Xiaohui Liang

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Education

Ph.D	Computer Engineering	University of Waterloo	2013
M.S.	Computer Science	Shanghai Jiao Tong University	2009
B.S.	Computer Science	Shanghai Jiao Tong University	2006

Positions

University of Massachusetts Boston
2023- Associate Chair, Department of Computer Science

University of Massachusetts Boston
2021- Associate Professor, Department of Computer Science

University of Massachusetts Boston
2015-2021 Assistant Professor, Department of Computer Science

Dartmouth College
2014-2015 Postdoctoral Researcher, Department of Computer Science

Executive Summary

Xiaohui Liang is an Associate Professor with the Department of Computer Science at the University of Massachusetts, Boston (UMB). He was a Postdoctoral Researcher with Prof. David Kotz at Dartmouth College in 2014-2015. He received a Ph.D. degree in Computer Engineering, University of Waterloo, in 2013, with an award of Outstanding Achievement in Graduate Studies, under the supervision of Prof. Sherman Shen and Prof. Xiaodong Lin. He received the BSc and MSc degrees in Computer Science from Shanghai Jiao Tong University, China, in 2006 and 2009, respectively. His research interests include mobile health, mobile system, and network security. He received the Early Career Research Excellence Award from UMass Boston College of Science and Mathematics in 2020, the Early Career Award for Excellence in Scalable Computing from IEEE Technical Committee on Scalable Computing in 2017, the Best Land Transportation Paper Award from IEEE Vehicular Technology Society in 2017, the Internet of Things Technology Research Award from Google in 2016, and the Best Paper Awards in BodyNets 2010, IEEE IPCCC 2020, and IEEE ICC 2021. He is an ACM Member and an IEEE Senior Member. For more information, see http://faculty.umb.edu/xiaohui.liang/.

Publishing: 110+ refereed publications. **Google Scholar Citation is 11066, and H-Index is 52**.

Single PI, $1.18m, NSF/NIH R01 "SCH: INT: Collaborative Research: Exploiting Voice Assistant Systems for Early Detection of Cognitive Decline," with Co-I John Batsis from the University of North Carolina at Chapel Hill and Co-I Robert Roth from Dartmouth Hitchcock Medical Center. [Link]
Lead PI, $350k, NSF "NeTS: Small: Collaborative Research: Towards Privacy-Preserving Autonomous Vehicle Sharing Services," with PI Mohamed Mahmoud from Tennessee Technological University. [Link].

Mentoring: Four PhD students in total. Two students recently graduated; one joined Clark University as visiting assistant professor (2018-) and another joined Shaqra University, Saudi as assistant professor (2019-)

Teaching: Developed Cybersecurity in the Internet of Things (2018-20), Applied Cryptography (2019-20)

Internal Services: Institutional Review Board (University-level), Academic Affairs Committee (College-level), Personnel Committee (Department-level)

External Services: NSF Panelist (2015, 2017, 2021), Associate Editor of IEEE Internet of Things, Guest Editor of Smart Health Journal, Track Chair of IEEE International Conference on Parallel and Distributed Systems.

Funding

NIH NIA P30-AG073104 (Pilot Award), $60,522 Direct for 6/2023 - 5/2024 (UMB Direct $21,100) MPI
Geriatric Functional Assessment System Using Passive Wearable Sensing and Deep Learning
Collaborators: MPI Batsis (University of North Carolina at Chapel Hill)

NIH NIA R01-AG067416, $1,179,714 for 2019-2023 (UMB share $596,844) Single PI
Exploiting Voice Assistant Systems for Early Detection of Cognitive Decline
Collaborators: Co-Is John Batsis (University of North Carolina at Chapel Hill) and Robert Roth (Dartmouth Hitchcock Medical Center), and Consultants David Kotz (Dartmouth College) and Brian MacWhinney (Carnegie Mellon University).

NSF NeTS, $349,993 for 2016-2020 (UMB share $199,994) Lead PI
Towards Privacy-Preserving Autonomous Vehicle Sharing Services
Collaborator: PI Mohamed Mahmoud (Tennessee Technological University).

UMB Joseph P. Healey Research Grant, $7,500 for 2018 PI
Efficient and Privacy-preserving Human Contact Tracing for Infection Detection

UMB Joseph P. Healey Research Grant, $7,500 for 2016-2017 PI
Towards Privacy-preserving Data Release in Mobile Healthcare

UMB Startup Funding, $90,000 for 2015-2020 PI

Honors and Awards

- Presidential Poster Award, American Geriatrics Society 2022
- Best Paper Award, ICC (International Conference on Communications) (15/1881) 2021
- Best Paper Award, IPCCC (International Performance Computing and Communications Conference) (2/99) 2020
- LightTouch paper has been highlighted in IEEE Computer's Spotlight on Transactions column 2020
- Early Career Research Excellence Award from UMB College of Science and Mathematics 2020
- UMB nominee for the 2020/21 Blavatnik National Awards for Young Scientists (1 out of 3) 2019/20
- Early Career Award for Excellence from the IEEE Technical Committee on Scalable Computing 2017
- Best Land Transportation Paper Award from the IEEE Vehicular Technology Society 2017
- Internet of Things (IoT) Technology Research Award from Google 2016
- Accomplishment with Distinction on An Introduction to Evidence-Based Undergraduate STEM Teaching, a teaching course from Coursera 2014
- Outstanding Achievement in Graduate Studies, University of Waterloo 2013
- Ontario Graduate Scholarship, University of Waterloo 2012-2013
- President's Graduate Scholarship, University of Waterloo 2012-2013
- Doctoral Thesis Completion Award, University of Waterloo 2013
- Faculty of Engineering Graduate Scholarship, University of Waterloo 2012-2013
- Ontario Research and Development Challenge Fund Bell Scholarship 2012
- Graduate Scholarship, University of Waterloo, five consecutive terms 2010-2011
- International Doctoral Student Award, University of Waterloo 2009-2012
- INFOCOM 2011 Student Travel Grant 2011
- Shanghai Excellent Master Thesis Award 2011
- Best Paper, BodyNets (International Conference on Body Area Networks) 2010

- National Excellent Graduate Scholarship, China 2007
- Excellent Graduate, Shanghai Jiao Tong University 2006
- Excellent Undergraduate Thesis Award, Shanghai Jiao Tong University 2006
- First Price, 18th National Contest in Mathematics, Hubei Region, China 2002

Publications

Book:

B1. Xiaohui Liang, Rongxing Lu, Xiaodong Lin, and Xuemin (Sherman) Shen. *Security and Privacy in Mobile Social Networks. Springer Briefs in Computer Science*, ISBN 978-1-4614-8856-9, 2013. (*recommended by ACM Computing Reviews*)

B2. Mi Wen, Rongxing Lu, Xiaohui Liang, Jingsheng Lei, and Xuemin (Sherman) Shen. *Querying over Encrypted Data in Smart Grids. SpringerBriefs in Computer Science*, ISBN: 978-3-319-06354-6, 2014.

Book Chapter:

T1. Kuan Zhang, Xiaohui Liang, Rongxing Lu, and Xuemin (Sherman) Shen. *Exploiting Private Profile Matching for Efficient Packet Forwarding in Mobile Social Networks*, *Handbook on Opportunistic Mobile Social Networks*. CRC Press, Taylo & Francis Group, USA, 2013.

Refereed Journal Papers:

J1. Rahi R. Shah, Claudia C. Dixon, Michael J. Fowler, Tiffany M. Driesse, Xiaohui Liang, Caroline E. Summerour, Danae C. Gross, Hillary B. Spangler, David H. Lynch, and John A. Batsis, *Using Voice Assistant Systems to Improve Dietary Recall Among Older Adults: Perspectives of Registered Dietitians*, *Journal of Nutrition in Gerontology and Geriatrics*, Volume 43, Issue 1, 2024.

J2. Hillary B. Spangler, Tiffany M. Driesse, David H. Lynch, Xiaohui Liang, Robert M. Roth, David Kotz, Karen Fortuna, and John A Batsis, *Privacy Concerns of Older Adults Using Voice Assistant Systems*, accepted by *Journal of the American Geriatrics Society*, 2022.

J3. Xiaohui Liang, John Batsis, Youxiang Zhu, Tiffany Driesse, Robert Roth, David Kotz, and Brian MacWhinney, *Evaluating Voice-Assistant Commands for Dementia Detection*, *Elsevier Computer Speech and Language Special Issue on Speech Based Evaluation of Neurological Diseases*, 2021

J4. Youxiang Zhu, Xiaohui Liang, John Batsis, and Robert Roth, *Exploring Deep Transfer Learning Techniques for Alzheimer's Dementia Detection. Frontiers in Computer Science Special Issue on Alzheimer's Dementia Recognition through Spontaneous Speech*, 2021

J5. Bang Tran and Xiaohui Liang. *Exploiting Peer-to-peer Communications for Query Privacy Preservation in Voice Assistant Systems. Peer-to-Peer Networking and Applications*, Springer, 2020.

J6. Yan Meng, Jinlei Li, Haojin Zhu, Xiaohui Liang, Yao Liu, and Na Ruan. *Revealing Your Mobile Password via WiFi Signals: Attacks and Countermeasures. IEEE Transactions on Mobile Computing*, vol. 19, no. 2, 2020.

J7. Xiaohui Liang, Ronald Peterson, and David Kotz. *Securely Connecting Wearables to Ambient Displays with User Intent. IEEE Transactions on Dependable and Secure Computing*, vol. 17, no. 4, 2020.

J8. Donghuan Yao, Mi Wen, Xiaohui Liang, Zipeng Fu, Kai Zhang, and Baojia Yang. *Energy Theft Detection with Energy Privacy Preservation in the Smart Grid. IEEE Internet of Things Journal*, vol. 6, no. 5, pp. 7659-7669, 2019.

J9. Mohammad Hadian, Thamer Altuwaiyan, Xiaohui Liang, and Haojin Zhu. *Privacy-preserving Task Scheduling for Time-sharing Services of Autonomous Vehicles. IEEE Transactions on Vehicular Technology*, vol. 68, no. 6, pp. 5260-5270, 2019.

J10. Mohammad Hadian, Thamer Altuwaiyan, Xiaohui Liang, and Wei Li. *Privacy-preserving Voice-based Search over mHealth Data. Smart Health Journal*, vol. 12, pp. 24-34, 2019.

J11. Kuan Zhang, Xiaohui Liang, Jianbing Ni, Kan Yang, and Xuemin (Sherman) Shen. *Exploiting Social Network to Enhance Human-to-Human Infection Analysis Without Privacy Leakage. IEEE Transactions on Dependable and Secure Computing*, vol. 15, no. 4, pp. 607-620, 2018.

J12. Kuan Zhang, Jianbing Ni, Kan Yang, Xiaohui Liang, Ju Ren, and Xuemin (Sherman) Shen. *Security and Privacy in Smart City Applications: Challenges and Solutions. IEEE Communications Magazine*, vol. 55, no. 1, pp. 122-129, 2017.

J13. Mengyuan Li, Ruan Na, Qiyang Qian, Haojin Zhu, Xiaohui Liang, and Le Yu. *SPFM: Scalable and Privacy-preserving Friend Matching in Mobile Cloud. IEEE Internet of Things Journal*, vol. 4, no. 2, pp. 583-591, 2017.

J14. Ahmed Sherif, Khaled Rabieh, Mohamed Mahmoud, and Xiaohui Liang. *Privacy-Preserving Ride Sharing Scheme for Autonomous Vehicles in Big Data Era. IEEE Internet of Things Journal*, vol. 4, no. 2, pp. 611-618, 2017.

J15. Yuan Zhang, Chunxiang Xu, Xiaohui Liang, Hongwei Li, Mu Yi, and Xiaojun Zhang. *Efficient Public Verification of Data Integrity for Cloud Storage Systems from Indistinguishability Obfuscation. IEEE Transactions on Information Forensics and Security*, vol. 12, no. 3, pp. 676-688, 2017.

J16. Huaxin Li, Haojin Zhu, Suguo Du, Xiaohui Liang, and Xuemin (Sherman) Shen. *Privacy Leakage of Location Sharing in Mobile Social Networks: Attacks and Defense. IEEE Transactions on Dependable and Secure Computing*, vol. 15, no. 4, pp. 646-660, 2016.

J17. Hao Ren, Hongwei Li, Xiaohui Liang, Shibo He, Yuanshun Dai, and Lian Zhao. *Privacy-Enhanced and Multifunctional Health Data Aggregation under Differential Privacy Guarantees. MDPI Sensors*, vol. 16, no. 9, 2016.

J18. Yuan Zhang, Chunxiang Xu, Hongwei Li, and Xiaohui Liang. *Cryptographic Public Verification of Data Integrity for Cloud Storage Systems. IEEE Cloud Computing*, vol. 3, no. 5, pp. 44-52, 2016.

J19. Hongwei Li, Yi Yang, Tom Luan, Xiaohui Liang, Liang Zhou, and Xuemin (Sherman) Shen. *Enabling Fine-grained Multi-keyword Search Supporting Classified Sub-dictionaries over Encrypted Cloud Data. IEEE Transactions on Dependable and Secure Computing (TDSC)*, vol. 13, no. 3, pp. 312-325, 2016.

J20. Kuan Zhang, Xiaohui Liang, Rongxing Lu, and Xuemin (Sherman) Shen. *PIF: A Personalized Fine-grained Spam Filtering Scheme with Privacy Preservation in Mobile Social Network. IEEE Transactions on Computational Social Systems (TCSS)*, vol. 2, no. 3, pp. 41-52, 2015.

J21. Kuan Zhang, Kan Yang, Xiaohui Liang, Zhou Su, Xuemin (Sherman) Shen, and Henry Luo. *Security and Privacy for Mobile Healthcare Networks – from Quality-of-Protection Perspective. IEEE Wireless Communications*, vol. 22, no. 4, pp. 104-112, 2015.

J22. Kuan Zhang, Xiaohui Liang, Rongxing Lu, and Xuemin (Sherman) Shen. *Sybil Attacks and Their Defenses in the Internet of Things. IEEE Internet of Things Journal*, vol. 1, no. 5, pp. 372-383, 2014.

J23. Kuan Zhang, Xiaohui Liang, Mrinmoy Barua, Rongxing Lu, and Xuemin (Sherman) Shen. *PHDA: A Priority Based Health Data Aggregation with Privacy Preservation for Cloud Assisted WBANs. Information Sciences*, Elsevier, vol. 284, pp. 130-141, 2014.

J24. Xiaohui Liang, Xiaodong Lin, Kuan Zhang, and Xuemin (Sherman) Shen. *Security and Privacy in Mobile Social Network: Challenges and Solutions. IEEE Wireless Communications*, vol.21, no.1, pp.33-41, 2014.

J25. Chengzhe Lai, Hui Li, Xiaohui Liang, Rongxing Lu, Kuan Zhang, and Xuemin (Sherman) Shen. *CPAL: A Conditional Privacy-Preserving Authentication with Access Linkability for Roaming Service. IEEE Internet of Things Journal*, vol. 1, no. 1, pp. 46-57, 2014.

J26. Xiaohui Liang, Xiaodong Lin, and Xuemin (Sherman) Shen. *Enabling Trustworthy Service Evaluation in Service-oriented Mobile Social Networks. IEEE Transactions on Parallel and Distributed Systems (TPDS)*, vol. 25, no. 2, pp. 310-320, 2014.

J27. Kuan Zhang, Xiaohui Liang, Xuemin (Sherman) Shen, and Rongxing Lu. *Exploiting Multimedia Services in Mobile Social Networks from Security and Privacy Perspectives. IEEE Communications Magazine*, vol.52, no.3, pp.58-65, 2014.

J28. Qinghua Shen, Xiaohui Liang, Xuemin (Sherman) Shen, Xiaodong Lin, and Henry Luo. *Exploiting Geo-Distributed Clouds for E-Health Monitoring System with Minimum Service Delay and Privacy Preservation. IEEE Journal of Biomedical and Health Informatics*, vol. 18, no. 2, pp. 430-439, 2014.

J29. Hongwei Li, Xiaodong Lin, Haomiao Yang, Xiaohui Liang, Rongxing Lu, and Xuemin (Sherman) Shen. *EPPDR: An Efficient Privacy-Preserving Demand Response Scheme with Adaptive Key Evolution in Smart Grid. IEEE Transactions on Parallel and Distributed Systems (TPDS)*, vol. 25, no. 8, pp. 2053-2064, 2014.

J30. Mi Wen, Rongxing Lu, Jingsheng Lei, Hongwei Li, Xiaohui Liang, and Xuemin (Sherman) Shen. *SESA: An Efficient Searchable Encryption Scheme for Auction in Emerging Smart Grid Marketing. Security and Communication Networks (SCN)*, vol. 7, no. 1, pp. 234-244, 2014.

J31. Xiaohui Liang, Xu Li, Kuan Zhang, Rongxing Lu, Xiaodong Lin, and Xuemin (Sherman) Shen. *Fully Anonymous Profile Matching in Mobile Social Networks. IEEE Journal on Selected Areas of Communications (JSAC)*, vol. 31, no. 9, pp. 641-655, 2013.

J32. Xiaohui Liang, Kuan Zhang, Rongxing Lu, Xiaodong Lin, and Xuemin (Sherman) Shen. *EPS: An Efficient and Privacy-Preserving Service Searching Scheme for Smart Community. IEEE Sensor Journal*, vol. 13, no. 10, pp. 3702-3710, 2013.

J33. Mi Wen, Kuan Zhang, Jingsheng Lei, Xiaohui Liang, Ruilong Deng, and Xuemin (Sherman) Shen. *CIT: A Credit-based Incentive Tariff Scheme with Fraud-traceability for Smart Grid. Security and Communication Networks*, Nov. 2013.

J34. Mi Wen. Rongxing Lu, Kuan Zhang, Jingsheng Lei, Xiaohui Liang, and Xuemin (Sherman) Shen. *PaRQ: A Privacy-preserving Range Query Scheme over Encrypted Metering Data for Smart Grid. IEEE Transactions on Emerging Topics in Computing (TETC)*, vol. 1, no. 1, pp. 178-191, 2013.

J35. Mrinmoy Barua, Xiaohui Liang, Rongxing Lu, and Xuemin (Sherman) Shen. *RCare: Extending Secure Health Care to Rural Area Using VANETs. ACM Mobile Networks and Applications (MONET)*, vol. 19, no. 3, pp. 318-330, 2013.

J36. Xiaohui Liang, Xu Li, Rongxing Lu, Xiaodong Lin, and Xuemin (Sherman) Shen. *UDP: Usage-based Dynamic Pricing with Privacy Preservation for Smart Grid. IEEE Transactions on Smart Grid (TSG)*, vol. 4, no. 1, pp. 141-150, 2013.

J37. Xiaohui Liang, Xu Li, Tom Luan, Rongxing Lu, Xiaodong Lin, and Xuemin (Sherman) Shen. *Morality-driven Data Forwarding with Privacy Preservation in Mobile Social Networks. IEEE Transactions on Vehicular Technology (TVT)*, vol. 61, no. 7, pp. 3209-3221, 2012.

J38. Rongxing Lu, Xiaohui Liang, Xu Li, Xiaodong Lin, and Xuemin (Sherman) Shen. *EPPA: An Efficient and Privacy-Preserving Aggregation Scheme for Secure Smart Grid Communications. IEEE Transactions on Parallel and Distributed Systems (TPDS)*, vol. 23, no. 9, pp. 1621-1631, 2012.

J39. Xiaohui Liang, Xu Li, Mrinmoy Barua, Le Chen, Rongxing Lu, Xuemin (Sherman) Shen, and Henry Luo. *Enable Pervasive Healthcare through Continuous Remote Health Monitoring. IEEE Wireless Communications*, vol. 19, no. 6, pp. 10-18, 2012.

J40. Xu Li, Xiaohui Liang, Rongxing Lu, Xiaodong Lin, Haojing Zhu, and Xuemin (Sherman) Shen. *Securing Smart Grid: Cyber Attacks, Countermeasures and Challenges. IEEE Communications Magazine*, vol. 50, no. 8, pp. 38-45, 2012.

J41. Xiaohui Liang, Mrinmoy Barua, Rongxing Lu, Xiaodong Lin, and Xuemin (Sherman) Shen. *HealthShare: Achieving Secure and Privacy-preserving Health Information Sharing through Health Social Networks. Computer Communications*, vol. 35, no. 15, pp. 1910-1920, 2012.

J42. Rongxing Lu, Xiaodong Lin, Tom Luan, Xiaohui Liang, and Xuemin (Sherman) Shen. *Pseudonym Changing at Social Spots: An Effective Strategy for Location Privacy in VANETs. IEEE Transactions on Vehicular Technology (TVT)*, vol. 61, no. 1, pp. 86-96, 2012.

J43. Xu Li, Rongxing Lu, Xiaohui Liang, Jiming Chen, Xiaodong Lin, and Xuemin (Sherman) Shen. *Smart Community: an Internet of Things Application. IEEE Communications Magazine*, vol. 49, no. 11, pp. 68-75, 2011.

J44. Mrinmoy Barua, Xiaohui Liang, Rongxing Lu, and Xuemin (Sherman) Shen. *ESPAC: Enabling Security and Patient-centric Access Control for eHealth in Cloud Computing. International Journal of Security and Networks*, vol. 6, no. 2, pp. 67-76, 2011.

J45. Rongxing Lu, Xiaodong Lin, Xiaohui Liang, and Xuemin (Sherman) Shen. *A Secure Handshake Scheme with Symptoms-Matching for mHealthcare Social Network. ACM Mobile Networks and Applications (MONET)*, vol. 16, no. 6, pp. 683-694, 2011.

J46. Rongxing Lu, Xiaodong Lin, Xiaohui Liang, and Xuemin (Sherman) Shen. *An Efficient and Provably Secure Public Key Encryption Scheme based on Coding Theory. Security and Communication Networks (SCN)*, vol. 4, no. 12, pp. 1440-1447, 2011.

J47. Xiaohui Liang, Mrinmoy Barua, Rongxing Lu, and Xuemin (Sherman) Shen. *Privacy-preserving Wireless Data Transmission for e-Healthcare Applications. IEEE COMSOC MMTC E-Letter*, vol. 6, no. 11, pp. 39-41, 2011.

J48. Rongxing Lu, Xiaodong Lin, Xiaohui Liang, and Xuemin (Sherman) Shen. *A Dynamic Privacy-Preserving Key Management Scheme for Location Based Services in VANETs. IEEE Transactions on Intelligent Transportation Systems (TITS)*, vol. 13, no. 1, pp. 127-139, 2012.

J49. Xiaohui Liang, Rongxing Lu, Le Chen, Xiaodong Lin, and Xuemin (Sherman) Shen. *PEC: A Privacy-preserving Emergency Call Scheme for Mobile Healthcare Social Networks. IEEE Journal of Communications and Networks*, vol. 13, no. 2, pp. 102-112, 2011.

J50. Rongxing Lu, Xu Li, Xiaohui Liang, Xiaodong Lin, and Xuemin (Sherman) Shen. *GRS: The Green, Reliability, and Security of Emerging Machine to Machine Communications. IEEE Communications Magazine*, vol. 49, no. 4, pp. 28-35, 2011.

J51. Rongxing Lu, Xiaodong Lin, Haojing Zhu, Xiaohui Liang, and Xuemin (Sherman) Shen. *BECAN: A Bandwidth-Efficient Cooperative Authentication Scheme for Filtering Injected False Data in Wireless Sensor Networks. IEEE Transactions on Parallel and Distributed Systems (TPDS)*, vol. 23, no. 1, pp. 32-43, 2010.

J52. Huang Lin, Zhenfu Cao, Xiaohui Liang, and Jun Shao. *Secure Threshold Multi Authority Attribute based Encryption without a Central Authority. Information Sciences*, vol. 180, no. 13, pp. 2618-2632, 2010.

J53. Jun Shao , Zhenfu Cao , Xiaohui Liang , and Huang Lin. *Proxy Re-encryption with Keyword Search. Information Sciences*, vol. 180, no. 13, pp. 2576-2587, 2010.

J54. Xiaohui Liang, Zhenfu Cao, Rongxing Lu, and Liuquan Qin. *Efficient and Secure Protocol in Fair Document Exchange. Computer Standards and Interfaces*, vol. 30, no. 3, pp. 167-176, 2008.

J55. Rongxing Lu, Xiaodong Lin, Zhenfu Cao, Jun Shao, and Xiaohui Liang. *New (t, n) Threshold Directed Signature Scheme with Provable Security. Information Sciences*, vol. 178, no. 3, 2008, pp. 756-765.

Refereed Conference Papers:

C1. Bang Tran, Sai Harshavardhan Reddy Kona, Xiaohui Liang, Gabriel Ghinita, Caroline Summerour, John A. Batsis, *VPASS: Voice Privacy Assistant System for Monitoring In-home Voice Commands, 20th International Conference on Privacy, Security, and Trust (PST)*, 2023.

C2. Youxiang Zhu, Nana Lin, Xiaohui Liang, John A. Batsis, Robert M. Roth, Brian MacWhinney, *Evaluating Picture Description Speech for Dementia Detection using Image-text Alignment*, *Multimodal KDD 2023: International Workshop on Multimodal Learning*, 2023.

C3. Eli Kurtz, Youxiang Zhu, Tiffany Driesse, Bang Tran, John A. Batsis, Robert M. Roth, and Xiaohui Liang, *Early Detection of Cognitive Decline using Voice Assistant Commands*, *IEEE International Conference on Acoustic, Speech and Signal Processing (ICASSP)*, 2023

C4. Bang Tran, Youxiang Zhu, James W. Schwoebel, and Xiaohui Liang, Exploiting *Relevance of Speech to Sleepiness Detection via Attention Mechanism*, *IEEE International Conference on Communications (ICC)*, 2023.

C5. Youxiang Zhu, Xiaohui Liang, John A. Batsis, and Robert M. Roth, *Domain-aware Intermediate Pretraining for Dementia Detection with Limited Data*, *Conference of the International Speech Communication Association (INTERSPEECH)* 2022.

C6. Xiaohui Liang, John A. Batsis, Jing Yuan, Youxiang Zhu, Tiffany M. Driesse, and Josh Schultz, *Voice-assisted Food Recall using Voice Assistants*, *International Conference on Human-Computer Interaction (HCII)*, 2022.

C7. Youxiang Zhu, Bang Tran, Xiaohui Liang, John A. Batsis, and Robert M. Roth, *Towards Interpretability of Speech Pause in Dementia Detection using Adversarial Learning. International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, 2022.

C8. Bang Tran, Youxiang Zhu, Xiaohui Liang, James W. Schwoebel, Lindsay A. Warrenburg, *Speech Tasks Relevant to Sleepiness Determined with Deep Transfer Learning. International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, 2022.

C9. Youxiang Zhu, Abdelrahman Obyat, Xiaohui Liang, John Batsis, and Robert Roth, *WavBERT: Exploiting Semantic and Non-semantic Speech using Wav2vec andBERT for Dementia Detection. Conference of the International Speech Communication Association (INTERSPEECH)*, 2021.

C10. Bang Tran, Shenhui Pan, Xiaohui Liang, and Honggang Zhang, *Exploiting Physical Presence Sensing to SecureVoice Assistant Systems. IEEE International Conference on Communications (ICC)*, 2021, **Best Paper Award, 15/1881**.

C11. Yue Sun, Deqiang Xu, Zhuoming Huang, Honggang Zhang, and Xiaohui Liang. *LIDAUS: Localization of IoT Device via Anchor UAV SLAM. IEEE International Performance Computing and Communications Conference (IPCCC)*, 2020, **Best Paper Award, 2/99**.

C12. Thamer Altuwaiyan, Mohammad Hadian, Samuel Rubel, and Xiaohui Liang. *Exploiting Privacy-preserving Voice Query in Healthcare-based Voice Assistant System. IEEE International Conference on Communications (ICC)*, 2020.

C13. Shuaiqi Shen, Song Ci, Kuan Zhang, and Xiaohui Liang. *Lifecycle Prediction of Second Use Electric Vehicle Batteries Based on ARIMA Model. IEEE GLOBECOM Workshop on Cyber-Physical Energy System for Sustainable ICT*, 2019.

C14. Mohammad Hadian, Thamer Altuwaiyan, Xiaohui Liang, Bo Sheng, and Kuan Zhang. *SmartEye: Mobile Device Proximity Monitoring via Wireless Signal Analysis. IEEE International Conference on Computing, Networking and Communications (ICNC)*, 2019. (Accepting ratio 28%)

C15. Tengpeng Li, Xiaoqian Zhang, Teng Wang, Son Nam Nguyen, Xiaohui Liang, and Bo Sheng. *FARES: Fast and Accurate Recognition of Exact Scenes on Mobile Devices. IEEE International Conference on Computing, Networking and Communications (ICNC)*, 2019. (Accepting ratio 28%)

C16. Mohammad Hadian, Thamer Altuwaiyan, Haoyu Wang, and Xiaohui Liang. *WiLock: Exploiting Wireless Signals for Device-free Continuous Authentication. IEEE Global Telecommunications Conference (GLOBECOM)*, December 2018.

C17. Haoyu Wang, Mohammad Hadian, and Xiaohui Liang. *Efficient and Privacy-preserving Roadmap Data Update for Autonomous Vehicles. IEEE Global Telecommunications Conference (GLOBECOM)*, December 2018.

C18. Yan Meng, Zichang Wang, Wei Zhang, Peilin Wu, Haojin Zhu, Xiaohui Liang, and Yao Liu. *WiVo: Enhancing the Security of Voice Control System via Wireless Signal in IoT Environment. ACM International Symposium on Mobile Ad Hoc Networking and Computing (MobiHoc)*, 2018.

C19. Thamer Altuwaiyan, Mohammad Hadian, Xiaohui Liang, and Wei Li. *EPIC: Efficient Privacy-preserving Contact Tracing for Infection Detection. IEEE International Conference on Communications (ICC)*, 2018.

C20. Haizhong Zheng, Minhui Xue, Hao Lu, Shuang Hao, Haojin Zhu, Xiaohui Liang, and Keith Ross. *Smoke Screener or Straight Shooter: Detecting Elite Sybil Attacks in User-Review Social Networks. Network and Distributed System Security Symposium (NDSS)*, 2018.

C21. J. Zhang, Xiaohui Liang, Z. Zhang, Shibo He, and Zhiguo Shi. *Re-DPoctor: Real-time health data releasing with w-day differential privacy. IEEE Global Telecommunications Conference (GLOBECOM)*, December 2017.

C22. Mohammad Hadian, Thamer Altuwaiyan, and Xiaohui Liang. *Privacy-preserving Time-sharing Services for Autonomous Vehicles. IEEE 86th Vehicular Technology Conference (VTC-Fall)*, 2017.

C23. Aarathi Prasad, Xiaohui Liang, and David Kotz. *SPICE: Secure Proximity-based Infrastructure for Close Encounters. ACM Workshop on Mobile Crowdsensing Systems and Applications (CrowdSense)*, 2017.

C24. Xiaohui Liang and David Kotz. *AuthoRing: Wearable User-presence Authentication. ACM Workshop on Wearable Systems and Applications (WearSys)*, pages 5-10, 2017.

C25. Mohammad Hadian, Thamer Altuwaiyan, Xiaohui Liang, and Wei Li. *Efficient and Privacy-Preserving Voice-Based Search over mHealth Data. The International Workshop on Security, Privacy, and Trustworthiness in Medical Cyber-Physical Systems (MedSPT)*, 2017.

C26. Xiaohui Liang, Tianlong Yun, Ronald Peterson, and David Kotz. *LightTouch: Securely Connecting Wearables to Ambient Displays with User Intent. IEEE International Conference on Computer Communications (INFOCOM)*, 2017. (Acceptance rate is 20.93%)

C27. Mengyuan Li, Yan Meng, Junyi Liu, Haojin Zhu, Xiaohui Liang, Yao Liu, and Na Ruan. *When CSI Meets Public WiFi: Inferring Your Mobile Phone Password via WiFi Signals. The 23rd ACM Conference on Computer and Communications Security (CCS)*, 2016. (Acceptance rate is 16.37%)

C28. Mohammad Hadian, Xiaohui Liang, Thamer Altuwaiyan, and Mohamed Mahmoud. *Privacy-preserving mHealth Data Release with Pattern Consistency. IEEE Global Telecommunications Conference (GLOBECOM)*, December 2016.

C29. Guowen Xu, Hongwei Li, Dongxiao Liu, Hao Ren, Yuanshun Dai, Xiaohui Liang. *Towards Efficient Privacy-preserving Truth Discovery in Crowd Sensing Systems. IEEE Global Telecommunications Conference (GLOBECOM)*, December 2016.

C30. Thamer Altuwaiyan, Xiaohui Liang, and Mohammad Hadian. *Towards Efficient and Privacy-preserving Location-based Comment Sharing. IEEE/CIC International Conference on Communications in China (ICCC)*, July, 2016.

C31. Tim Pierson, Xiaohui Liang, Ronald Peterson, and David Kotz. *Wanda: Securely Introducing Mobile Devices. IEEE International Conference on Computer Communications (INFOCOM)*, 2016. (Acceptance rate is 18.25%)

C32. Kuan Zhang, Xiaohui Liang, Rongxing Lu, Kan Yang, and Xuemin (Sherman) Shen. *Exploiting Mobile Social Behaviors for Sybil Detection. IEEE International Conference on Computer Communications (INFOCOM)*, 2015. (Acceptance rate is 19%)

C33. Xiaohui Liang, and David Kotz. *Securely Connecting Wearable Health Devices to External Displays. USENIX Summit on Health Information Technologies*, August, 2014.

C34. Qinghua Shen, Xiaohui Liang, Xuemin (Sherman) Shen, Xiaodong Lin, and Henry Luo. *RECCE: A Reliable and Efficient Cloud Cooperation Scheme in E-healthcare. IEEE Global Telecommunications Conference (GLOBECOM)*, December 2013.

C35. Kuan Zhang, Rongxing Lu, Xiaohui Liang, Jian Qiao, and Xuemin (Sherman) Shen. *PARK: A Privacy-preserving Aggregation Scheme with Adaptive Key Management for Smart Grid. IEEE & CIC International Conference on Communications in China (ICCC)*, August 2013.

C36. Kuan Zhang, Xiaohui Liang, Rongxing Lu, and Xuemin (Sherman) Shen. *SAFE: A Social Based Updatable Filtering Protocol with Privacy Preservation in Mobile Social Networks. IEEE International Conference on Communications (ICC)*, June 2013.

C37. Hongwei Li, Xiaohui Liang, Rongxing Lu, Xiaodong Lin, and Xuemin (Sherman) Shen. *EDR: An Efficient Demand Response Scheme for Achieving Forward Secrecy in Smart Grid. IEEE Global Telecommunications Conference (GLOBECOM)*, December 2012.

C38. Kuan Zhang, Xiaohui Liang, Rongxing Lu, Xuemin (Sherman) Shen, and Hai Zhao. *VSLP: Voronoi-Socialspot-Aided Packet Forwarding Protocol with Receiver Location Privacy in MSNs. IEEE Global Telecommunications Conference (GLOBECOM)*, December 2012.

C39. Xiaohui Liang, Xu Li, Rongxing Lu, Xiaodong Lin, and Xuemin (Sherman) Shen. *SEER: A Secure and Efficient Service Review System for Service-Oriented Mobile Social Networks. International Conference on Distributed Computing Systems (ICDCS)*, June 2012. (Acceptance rate is 13%)

C40. Xiaohui Liang, Xu Li, Rongxing Lu, Xiaodong Lin, and Xuemin (Sherman) Shen. *Enabling Pervasive Healthcare with Privacy Preservation in Smart Community. IEEE International Conference on Communications (ICC)*, June 2012.

C41. Xiaohui Liang, Xu Li, Qinghua Shen, Rongxing Lu, Xiaodong Lin, Xuemin (Sherman) Shen, and Weihua Zhang. *Exploiting Prediction to Enable Secure and Reliable Routing in Wireless Body Area Networks. IEEE International Conference on Computer Communications (INFOCOM)*, March 2012. (Acceptance rate is 17.97%)

C42. Rongxing Lu, Xiaodong Lin, Tom Luan, Xiaohui Liang, Xu Li, Le Chen, and Xuemin (Sherman) Shen. *PReFilter: A Privacy-preserving Relay Filtering Scheme for Delay Tolerant Networks. IEEE International Conference on Computer Communications (INFOCOM)*, March 2012. (Acceptance rate is 17.97%)

C43. Xu Li, Shibo He, Jiming Chen, Xiaohui Liang, Rongxing Lu, and Xuemin (Sherman) Shen. *Coordinate-free Distributed Algorithm for Boundary Detection in Wireless Sensor Networks. IEEE Global Communications Conference (GLOBECOM)*, December 2011.

C44. Xiaohui Liang, Xu Li, Rongxing Lu, Xiaodong Lin, and Xuemin (Sherman) Shen. *An Efficient and Secure User Revocation Scheme in Mobile Social Networks. IEEE Global Communications Conference (GLOBECOM)*, December 2011.

C45. Le Chen, Zhenfu Cao, Rongxing Lu, Xiaohui Liang, and Xuemin (Sherman) Shen. *EPF: An Event-aided Packet Forwarding Protocol for Privacy-preserving Mobile Healthcare Social Networks. IEEE Global Communications Conference (GLOBECOM)*, December 2011.

C46. Xu Li, Xiaohui Liang, Rongxing Lu, Shibo He, Jiming Chen, and Xuemin (Sherman) Shen. *Toward Reliable Actor Service in Wireless Sensor and Actor Networks. IEEE International Conference on Mobile Ad hoc and Sensor Systems (MASS)*, October 2011.

C47. Xiaohui Liang, Xu Li, Rongxing Lu, Xiaodong Lin, and Xuemin (Sherman) Shen. *Fine-grained Identification with Real-time Fairness in Mobile Social Networks. IEEE International Conference on Communications (ICC)*, June 2011.

C48. Xu Li, Rongxing Lu, Xiaohui Liang, and Xuemin (Sherman) Shen. *Side Channel Monitoring: Packet Drop Attack Detection in Wireless Ad Hoc Networks. IEEE International Conference on Communications (ICC)*, June 2011.

C49. Rongxing Lu, Xiaodong Lin, Tom Luan, Xiaohui Liang, and Xuemin (Sherman) Shen. *Anonymity Analysis on Social Spot Based Pseudonym Changing for Location Privacy in VANETs. IEEE International Conference on Communications (ICC)*, June 2011.

C50. Xiaodong Lin, Rongxing Lu, Xiaohui Liang and Xuemin (Sherman) Shen. *STAP: A Social-Tier-Assisted Packet Forwarding Protocol for Achieving Receiver-Location Privacy Preservation in VANETs. IEEE International Conference on Computer Communications (INFOCOM)*, April 2011. (Acceptance rate is 15.96%)

C51. Mrinmoy Barua, Xiaohui Liang, Rongxing Lu, and Xuemin (Sherman) Shen. *PEACE: An Efficient and Secure Patient-Centric Access Control Scheme for eHealth Care System. IEEE International Conference on Computer Communications workshops on Security in Computers, Networking and Communications (INFOCOM-SCNC)*, April 2011.

C52. Mrinmoy Barua, Md. Shamsul Alam, Xiaohui Liang, and Xuemin (Sherman) Shen. *Secure and Quality of Service Assurance Scheduling Scheme for WBAN with Application to EHealth. IEEE Wireless Communications and Networking Conference (WCNC)*, March 2011.

C53. Xiaohui Liang, Rongxing Lu, Xiaodong Lin, Xuemin (Sherman) Shen. *Message Authentication with Non-transferability for Location Privacy in Mobile Ad hoc Networks. IEEE Global Communications Conference (GLOBECOM)*, December 2010.

C54. Rongxing Lu, Xiaodong Lin, Xiaohui Liang, and Xuemin (Sherman) Shen. *FLIP: An Efficient Privacy-preserving Protocol for Finding Like-minded Vehicles on the Road. IEEE Global Communications Conference (GLOBECOM)*, December 2010.

C55. Rongxing Lu, Xiaodong Lin, Xiaohui Liang, and Xuemin (Sherman) Shen. *Sacrificing the Plum Tree for the Peach Tree: A Social-spot Tactic for Protecting Receiver-location Privacy in VANET. IEEE Global Communications Conference (GLOBECOM)*, December 2010.

C56. Xiaohui Liang, Rongxing Lu, Xiaodong Lin, and Xuemin (Sherman) Shen. *PPC: Privacy-preserving Chatting in Vehicular Peer-to-peer Networks. IEEE Vehicular Technology Conference (VTC-Fall)*, September, 2010.

C57. Rongxing Lu , Xiaodong Lin, Xiaohui Liang, and Xuemin (Sherman) Shen. *Secure Handshake with Symptoms-matching: The Essential to the Success of mHealthcare Social Network. International Conference on Body Area Networks (BodyNets)*, September, 2010. *Best Paper Award*

C58. Xiaohui Liang, Rongxing Lu, Xiaodong Lin, and Xuemin (Sherman) Shen. *Patient Self-controllable Access Policy on PHI in eHealthcare Systems. Advances in Health Informatics Conference (AHIC)*, April 2010.

C59. Huang Lin, Zhenfu Cao, Xiaohui Liang, Muxin Zhou, Haojin Zhu, Dongsheng Xing. *How to Construct Interval Encryption from Binary Tree Encryption. Applied Cryptography and Network Security (ACNS)*, April 2010. (Acceptance rate is 17.98%)

C60. Rongxing Lu, Xiaodong Lin, Xiaohui Liang, and Xuemin (Sherman) Shen. *Secure Provenance: The Essential of Bread and Butter of Data Forensics in Cloud Computing. ACM Symposium on Information, Computer and Communications Security (ASIACCS)*, April, 2010. (Acceptance rate is 22.89%)

C61. Xiaohui Liang, Zhenfu Cao, Huang Lin and Dongsheng Xing. *Provably Secure and Efficient Bounded Ciphertext Policy Attribute Based Encryption. ACM Symposium on Information, Computer and Communications Security (ASIACCS)*, March 2009. (Acceptance rate is 23.6%)

C62. Xiaohui Liang, Zhenfu Cao, Huang Lin and Jun Shao. *Attribute Based Proxy Re-encryption with Delegating Capabilities. ACM Symposium on Information, Computer and Communications Security (ASIACCS)*, March 2009. (Acceptance rate is 23.6%)

C63. Huang Lin, Zhenfu Cao, Xiaohui Liang, and Jun Shao. *Secure Threshold Multi-authority Attribute Based Encryption without a Central Authority. International Conference on Cryptology in India (INDOCRYPT)*, December 2008.

C64. Jun Shao, Zhenfu Cao, Licheng Wang, and Xiaohui Liang. *Proxy Re-signature Schemes without Random Oracles. International Conference on Cryptology in India (INDOCRYPT)*, December 2007. (Acceptance rate is 20.95%)

C65. Xiaohui Liang, Zhenfu Cao, Jun Shao, and Huang Lin. *Short Group Signature without Random Oracles. International Conference on Information and Communications Security (ICICS)*, December 2007. (Acceptance rate is 17.12%)

C66. Xiaohui Liang, Zhenfu Cao, Zhenchuan Chai and Rongxing Lu. *ID-based Threshold Blind Signature scheme from Bilinear Pairing. ChinaCrypt 2006.*

Patents

P1. Xiaohui Liang, Tianlong Yun, Ron Peterson, and David Kotz. Secure System For Coupling Wearable Devices To Computerized Devices with Displays. U.S. Patent 10,581,606, March 3, 2020. Priority date 2014-08-18, Grant date 2020-03-03. Link

P2. Timothy J. Pierson, Xiaohui Liang, Ronald Peterson, and David Kotz. Apparatus for Securely Configuring A Target Device and Associated Methods. U.S. Patent 10,574,298, February 25, 2020. Priority date 2015-06-23, Grant date 2020-02-25. Link

Others

O1. (Poster) Bang Tran, Xiaohui Liang, Gabriel Ghinita, Caroline Summerour, and John A. Batsis, *Voice Privacy Assistant for Monitoring In-home Voice Commands*, *Nineteenth Symposium on Usable Privacy and Security (SOUPS)*, 2023

O2. (Poster) Youxiang Zhu and Xiaohui Liang, More Data, *Better Accuracy? An Empirical Study on Few-shot Speech-based Dementia Detection*, *Southern California Natural Language Processing Symposium (SoCal)*, 2022

O3. (Abstract) Tiffany M. Driesse, Xiaohui Liang, Michael Fowler, Jing Yuan, and John A. Batsis, *Patient Perceptions of Using Voice-Based Dietary Assessment Tools Among Older Adults*, *Gerontological Scientific Association conference*, 2022

O4. (Poster) Tiffany M. Driesse, Xiaohui Liang, Robert M. Roth, and John A. Batsis, *Older Adults Experiences and Responses to Voice Assistant Systems*, *American Geriatrics Society (AGS) annual meeting*, 2022. Best Poster Award in the category of Geriatric Syndromes (descriptive research on the mechanisms, natural history or management of major geriatric syndromes)

O5. (Student Design Competition) Jing Yuan, Tiffany Driesse, Youxiang Zhu, Xiaohui Liang, John Batsis, *Improving the Usability of Dietary Recall using Voice Assistants*, *International Conference on Human-Computer Interaction (HCII)*, 2022.

O6. (Abstract) Hillary Spangler, Tiffany Driesse, Robert Roth, Xiaohui Liang, John Batsis, and David Kotz, *Privacy Concerns Among Older Adults Using Voice Assistant Systems*, *Gerontological Scientific Association conference*, 2021.

O7. (Technical Report) Youxiang Zhu, and Xiaohui Liang. *Exploiting Fully Convolutional Network and Visualization Techniques on Spontaneous Speech for Dementia Detection. arXiv preprint arXiv:2008.07052*, 2020.

O8. (Poster) Aarathi Prasad, Xiaohui Liang, David Kotz. *Balancing Disclosure and Utility of Personal Information. ACM MobiSys*, 2014.

Invited Talks

S1. *VoiceForHealth: Exploiting Voice Assistant Systems for Mobile Healthcare*, University of Massachusetts Dartmouth, Dartmouth, MA, 2019.

S2. *WiVo: Enhancing the Security of Voice Control System via Wireless Signal in IoT Environment*, Zhejiang, China, 2019.

S3. *Towards Trustworthy User Review Social Networks. International Workshop on Internet of Things*, Chengdu, China, 2018.

S4. *Smoke Screener or Straight Shooter: Detecting Elite Sybil Attacks in User-Review Social Networks.* Dartmouth College, Hanover, NH, 2018.

S5. *Towards Privacy Preserving Autonoumous Vehicle Sharing Services*, Zhejiang, China, 2017.

S6. *Security, Privacy, and Trustworthiness in Medical Cyber Physical Systems*, Zhejiang, China, 2017.

S7. *Security and Privacy in E-health Systems.* - A tutorial talk at *IEEE HealthCom*, Boston, MA, 2015.

Conference Talks

S8. *EPIC: Efficient Privacy-preserving Contact Tracing for Infection Detection. IEEE International Conference on Communications (ICC)*, Kansas City, MO 2018.

S9. *Privacy-preserving Time-sharing Services for Autonomous Vehicles. IEEE 86th Vehicular Technology Conference (VTC)-Fall*, Toronto, ON, Canada, 2017.

S10. *AuthoRing: Wearable User-presence Authentication. Workshop on Wearable Systems and Applications (WearSys)*, Niagara Falls, NY, 2017.

S11. *LightTouch: Securely Connecting Wearables to Ambient Displays with User Intent. IEEE International Conference on Computer Communications (INFOCOM)*, Atlanta, GA, 2017.

S12. *Towards Efficient and Privacy-preserving Location-based Comment Sharing. IEEE/CIC International Conference on Communications in China (ICCC)*, Chengdu, China, 2016.

S13. *Securely Connecting Wearable Health Devices to External Displays. — USENIX Summit on Health Information Technologies*, San Diego, CA, 2014.

S14. *SEER: A Secure and Efficient Service Review System for Service-Oriented Mobile Social Networks*, *International Conference on Distributed Computing Systems (ICDCS)*, Macau, China, 2012.

S15. *Exploiting Prediction to Enable Secure and Reliable Routing in Wireless Body Area Networks. IEEE International Conference on Computer Communications (INFOCOM)*, Orlando, FL, 2012.

S16. *PReFilter: A Privacy-preserving Relay Filtering Scheme for Delay Tolerant Networks. IEEE International Conference on Computer Communications (INFOCOM)*, Orlando, FL, 2012.

S17. *STAP: A Social-Tier-Assisted Packet Forwarding Protocol for Achieving Receiver-Location Privacy Preservation in VANETs. IEEE International Conference on Computer Communications (INFOCOM)*, Shanghai, China, 2011.

S18. *PEACE: An Efficient and Secure Patient-Centric Access Control Scheme for eHealth care system. INFOCOM-Security in Computers, Networking, and Communications (SCNC)*, Shanghai, China, 2011.

S19. *PPC: Privacy-preserving Chatting in Vehicular Peer-to-peer Networks. IEEE Vehicular Technology Conference (VTC)-Fall*, Ottawa, ON, Canada, 2010.

S20. *Provably Secure and Efficient Bounded Ciphertext Policy Attribute Based Encryption. ACM Symposium on Information, Computer and Communications Security (ASIACCS)*, Sydney, Australia, 2009.

S21. *Attribute Based Proxy Re-encryption with Delegating Capabilities. ASIACCS*, Sydney, Australia, 2009.

S22. *Short Group Signature without Random Oracles. International Conference on Information and Communications Security (ICICS)*, Zhengzhou, China, 2007.

Research Experience

University of Massachusetts Boston Sep 2015-Now

- NIH/NIA R01 grant "SCH: INT: Collaborative Research: Exploiting Voice Assistant Systems for Early Detection of Cognitive Decline", 2019-2023
- NSF: NeTS: Towards Privacy-Preserving Autonomous Vehicle Sharing Services, 2016-2020
- Enhancing Security, Privacy and Characteristic Inference of Voice Assistant Systems, 2018-now
- Wireless Signals and Channel State Information for Physical Sensing, 2016-now
- Secure Wearable Applications, 2014-2017
- Security, Privacy, and Trustworthiness in Healthcare System, 2010-now

Dartmouth College Jan 2014-Aug 2015

- Developing new efficient and secure communication techniques for emerging wearable health devices, implementing the proposed techniques using hardware compatible with wearable health devices, evaluating the performance and security properties in a physical environment, and testing the usability with extensive user studies. Python, C programming in Embedded System
- Exploiting effective and non-agnostic privacy preservation methods for wearable health technology. The goal is to minimize the information disclosure to the service providers while having the maximum desired health and fitness benefits for users. Implementation of machine learning algorithms using C in embedded system

University of Waterloo, Canada May 2009-Dec 2013

- Designed secure, efficient, and privacy-preserving communication techniques for mobile communication systems, such as, e-healthcare system, mobile social networks, and smart grid
- Simulated a mobile social network by using the real-trace data, implemented and validated the techniques in a simulated environment, Java programming in Linux
- Implemented Bluetooth communications between iPhone with CIM sensors, read and modified C# programs from Btstack open source
- Developed a Gesture-based Electronic naMecard application (GEM) in Android for users to share electronic namecards using their Smartphones with Gesture-based authentication adopted to ensure security.
- Maintained and updated both hardware and software for all computers, manage computer accounts, and assist each member to be familiar with facilities and research resources in the Broadband Communications Research (BBCR) Laboratory

National Institute of Information and Communications Technology, Japan Nov. 2008

- Visiting Theoretic Foundation Group and Exchanging research ideas

Trusted Digital Technology Laboratory, Shanghai Jiao Tong University Jul 2004-Jul 2006

- Designed secure, efficient, and privacy-preserving encryption and signature schemes and implemented attribute-based encryption algorithms, C++ programming in Linux

Microsoft Research Asia, China Jul 2005-Sep 2005

- Examined and analyzed Media Access Control Layer Misbehavior as a research intern in the Wireless and Networking Group

Mentoring Experience

While on the faculty at the University of Massachusetts Boston:

- Youxiang Zhu, Ph.D. student under my supervision at UMB, Sept 2020-Now
  Speech Analysis for Early Detection of Cognitive Decline
- Bang Tran, Ph.D student under my supervision at UMB, Jan 2019-Now
  Security and Privacy of Smart Home and Voice Assistant Systems
- Mohammad Hadian, obtained Ph.D degree under my supervision at UMB, Jan 2016-April 2019
  Current position: *Visiting assistant professor at Clark University*
  Thesis: Enhancing User-oriented Security and Privacy in Emerging Data Sharing and Sensing Services
- Thamer AlTuwaiyan, obtained Ph.D degree under my supervision at UMB, Sept 2015-Feb 2019
  Current position: *Tenure-track assistant professor at Shaqra University*
  Thesis: Toward Data Privacy Related to the Internet of Things

While working at Dartmouth College:

- Aarathi Prasad, obtained Ph.D degree at Dartmouth College, (THaW project) Jan 2014-Aug 2015
  Current position: *Tenure-track assistant professor at Skidmore College*
  Exploiting trustworthy issues in mobile healthcare applications, focusing on how to balance the benefits and privacy risks of sharing health information with service providers, and developing methods to preserve user privacy while minimizing user effort and maximizing the benefits
- Timothy Pierson, obtained Ph. D degree at Dartmouth College, (THaW project) Jan 2014-Aug 2015
  Current position: *Lecturer at Dartmouth College*
  Exploiting security issues of medical device management in small health networks in which most operations and updates need to be done by clinicians or users with limited IT knowledge
- Tianlong Yun, obtained Master degree at Dartmouth College, Jan 2014-Aug 2015
  Current position: *Software Engineer at Square*
  Developing a fitness tracking application using wearable health technology

While at the University of Waterloo:

- Nan Chen, was an undergraduate exchange student at the University of Waterloo Sep 2013-Dec 2014
  Current position: *Tenure-track assistant professor at Tennessee Technological University*
  A survey of big data analysis and energy efficiency for ehealthcare
- Wei Zhang, was an undergraduate co-op student at the University of Waterloo Jan 2012-Jul 2012
  Implement Bluetooth communication between iPhone/iPod and CIM devices
- Bin Liu, was an undergraduate exchange student at the University of Waterloo Sep 2009-Dec 2009
  Implement an attribute based encryption system for e-healthcare system
- Jianqiao Shao, was an undergraduate co-op student at the University of Waterloo May 2009-Sep 2009
  An investigation on researches of e-health system security

Teaching Experience

CS480/697 Applied Cryptography, UMB, Spring 2019, Spring/Fall 2020

CS442/642 Cybersecurity in the Internet of Things, UMB, Spring 2018/2019/2020, Fall 2021

IT443 Network Security Administration, UMB, Spring 2016/2017, Fall 2017/2018

CS 240 Programming in C, UMB, Spring 2017/2018, Fall 2019

CS187 Science Gateway Seminar, UMB, Fall 2015

Internal Services

University-level:

Institutional Review Board (IRB) Committee, Participating monthly IRB meetings and reviewing human subject protocols in research projects 2018-Now

Panelist on Design Next-Generation, Useful, and Usable Digital Health Technologies at University of Massachusetts "zoom summit" in Data-Driven and Technology-Informed Precision Health 2021

Panelist on Trustworthy AI systems at University of Massachusetts "zoom summit" in Artificial Intelligence, Robotics and Data Science 2021

College-level: Academic Affairs Committee 2019-Now

Reviewing and recommending all new course proposals and all proposals for changes in existing undergraduate courses and course credits.

Department-level: Personnel Committee 2019-Now

Reviewing annual faculty report and reappointment through the tenure decision year (fourth-year review), tenure, promotion to the rank of associate professor, and promotion to senior rank.

External Services

Membership

- ACM Member (2014-), IEEE Member (S'09, M'14, SM'20), ISCA Member (2020-)
- IEEE Communications Society Member (2009-), IEEE Young Professionals (2013-), IEEE Computer Society Technical Committee on Scalable Computing (2017-), IEEE Vehicular Technology Society (2020-)

NSF Panelist 2015, 2017, 2021

Associate editor of IEEE Internet of Things 2019-Now

Guest editor of a special issue on *Security in Medical Cyber-Physical Systems*, Smart Health (Elsevier), 2017

Co-Chair of the Security Track of IEEE International Conference on Parallel and Distributed Systems (ICPADS) 2020

TPC Chair of the eHealth Track of IEEE International Conference on Communications (ICC) 2022

Co-chair of the First International Workshop on Security, Privacy, and Trustworthiness in Medical Cyber Physical Systems (MedSPT 2016)

Local co-chair of International Conference on E-health Networking, Application, Services (HealthCom) 2016

Publicity co-chair of ICC Workshop on Secure Networking and Forensic Computing 2014

Publicity co-chair of INFOCOM workshop on Security in Computers, Networking and Communications 2011

Technique Program Committee for INFOCOM 2016/2017/2020/2022, GLOBECOM 2013-2020

Reviewer for Journals

- ACM Computing Survey
- ACM Springer Mobile Networks and Applications (MONET)
- IEEE Journal on Selected Areas of Communications (JSAC)
- IEEE/ACM Transactions on Networking (TON)
- IEEE Communication Magazine (CommMag)
- IEEE Network Magazine (NetMag)
- IEEE Wireless Communications (WirelessMag)
- IEEE Transactions on Mobile Computing (TMC)
- IEEE Transactions on Parallel and Distributed Systems (TPDS)
- IEEE Transactions on Vehicular Technology (TVT)
- IEEE Transactions on Wireless Communications (TWC)

- IEEE Transactions on Smart Grid (TSG)
- IEEE Internet of Things Journal (IoT)
- IEEE Sensor Journal (Sensor)
- Pervasive and Mobile Computing (PMC)
- KSII Transactions on Internet and Information Systems