Yuzhe Tang

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4-206 Center for Science and Technology, Syracuse, NY 13244-4100, USA

Academic Position

2014 - Assistant Professor, Department of EECS, Syracuse University

Education

Ph.D. *Georgia Institute of Technology* (Atlanta, GA USA), 2009-2014
M.Sc. *Fudan University* (Shanghai, China), 2006-2009
B.Sc. *Fudan University* (Shanghai, China), 2002-2006

Research Areas

Research areas Cyber-security and distributed systems with specifical technical focuses on *vulnerability discovery & mitigation, security measurement, trusted execution environment, and performance optimization*.

Application focus Currently on the emerging security-critical scenarios including *blockchain and decentralized applications, cloud computing and data outsourcing, and privacy-preserving data federation*.

Publications

FSE'21 *iBatch: Saving Ethereum Fees via Secure and Cost-Effective Batching of Smart-Contract Invocations*
Yibo Wang, Qi Zhang, Kai Li, Yuzhe Tang, Jiaqi Chen, Xiapu Luo, Ting Chen.
ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE) 2021
Acceptance rate=24.5%

ToNSE'21 *VFChain: Enabling Verifiable and Auditable Federated Learning via Blockchain Systems*
Zhe Peng, Jianliang Xu, Xiaowen Chu, Shang Gao, Yuan Yao, Rong Gu, Yuzhe Tang
IEEE Transactions on Network Science and Engineering (TNSESI) 2021

NDSS'21 *As Strong As Its Weakest Link: How to Break Blockchain DApps at RPC Service*
Kai Li, Jiaqi Chen, Xianghong Liu, Yuzhe Tang, XiaoFeng Wang, Xiapu Luo
The Network and Distributed System Security Symposium (NDSS) 2021
Acceptance rate=15.2%

Middleware'20 *Cost-Effective Data Feeds to Blockchains via Workload-Adaptive Data Replication*
Kai Li, Yuzhe Tang, Jiaqi Chen, Zhehu Yuan, Cheng Xu, Jianliang Xu
ACM/IFIP Middleware conference 2020
Acceptance rate=25.2%

SERIAL'20 *Scalable Log Auditing on Private Blockchains via Lightweight Log-Fork Prevention*
Yuzhe Tang, Kai Li, Yibo Wang, Sencer Burak Somuncuoglu
Workshop on Scalable and Resilient Infrastructures for Distributed Ledgers 2020, colocated with ACM/IFIP Middleware conference 2020

ICDE'19 *GEM^2-Tree: A Gas-Efficient Structure for Authenticated Range Queries in Blockchain*
Ce Zhang, Cheng Xu, Jianliang Xu, Yuzhe Tang, Byron Choi.
IEEE 36th International Conference on Data Engineering (ICDE) 2020
Acceptance rate=26.8%

SecureComm'19 *Secure Consistency Verification for Untrusted Cloud Storage by Public Blockchains*
Kai Li, Yuzhe Tang, Beom Heyn Kim, Jianliang Xu

SecureComm'19 *Authenticated LSM Trees with Minimal Trust*, (Short paper)
Yuzhe Tang, Ju Chen, Kai Li.

CISSE'19 *Hands-on Labs for Secure Programming on Modern Trusted Platforms*

Yuzhe Tang, Wenliang Du.

ASONAM'19 *Computing Node Clustering Coefficients Securely*, Short paper
K. Areekijseree, Yuzhe Tang, Sucheta Soundarajan

SecureComm'18 *Secure and Efficient Multi-Party Directory Publication for Privacy-Preserving Data Sharing*
K. Areekijseree, Ju Chen, Yuzhe Tang, Shuang Wang, Arun Iyengar and B. Palanisamy.
SecureComm 2018, Acceptance rate=30.6%

Cloud'18a *ChainFS: Blockchain-Secured Cloud Storage*
Qiwu Zou, Yuzhe Tang, Ju Chen, Kai Li, Charles Kamoua, Kevin Kwiat, Laurent Njilla
IEEE Cloud 2018, Acceptance rate=20%

Cloud'18b Pinchao Liu, Liting Hu, Hailu Xu, Zhiyuan Shi, Jason Liu, Qingyang Wang, Jai Dayal and Yuzhe Tang
A Toolset for Detecting Containerized Application's Dependencies in CaaS Clouds
IEEE Cloud 2018, Acceptance rate=20%

Cloud'18c Hailu Xu, Liting Hu, Pinchao Liu, Yao Xiao, Wentao Wang, Jai Dayal, Qingyang Wang and Yuzhe Tang
Oases: An Online Scalable Spam Detection System for Social Networks
IEEE Cloud 2018, Acceptance rate=20%

FC'18(W) *Lightweight Blockchain Logging for Data-Intensive Applications*
Yuzhe Tang, Zihao Xing, Cheng Xu, Ju Chen, Jianliang Xu
The Workshop of Trusted Smart Contract at the International Conference of Financial Cryptography 2018

VT'18 *Non-interactive Identity-based Underwater data transmission with Anonymity and Zero-knowledge*
Changsheng Wan, Vir V Phoha, Yuzhe Tang, Aiqun Hu
IEEE Transactions on Vehicular Technology 2017

CIC'17 *PADS: Privacy-preserving Auction Design for Allocating Dynamically Priced Cloud Resources*
Jinlai Xu, Balaji Palanisamy, Yuzhe Tang, SD Madhu Kumar
IEEE CIC 2017

SOSP'17(W) *Strongly Secure and Efficient Data Shuffle on Hardware Enclaves*
Ju Chen, Yuzhe Tang, Hao Zhou
The Workshop of Systems Software for Trusted Execution (SysTEX) at ACM SOSP 2017

ICDCS'17(P) *Towards Secure Public Directory for Privacy-Preserving Data Sharing*
Amin Fallahi, Xi Liu, Yuzhe Tang, Shuang Wang, Rui Zhang.
IEEE Internetional Conference on Distributed Computing Systems, Poster

ICDCS'17(W) *Social-Aware Decentralization for Efficient and Secure Multi-Party Computation*
Yuzhe Tang, Sucheta Soundarajan
The Workshop of Big-Data Privacy and Security at IEEE Internetional Conference on Distributed Computing Systems

BMC'16 *Secure Multi-pArty Computation Grid LOgistic REgression (SMAC-GLORE)*
Haoyi Shi, Chao Jiang, Wenrui Dai, Xiaoqian Jiang, Yuzhe Tang, Lucila Ohno-Machado and Shuang Wang
BMC Medical Informatics and Decision Making [open access]

SecDev'16 *Towards Building Practical And Secure Multi-Party Databases*
Yuzhe Tang, Wenqing Zhuang
IEEE Cybersecurity Development Conference 2016 (Abstract)

BioInformatics'16 *HEALER: Homomorphic computation of ExAct Logistic rEgRes-sion for secure rare disease variants analysis in GWAS*
Shuang Wang, Y. Zhang, W. Dai, K. Lauter, M. Kim, Yuzhe Tang, X. Jiang
Oxford Journals Bioinformatics, doi: 10.1093/bioinformatics/btv563

BMC'15 *Privacy-preserving GWAS analysis on federated genomic datasets*
Scott D Constable, Yuzhe Tang, Shuang Wang, Xiaoqian Jiang, Steve Chapin
BMC Medical Informatics and Decision Making 2015, [Open access]

TKDE'15 *Privacy-Preserving Multi-Keyword Search in Information Networks*
Yuzhe Tang, Ling Liu
IEEE Trans. Knowl. Data Eng. 27(9): 2424-2437 (2015)

CCGrid'15 *Deferred Lightweight Indexing for Log-Structured Key-Value Stores*
Yuzhe Tang, Arun Iyengar, Wei Tan, Liana Fong, Ling Liu, Balaji Palanisamy
IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing 2015: 11-20
Best Paper Award

HPBDC'15 *KTV Tree: Interactive Top-K Aggregation on Large Dataset in Cloud*
Yuzhe Tang, Ling Liu, Junichi Tatemura, Hakan Hacigumus
IEEE International Conference of Distributed Computing Systems Workshops 2015: 136-141

HotCloud'15 *Privacy-Preserving Offloading of Mobile App to the Public Cloud*

Yue Duan, Mu Zhang, Heng Yin, Yuzhe Tang
USENIX Workshop on Hot Topics in Cloud Computing 2015

TBC'15 *Secure Multi-party Computation on Grid Logistic Regression*
Haoyi Shi, Shuang Wang, Wenrui Dai, Yuzhe Tang, Xiaoqian Jiang, LucilaOhno-Machado
Annual Translational Bioinformatics Conference 2015

ACSAC'14 *Lightweight Authentication of Freshness in Outsourced Key-Value Stores*
Yuzhe Tang, Ling Liu, Xin Hu, Jiyong Jang
USENIX/ACM Annual Computer Security Applications Conference 2014: 176-185
Acceptance rate=19.9%

ICDCS'14 *e-PPI: Locator Service in Information Networks with Personalized Privacy Preservation*
Yuzhe Tang, Ling Liu, Arun Iyengar
IEEE International Conference of Distributed Computing Systems 2014: 186-197

EDBT'14 *Diff-Index: Differentiated Index in Distributed Log-Structured Data Stores*
Wei Tan, Sandeep Tata, Yuzhe Tang, Liana Fong
International Conference on Extending Database Technology 2014: 700-711

JDPD'14 *Anonymizing Continuous Queries with Delay-tolerant Mix-zones on Road Networks*
Balaji Palanisamy, Ling Liu, Kisung Lee, Shicong Meng, Yuzhe Tang
International Journal of Distributed and Parallel Databases 32(1): 91-118 (2014)

ICDE'14(D) *Outsourcing multi-version key-value stores with verifiable data freshness*
Yuzhe Tang, Ling Liu, Ting Wang, Xin Hu, Reiner Sailer, Peter Pietzuch
IEEE International Conference on Data Engineering 2014: 1214-1217 (Demo paper)

TPDS'13 *Auto-pipelining for Data Stream Processing*
Yuzhe Tang, Bugra Gedik
IEEE Trans. Parallel Distrib. Syst. 24(12): 2344-2354 (2013)

Cloud'13a *Residency Aware Inter-VM Communication in Virtualized Cloud: Performance Measurement and Analysis*
Qi Zhang, Ling Liu, Yi Ren, Kisung Lee, Yuzhe Tang, Xu Zhao, Yang Zhou
IEEE International Conference on Cloud Computing 2013: 204-211

Cloud'13b *Efficient and Customizable Data Partitioning Framework for Distributed Big RDF Data Processing in the Cloud*
Kisung Lee, Ling Liu, Yuzhe Tang, Qi Zhang, Yang Zhou
IEEE International Conference on Cloud Computing 2013: 327-334

MSN'12 *Location Privacy with Road Network Mix-Zones*
Balaji Palanisamy, Ling Liu, Kisung Lee, Shicong Meng, Yuzhe Tang
IEEE International Conference on Mobile Ad-hoc and Sensor Networks 2012: 124-131

Cloud'12 *Reliable State Monitoring in Cloud Data Centers*
Shicong Meng, Arun Iyengar, I. Rouvellou, L. Liu, K. Lee, B. Palanisamy, Yuzhe Tang
IEEE International Conference on Cloud Computing 2012: 951-958
Best Paper Award

CIKM'11 *Privacy Preserving Indexing for eHealth Information Networks*
Yuzhe Tang, Ting Wang, Ling Liu, Shicong Meng, Balaji Palanisamy
Conference on Information and Knowledge Management 2011: 905-914

TPDS'11 *A Lightweight Multi-dimensional Index for Complex Queries over DHTs*
Yuzhe Tang, Jianliang Xu, Shuigeng Zhou, Wang-Chien Lee, Dingxiong Deng, Yue Wang
IEEE Trans. Parallel Distrib. Syst. 22(12): 2046-2054 (2011)

TKDE'10 *LIGHT: A Query-Efficient yet Low-Maintenance Indexing Scheme over DHTs*
Yuzhe Tang, Shuigeng Zhou, Jianliang Xu
IEEE Trans. Knowl. Data Eng. 22(1): 59-75 (2010)

ICDCS'09 *m-LIGHT: Indexing Multi-Dimensional Data over DHTs*
Yuzhe Tang, Jianliang Xu, Shuigeng Zhou, Wang-Chien Lee
IEEE International Conference of Distributed Computing Systems 2009: 191-198

ICDCS'08 *LHT: A Low-Maintenance Indexing Scheme over DHTs*
Yuzhe Tang, Shuigeng Zhou
IEEE International Conference of Distributed Computing Systems 2008: 141-151

Research Grants

2021-2024 Collaborative Research: SaTC: EDU: Developing Instructional Laboratories for Blockchain Security Applications,
Yuzhe Tang (PI), Total: $399,995, PI Tang's portion: ~$340,000
National Science Foundation (**NSF**)
Recommended for funding (as of Apr. 1, 2021)

2018-2021	SaTC: Small: External Obliviousness in Trusted Execution Environments Yuzhe Tang (Single PI), $496,999 + $16,000 National Science Foundation (**NSF**)
2019-2020	Planning IUCRC Syracuse University: Center for High-Assurance Secure Systems and IoT (CHASSI) Yuzhe Tang (Co-PI), $15,000 National Science Foundation (**NSF**)
2018-2020	SGX-based Key-Management Applications in the Cloud Yuzhe Tang (Single PI), $9,996 Intel Gift
2017-2018	Cryptographic Engineering on Modern Trusted Platforms Yuzhe Tang (PI), Wenliang Du (Co-PI), $300,000 National Security Agency (**NSA**)
2015-2016	Optimizing Privacy-Preserving Analytics in Information Networks Yuzhe Tang (PI), $69,861 Cyber Research Institue (CRI)

Internal grants

2021-2023	Workload-Adaptive Designs for Cost-Effective Decentralized Applications on Blockchains Yuzhe Tang (Single PI), $21,000, CUSE Grant (Syracuse University Internal Grant)
2018-2020	On-Campus Blockchain Applications for Education and Beyond Yuzhe Tang (Co-PI), Wenliang Du (PI), $30,000 CUSE Grant (Syracuse University Internal Grant)
2018-2020	Efficient Algorithms for Secure, Large-Scale Graph Mining Yuzhe Tang (PI), Sucheta Soundarajan (Co-PI), $30,000 CUSE Grant (Syracuse University Internal Grant)

Patents

2014	Adaptive Auto-pipelining in Stream Processing Applications: US20140101668 Bugra Gedik, Scott A. Schneider, Yuzhe Tang, Kun-lung Wu

Teaching

Fall 2020	CIS600/FIN600, *Crpytocurrencies and Blockchains*
Fall 2019	CIS600/FIN600, *Crpytocurrencies and Blockchains* CIS628/CIS428, *Introduction to Applied Cryptography*
Spring 2019	CSE384, *System Programming*
Fall 2018	CIS600/FIN600, *Blockchain and Cryptocurrency*
Spring 2018	CIS300, *Introduction to System Programming*
Fall 2017	CIS700, *Modern Information Security and Privacy*
Spring 2017	CIS/CSE600, *Applied Cryptography* CIS655/CSE661, *Advanced Computer Architecture* CIS423, *System Programming*
Spring 2016	CIS700/CSE791, *Big-Data and Cloud Security*, website: [link]
Fall 2015	CIS655/CSE661, *Advanced Computer Architecture* (180 students), website: [link]
Spring 2015	CIS700/CSE791, *Distributed Systems in Cloud*, website: [link]
Fall 2014	CIS655/CSE661, *Advanced Computer Architecture* (180 students)

Student Supervision

Ph.D.	Kai Li, Yibo Wang, Jiaqi Chen, Xianghong Liu, Qi Zhang
Alumni	Zhehu Yuan (U.G.), PhD at NYU Sencer Burak Somuncuoglu (M.S.), Chainalysis Qiwu Zou (U.G.), Master at Cornell Vinutha Karanth (M.S.), Microsoft Katchaguy Areekijseree (M.S.), PhD at Syracuse Univ. Hari Krishna Gajarla (M.S.), Bloomberg, L.P.

Professional Services

Program chair	GLSD 2018/2020 (Great lake security day) The BlockDM workshop 2021/2020/2019 (the International Workshop of Blockchain and Data Management, colocated with ICDE)
Program committee	WWW 2020, 2021 ICDCS 2020, 2017, 2015 IPDPS 2018, IEEE Computing 2017 TOCS 2017 ICICS 2021 IEEE Cloud 2015 PAIS 2016, 2015 TKDE 2017,2016, 2015 TSC 2021, 2017,2016, 2015 TWeb 2015, TCSVT 2014, Middleware 2012

Internship Experience

05/2013-08/2013	IBM Research (T.J. Watson Lab) at Yorktown Heights, NY USA
05/2012-08/2012	IBM Research (T.J. Watson Lab) at Yorktown Heights, NY USA
05/2011-08/2011	IBM Research (T.J. Watson Lab) at Hawthorn, NY USA
05/2010-08/2010	NEC Labs America at Cupertino, CA USA
01/2009-06/2009	Microsoft Research Asia at Beijing, China
01/2006-04/2006	IBM Corp. at Shanghai, China

Honors and Awards

- Best paper award, 15th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing, 2015
- Chinese Government Award for Outstanding Self-financed Students Abroad, 2012
- Best paper award, 5th International Conference on Cloud Computing, 2012
- Outstanding Master Thesis of Shanghai, Shanghai Government, 2010
- Tung's Oriental Scholarship, Tung's Oriental, 2008
- HP Distinguished Chinese Student Scholarship, Hewlett-Packard, 2008
- ICDCS Student Travel Grant, TCDP (IEEE Computer Society), 2008
- Graduate Student Fellowship of Fudan University, 2007-2008 (2 times)
- Outstanding Graduated Student of Fudan University, 2006
- Excellence Award, Tencent Innovation Contest, 2006
- The Peoples Scholarship of Fudan University, 2002-2006 (4 times)
- Chinese Physics Olympiads, First Prize in Hunan Province, 2001

Invited Talks

NKU'14	Scalable and secure cloud service in big data systems North Kentucky University, Newport, KY, Department of Computer Science, Feb. 24, 2014
UDel'14	Scalable and secure cloud service in big data systems University of Delaware, Newark, DE, Department of Computer and Information Sciences, Feb. 28, 2014
NECLab'14	Scalable and secure cloud service in big data systems NEC Lab America, Princeton, NJ, March 7, 2014
IBM'14	Scalable and secure cloud service in big data systems IBM Research, Yorktown Heights, NY, March 18, 2014
MST'14	Scalable and secure cloud service in big data systems Missouri University of Science and Technology, Rolla, MO, Computer Science Department, March 31, 2014
HealthTech'14	Searching HIE with Differentiated Privacy Preservation [ink]

	Usenix Security, San Diego, CA, August 31, 2014
LSU'14	Securing Key-Value Stores in the Public Cloud using Lightweight Authentication [link] Louisiana State University, Baton Rouge, LA, Department of Computer Science, December 16, 2014
Fudan'16	Lightweight Authentication of Freshness in Outsourced Key-Value Stores Fudan University, Shanghai, China School of Computer Science, Dec. 28, 2016
NUDT'17	Lightweight Authentication of Freshness in Outsourced Key-Value Stores National University of Defense and Technology, Changsha, China Department of Computer Science, Jan. 4, 2017
XJTU'17	Lightweight Authentication of Freshness in Outsourced Key-Value Stores Xi'an Jiaotong University, Xi'an, China School of Computer Science, Jan. 10, 2017
Cornell'17	Lightweight Authentication of Freshness in Outsourced Key-Value Stores Cornell University, Ithaca, NY Department of Computer Science, Feb. 3, 2017
MoST'17	TACNY Junior Cafe Scientifique: "Get Your Head In The Clouds! Cloud Computing: Risks and Rewards" [link] Museum of Science & Technology, Syracuse, NY June 17, 2017
CSIAC'17	Public lecture: "Blockchain: Applications, Security Promises and Internals" Dec. 19 2017, [webinar], [slides]