

# Tianyi (Tina) Song

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## I Academic Degrees

- **Ph.D.**, Computer Science, George Washington University, 2011 - 2017  
Dissertation: Enhancing Driving Safety and Efficiency via Smartphone Systems
- **B.S.**, Computer Science, Beijing Forestry University, 2007-2011  
Thesis: Machine Learning and Path Planning in Robotics

## II Academic Positions

- Teaching Assistant Processor, Department of Computer Science, Bowling Green State University, August 2018 - Current
- Assistant Professor, Weisberg Computer Science Division at College of Information Technology and Engineering, Marshall University, September 2017 - 2018

## III Non-Academic Positions

- None

## IV Teaching Experiences

### A. Undergraduate Courses

#### (a) At Bowling Green State University

- Fall 2020
  - CS 4120 Design and Analysis of Algorithms, two sections, remote
  - CS 2190 Computer Organization, two sections, remote
- Summer 2020
  - CS 2190 Computer Organization, one section, first six-week session, online
  - CS 1000 Understanding Computers, one section, first six-week session, online
- Spring 2020
  - CS 4120 Design and Analysis of Algorithms, one section
  - CS 2190 Computer Organization, two sections

- CS 1000 Understanding Computers, one section, online
- Fall 2019
  - CS 2190 Understanding Computers, two sections
  - CS 1000 Understanding Computers, two sections
- Spring 2019
  - CS 4120 Design and Analysis of Algorithms, two sections
  - CS 2190 Understanding Computers, two sections
- Fall 2018
  - CS 2190 Understanding Computers, two sections
  - CS 1000 Understanding Computers, two sections

(b) At Marshall University

- Spring 2018
  - CS 120 Computer Science II: Java Programming
  - CS 420 Computer Architecture
- Fall 2017
  - CS 320 Internetworking

B. Undergraduate-Graduate Courses

(a) At Bowling Green State University

- Fall 2020
  - CS 5120 Design and Analysis of Algorithms, two sections, remote
- Spring 2020
  - CS 5120 Design and Analysis of Algorithms, two sections
- Spring 2019
  - CS 5120 Design and Analysis of Algorithms, one section

C. Graduate Courses

(a) At Marshall University

- Fall 2017
  - CS 650 SpTp: Development for the IoT, Fall 2017

D. Other Teaching

(a) At the George Washington University

- Guest lecturer for Wireless and Mobile Security (Csci 6547), Spring 2014, and Spring 2015
- Lab instructor for Data Structures and Algorithms I (Csci 1112), Spring 2013, and Fall 2013

## V Curriculum Development

1. CS 4120 Design and Analysis of Algorithms: Enabled distance learning
2. CS 5120 Design and Analysis of Algorithms: Enabled distance learning

## VI Professional Development

- Fall 2018 - Spring 2020, participating in College of Arts and Sciences Faculty Mentoring Program.
- Summer 2019, attended the 14th International Conference on Wireless Algorithms, Systems and Applications (WASA).
- Spring 2019, attended NSF Funding Opportunities Information Session.
- Summer 2018, attended new Computing Faculty Workshops.

## VII Academic Advising

### A. Undergraduate

- Fall 2020 - current, 106 undergraduate students assigned.
- Fall 2019 - Spring 2020, 128 undergraduate students assigned.

## VIII Research Interests

- Secure and Privacy-aware computing for the Internet of Things (IoT)
- Security and privacy in Cyber-Physical Systems
- Mobile computing and wireless Networking
- Machine learning and data sciences

## IX Publications or Equivalencies

### A. Publications

- Peer-Reviewed Conference Publications
  1. Wei Li, Chunqiang Hu, **Tianyi Song**, Jiguo Yu, Xiaoshuang Xing, Zhipeng Cai, “Privacy-Preserving Data Collection in Context-Aware Applications,” *2018 IEEE Symposium on Privacy-Aware Computing (PAC)*, Washington DC, USA, September, 2018, pp. 75-85.
  2. Cong Pu and **Tianyi Song**, “Hatchetman Attack: A Denial of Service Attack Against Routing in Low Power and Lossy Networks,” The 5th IEEE International Conference on Cyber Security and Cloud Computing (CSCloud)/the 4th IEEE International Conference on Edge Computing and Scalable Cloud (EdgeCom), Shanghai, 2018, pp. 12-17. doi: 10.1109/CSCloud/EdgeCom.2018.00012.
  3. Nicholas Capurso, Bo Mei, **Tianyi Song**, Xiuzhen Cheng, and Jiguo Yu, “A survey on key fields of context awareness for mobile devices,” *Journal of Network and Computer Applications*, 118 (2018): 44-60.
  4. Arwa Alrawais, Abdulrahman Alhothaily, Bo Mei, **Tianyi Song** and Xiaolu Cheng, “An Efficient Revocation Scheme for Vehicular Ad Hoc Networks, ” *International Conference on Identification, Information and Knowledge in the Internet of Things (IIKI) 2017* — Best paper award.

5. **Tianyi Song**, Ruinian Li, Bo Mei, Jiguo Yu, Xiaoshuang Xing, and Xiuzhen Cheng, "A Privacy Preserving Communication Protocol for IoT Applications in Smart Homes," *International Conference on Identification, Information and Knowledge in the Internet of Things (IIKI) 2016*.
  6. **Tianyi Song**, Xiuzhen Cheng, Hongjuan Li, Jiguo Yu, Shengling Wang, and Rongfang Bie, "Detecting Driver Phone Calls in A Moving Vehicle Based on Voice Features," *IEEE International Conference on Computer Communications (INFOCOM)*, San Francisco, USA, April 10, 2016, pp. 964-972.
  7. Kan Yu, Jiguo Yu, Xiuzhen Cheng, and **Tianyi Song**, "Theoretical Analysis of Secrecy Transmission Capacity in Wireless Ad Hoc Networks," *2017 IEEE Wireless Communications and Networking Conference (WCNC)*.
  8. Ruinian Li, **Tianyi Song**, Nicholas Capurso, Jiguo Yu, and Xiuzhen Cheng, "IoT Applications on Secure Smart Shopping," *International Conference on Identification, Information and Knowledge in the Internet of Things (IIKI) 2016*.
  9. Xiaomin Sun, Jiguo Yu, Xiuzhen Cheng, **Tianyi Song**, and Baogui Yu, "Efficient Data Aggregation Scheduling in Wireless Sensor Networks under SINR Model," *International Conference on Identification, Information and Knowledge in the Internet of Things (IIKI) 2016*.
  10. Zhaofeng Niu, Jiguo Yu, Xiuzhen Cheng, **Tianyi Song**, and Guangshun Li, "BSINR-Q CSMA : Carrier Sense Multiple Access Based on Queue Length under SINR Model," *International Conference on Identification, Information and Knowledge in the Internet of Things (IIKI) 2016*.
  11. Wei Li, **Tianyi Song**, Xiuzhen Cheng, Tao Jing, Xiaoshuang Xing, and Taieb Znati, "Delay Modeling in Mobile Cognitive Radio Networks," *IEEE International Conference on Communications in China (ICCC)*, Beijing, 2012, pp. 30-35.
- Peer-Reviewed Journal Publications
    1. Ruinian Li, Yinhao Xiao, Cheng Zhang, **Tianyi Song**, and Chunqiang Hu, "Cryptographic Algorithms for Privacy-Preserving Online Applications", *American Institute of Mathematical Sciences: Mathematical Foundations of Computing*, Vol. 1, No. 4, 2018.
    2. Ruinian Li, **Tianyi Song**, Mei Bo, Hong Li, Xiuzhen Cheng, Limin Sun, "Blockchain For Large-Scale Internet of Things Data Storage and Protection," *IEEE Transactions on Services Computing*, 2018.
    3. **Tianyi Song**, Ruinian Li, Bo Mei, Jiguo Yu, Xiaoshuang Xing, and Xiuzhen Cheng, "A Privacy Preserving Communication Protocol for IoT Applications in Smart Homes," (extended version of a conference paper in IIKI 2016), in *IEEE Internet of Things Journal Special Issue on Security and Privacy in Cyber-Physical Systems*.
    4. Ruinian Li, **Tianyi Song**, Nicholas Capurso, Jiguo Yu, and Xiuzhen Cheng, "IoT Applications on Secure Smart Shopping," (extended version of a conference paper in IIKI 2016), in *IEEE Internet of Things Journal Special Issue on Security and Privacy in Cyber-Physical Systems*.
    5. **Tianyi Song**, Nicholas Capurso, Xiuzhen Cheng, Jiguo Yu, Biao Chen, and Wei Zhao, "Enhancing GPS with Lane-level Navigation to Facilitate Highway Driving," in *IEEE Transactions on Vehicular Technology*.

6. Nicholas Capurso, **Tianyi Song**, Wei Cheng, Jiguo Yu, and Xiuzhen Cheng, “An Android-based Mechanism for Energy Efficient Localization Depending on Indoor/Outdoor Context,” in *IEEE Internet of Things Journal*, Vol.pp, Issue 99, 2016.

## X Service

### A. Department

- Fall 2019 - Spring 2020
  - Search committee member
  - Faculty advisor for 128 students.
- Spring 2019, participate in CS 1000 textbook selection.

### B. Professional

- 2020, Reviewer for China Communications.
- 2019, Reviewer for IEEE Transactions on Services Computing.
- 2018, TPC member of the 15th International Symposium on Pervasive Systems, Algorithms and Network (I-SPAN 2018).
- 2018, Reviewer for IEEE Internet of Things Journal.
- 2017, PC member (Frontiers in Cyber-Physical Systems) of IIKI 2017.
- Program committee member of the 9th International conference on Wireless Algorithms, Systems, and Applications (WASA 2014).
- Program committee member of international conference on Identification, Information and Knowledge in the Internet of Things (IIKI) in 2014 and 2016.
- Reviewer for IEEE GLOBECOM 2015, IEEE MASS 2015, IEEE ICC 2015, IEEE MiSeNet 2014, IEEE GLOBECOM 2014, IEEE IWQoS 2014, IWCMC 2014, WTS 2014, WASA 2014, ICDCS 2014, ANT 2014 International Journal of Security and Networks, etc.
- Session chair for mobile application session and wireless network theory and general session of WASA 2016.