  
*2nd IEEE Workshop on Multimedia Communications & Services - IEEE GLOBECOM 2011, Vol 1,*

*pp.57-63*

Hanyu Liu, **Chong Tang**, Shaoen Wu, Honggang Wang  
Real-time Video Surveillance for Large Scenes  
*International Conference on Wireless Communication and Signal Processing, 2011*

**Honors and Awards**

Student Travel Grant, Fourth Summer School on Formal Techniques	May, 2014
Second Class Scholarship	April, 2008
Excellent Student Cadre Scholarship	March, 2008
Second Class Scholarship	April, 2007
Outstanding Triple-A student scholarship	April, 2007
Third Class Scholarship	April, 2006

**Activities**

2015 Conference on Systems Engineering Research	March 17 - 19, 2015
Fourth Summer School on Formal Techniques	May 19 - 23, 2014
Student Volunteer, HotSoS 2014	April 8 - 9, 2014