

# CHENHAN XU

## CONTACT INFORMATION

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## EDUCATION

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**University at Buffalo, the State University of New York (SUNY)** Aug. 2018 - Present  
*Ph.D., Computer Science & Engineering* Supervised by Prof. **Wenyao Xu**

**Nanjing University of Posts and Telecommunications** Sept. 2013 - Jun. 2017  
*B.Eng., Network Engineering*

## RELATED AREAS

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Internet of Things (IoT), Wireless Sensing, Human-Computer Interaction, Smart Health

## SELECTED PUBLICATIONS

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- S8. **Chenhan Xu**, Huining Li, Zhengxiong Li, Hanbin Zhang, Aditya Singh Rathore, Xingyu Chen, Kun Wang, Ming-Chun Huang, Wenyao Xu, “*CardiacWave: A mmWave-based Scheme of Non-Contact and High-Definition Heart Activity Computing*”, ACM International Joint Conference on Pervasive and Ubiquitous Computing (**UbiComp’21**), Virtual Conference, October 2021. (*R1 Initial Acceptance Rate in May: 2.14%, 3 out of 140, overall AR: 25%*)
- S7. Huining Li, **Chenhan Xu**, Aditya Singh Rathore, Zhengxiong Li, Hanbin Zhang, Chen Song, Kun Wang, Lu Su, Feng Lin, Kui Ren, Wenyao Xu, “*VocalPrint: Exploring A Resilient and Secure Voice Authentication via mmWave Biometric Interrogation*”, ACM Conference on Embedded Networked Sensor Systems (**SenSys’20**), Yokohama, Japan, November 2020.
- S6. Aditya Singh Rathore, Weijin Zhu, Afee Daiyan, **Chenhan Xu**, Kun Wang, Feng Lin, Kui Ren, Wenyao Xu, “*SonicPrint: A Generally Adoptable and Secure Fingerprint Biometrics in Smart Devices*”, ACM International Conference on Mobile Systems, Applications, and Services (**MobiSys’20**), Toronto, Canada, June 2020. (*Acceptance Rate: 19%, 34 out of 175, Best Paper Award*)
- S5. Zhengxiong Li, Baicheng Chen, Huining Li, **Chenhan Xu**, Xingyu Chen, Kun Wang, Wenyao Xu, “*FerroTag: A Paper-based mmWave-Scannable Tagging Infrastructure*”, ACM International Conference on Sensor Networked Systems (**SenSys’19**), New York City, New York, USA, November 2019. (*Acceptance Rate: 19%, 28 out of 144, Best Paper Award*)
- S4. **Chenhan Xu**, Zhengxiong Li, Hanbin Zhang, Aditya Singh Rathore, Huining Li, Chen Song, Kun Wang, Wenyao Xu, “*WaveEar: Exploring a mmWave-based Noise-resistant Speech Sensing for Voice-User Interface*”, The 17th ACM International Conference on Mobile Systems, Applications, and Services (**MobiSys’19**), Seoul, South Korea. (*Acceptance Rate: 23.2%, 40 out of 172*)
- S3. **Chenhan Xu**, Kun Wang, Guoliang Xu, Peng Li, Song Guo, Jiangtao Luo, “*Making big data open in collaborative edges: a blockchain-based framework with reduced resource requirements*”, IEEE International Conference on Communications (**ICC’18**), Kansas City, MO, USA. (*2019 IEEE TCBD Best Conference Paper Award*)
- S2. **Chenhan Xu**, Kun Wang, Peng Li, Song Guo, Jiangtao Luo, Baoliu Ye, Minyi Guo, “*Making Big Data Open in Edges: A Resource-Efficient Blockchain-based Approach*” *IEEE Transactions on Parallel and Distributed Systems, Vol. 30, Issue 4, 2018, pp. 870-882.* (**TPDS’18**).
- S1. Kun Wang, **Chenhan Xu**, Song Guo, “*Big data analytics for price forecasting in smart grids*”, IEEE Global Communications Conference (**GlobeCom’16**), Washington, DC, USA. (*Best Paper Award: 1.7 %, 16 out of 910*)

## CONFERENCE PUBLICATIONS

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- UbiComp'22 Gabriel Guo, Hanbin Zhang, Liuyi Yao, Zhengxiong Li, Huining Li, **Chenhan Xu**, Wenyao Xu, “*MSLife Digital Behavioral Phenotyping of Multiple Sclerosis Symptoms in the Wild using Wearables and Graph-Based Statistical Analysis*”, ACM International Joint Conference on Pervasive and Ubiquitous Computing, Virtual Conference.
- NDSS'22 Zhengxiong Li, Baicheng Chen, Xingyu Chen, Huining Li, **Chenhan Xu**, Chris Xiaoxuan Lu, Feng Lin, Kui Ren, Wenyao Xu, “*SpiralSpy: Exploring a Stealthy and Practical Covert Channel to Attack Air-gapped Computing Devices via mmWave Sensing*”, The Network and Distributed System Security Symposium, San Diego, California.
- CHASE'21 Huining Li, Huan Chen, **Chenhan Xu**, Anarghya Das, Xingyu Chen, Zhengxiong Li, Jian Xiao, Ming-Chun Huang, Wenyao Xu, “*Privacy Computing using Deep Compression Learning Techniques for Neural Decoding*”, IEEE/ACM Conference on Connected Health Applications, Systems, and Engineering Technologies, Washington D.C., USA.
- CHASE'21 Huining Li, Enhao Zheng, Zijian Zhong, **Chenhan Xu**, Nicole Roma, Steven Lamkin, Tania T Von Visger, Yu-Ping Chang, Wenyao Xu, “*Stress Prediction using micro-EMA and Machine Learning during COVID-19 Social Isolation*”, IEEE/ACM Conference on Connected Health Applications, Systems, and Engineering Technologies, Washington D.C., USA.
- UbiComp'21 **Chenhan Xu**, Huining Li, Zhengxiong Li, Hanbin Zhang, Aditya Singh Rathore, Xingyu Chen, Kun Wang, Ming-Chun Huang, Wenyao Xu, “*CardiacWave: A mmWave-based Scheme of Non-Contact and High-Definition Heart Activity Computing*”, ACM International Joint Conference on Pervasive and Ubiquitous Computing, Virtual Conference.
- SenSys'20 Huining Li, **Chenhan Xu**, Aditya Singh Rathore, Zhengxiong Li, Hanbin Zhang, Chen Song, Kun Wang, Lu Su, Feng Lin, Kui Ren, Wenyao Xu, “*VocalPrint: Exploring A Resilient and Secure Voice Authentication via mmWave Biometric Interrogation*”, ACM Conference on Embedded Networked Sensor Systems, Yokohama, Japan.
- MobiCom'20 Hanbin Zhang, Gabriel Guo, Chen Song, **Chenhan Xu**, Kevin Cheung, Jasleen Alexis, Huining Li, Dongmei Li, Kun Wang, Wenyao Xu, “*PDLens: Smartphone Knows Drug Effectiveness among Parkinson's via Daily-Life Activity Fusion*”, ACM International Conference on Mobile Computing and Networking, London, UK.
- MobiCom'20 Baicheng Chen, Huining Li, Zhengxiong Li, **Chenhan Xu**, Xingyu Chen, Wenyao Xu, “*ThermoWave: A New Paradigm of Wireless Passive Temperature Monitoring via mmWave Sensing*”, ACM International Conference on Mobile Computing and Networking, London, UK.
- MobiSys'20 Aditya Singh Rathore, Weijin Zhu, Afee Daiyan, **Chenhan Xu**, Kun Wang, Feng Lin, Kui Ren, Wenyao Xu, “*SonicPrint: A Generally Adoptable and Secure Fingerprint Biometrics in Smart Devices*”, ACM International Conference on Mobile Systems, Applications, and Services, Toronto, Canada.
- DSC'19 Baicheng Chen, Kun Woo Cho, **Chenhan Xu**, Feng Lin, Zhanpeng Jin, Wenyao Xu, “*Exploiting Mallows Distance to Quantify EEG Distribution for Personal Identification*”, IEEE Conference on Dependable and Secure Computing, Hangzhou, China.
- SenSys'19 Zhengxiong Li, Baicheng Chen, Zhuolin Yang, Huining Li, **Chenhan Xu**, Xingyu Chen, Kun Wang, and Wenyao Xu, “*FerroTag: A Paper-based mmWave-Scannable Tagging Infrastructure*”, The 17th ACM Conference on Embedded Networked Sensor Systems, New York City, USA.
- UbiComp'19 Hanbin Zhang, **Chenhan Xu**, Huining Li, Aditya Singh Rathore, Chen Song, Zhisheng Yan, Dongmei Li, Feng Lin, Kun Wang, Wenyao Xu, “*PDMove: Towards Passive Medication Adherence Monitoring of Parkinson's Disease Using Smartphone-based Gait Assessment*”, Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies, London, UK
- MobiSys'19 **Chenhan Xu**, Zhengxiong Li, Hanbin Zhang, Aditya Singh Rathore, Huining Li, Chen Song, Kun Wang, Wenyao Xu, “*WaveEar: Exploring a mmWave-based Noise-resistant Speech Sensing for Voice-User Interface*”, The 17th ACM International Conference on Mobile Systems, Applications, and Services, Seoul, South Korea.

- MobiCom'19 Hanbin Zhang, Chen Song, Aosen Wang, **Chenhan Xu**, Dongmei Li, Wenyao Xu, "*PDVocal: Towards Privacy-preserving Parkinson's Disease Early Detection using Passive Body Sounds in Daily Life*", The 25th Annual International Conference on Mobile Computing and Networking, Los Cabos, Mexico.
- ICC'18 **Chenhan Xu**, Kun Wang, Guoliang Xu, Peng Li, Song Guo, Jiangtao Luo, "*Making big data open in collaborative edges: a blockchain-based framework with reduced resource requirements*", IEEE International Conference on Communications, Kansas City, MO, USA.
- GlobeCom'16 Kun Wang, **Chenhan Xu**, Song Guo, "*Big data analytics for price forecasting in smart grids*", IEEE Global Communications Conference, Washington, DC, USA.
- ICCC'16 Kun Wang, Jun Mi, **Chenhan Xu**, Lei Shu, Der-Jiunn Deng, "*Real-time big data analytics for multimedia transmission and storage*", IEEE/CIC International Conference on Communications in China, Chengdu, China.
- ICC'16 Li Yang, Kun Wang, **Chenhan Xu**, Chunsheng Zhu, Yanfei Sun, "*An incremental learning classification algorithm based on forgetting factor for eHealth networks*", IEEE International Conference on Communications, Kuala Lumpur, Malaysia.

## JOURNAL PUBLICATIONS

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- SH Huining Li, Enhao Zheng, Zijian Zhong, **Chenhan Xu**, Nicole Roma, Steven Lamkin, Tania T Von Visger, Yu-Ping Chang, Wenyao Xu, "*Stress prediction using micro-EMA and machine learning during COVID-19 social isolation*", Smart Health.
- SH Huining Li, Huan Chen, **Chenhan Xu**, Anarghya Das, Xingyu Chen, Zhengxiong Li, Jian Xiao, Ming-Chun Huang, Wenyao Xu, "*Privacy computing using deep compression learning techniques for neural decoding*", Smart Health.
- TMC Aditya Singh Rathore, Weijin Zhu, Afee Daiyan, **Chenhan Xu**, Kun Wang, Feng Lin, Kui Ren, Wenyao Xu, "*Scanning the Voice of Your Fingerprint with Everyday Surfaces*", IEEE Transactions on Mobile Computing.
- TMC Huining Li, **Chenhan Xu**, Aditya Singh Rathore, Zhengxiong Li, Hanbin Zhang, Chen Song, Kun Wang, Lu Su, Feng Lin, Kui Ren, Wenyao Xu, "*VocalPrint: A mmWave-based Unmediated Vocal Sensing System for Secure Authentication*", IEEE Transactions on Mobile Computing.
- GetMobile Aditya Singh Rathore, **Chenhan Xu**, Wenyao Xu, "*SonicPrint: Discovering the Voice of Fingerprint for Adoptable Biometrics*", ACM GetMobile: Mobile Computing and Communication.
- CCFNET Baicheng Chen, Kunwoo Cho, **Chenhan Xu**, Zhengxiong Li, Feng Lin, Zhanpeng Jin, Wenyao Xu, "*A Stimulus-Response Based EEG Biometrics using Mallow's Distance*", CCF Transactions on Networking.
- NMAG Huining Li, Kun Wang, Toshiaki Miyazaki, **Chenhan Xu**, Song Guo, Yanfei Sun, "*Trust-Enhanced Content Delivery in Blockchain-Based Information-Centric Networking*", IEEE Network.
- TPDS **Chenhan Xu**, Kun Wang, Peng Li, Song Guo, Jiangtao Luo, Baoliu Ye, Minyi Guo, "*Making big data open in edges: A resource-efficient blockchain-based approach*", IEEE Transactions on Parallel and Distributed Systems.
- TNSE **Chenhan Xu**, Kun Wang, Yanfei Sun, Song Guo, Albert Zomaya, "*Redundancy Avoidance for Big Data in Data Centers: A Conventional Neural Network Approach*", IEEE Transactions on Network Science and Engineering.
- TNSE **Chenhan Xu**, Kun Wang, Peng Li, Rui Xia, Song Guo, Minyi Guo, "*Renewable Energy-Aware Big Data Analytics in Geo-distributed Data Centers with Reinforcement Learning*", IEEE Transactions on Network Science and Engineering.
- CC **Chenhan Xu**, Kun Wang, Mingyi Guo, "*Intelligent resource management in blockchain-based cloud datacenters*", IEEE Cloud Computing.
- TBD Kun Wang, **Chenhan Xu**, Yan Zhang, Song Guo, Albert Zomaya, "*Robust big data analytics for electricity price forecasting in the smart grid*", IEEE Transactions on Big Data.

TOMM Kun Wang, Jun Mi, **Chenhan Xu**, Qingquan Zhu, Lei Shu, Der-Jiunn Deng, “*Real-time load reduction in multimedia big data for mobile Internet*”, ACM Transactions on Multimedia Computing, Communications, and Applications.

## AWARDS AND HONORS

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- A9. Russell Agrusa CSE Student Innovation Competition Honorable Mention
- A8. 2021 Design Automation Conference (DAC) University Demo Best Demonstration Honorable Mention
- A7. 2020 MobiSys Best Paper Award
- A6. UB CSE 2019 1st Year Achiever Award
- A5. 2019 SenSys Best Paper Award
- A4. 2019 MobiSys Student Travel Grant
- A3. 2019 IEEE TCBD Best Conference Paper Award
- A2. Chair’s Fellowship, Department of Computer Science & Engineering, University at Buffalo
- A1. 2016 IEEE GLOBECOM Best Paper Award

## SERVICES

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### TPC Membership:

- IEEE International Conference on Communications (ICC) [2018, 2019, 2020]
- International Conference on Wireless Communications and Signal Processing [2016]

### Reviewer:

- ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp) [2022]
- IEEE International Conference on Computer Communications (INFOCOM) [2021, 2022]
- IEEE/ACM international conference on Connected Health: Applications, Systems and Engineering Technologies (CHASE) [2019, 2020]
- IEEE-EMBS International Conference on Biomedical and Health Informatics (BHI) [2019]
- IEEE Transactions on Services Computing [2019]
- IEEE Transactions on Parallel and Distributed Systems (TPDS) [2018]
- IEEE Communications Magazine [2018, 2019]
- IEEE Network Magazine [2018]
- IEEE Transactions on Vehicular Technology (TVT) [2019]
- IEEE Transactions on Emerging Topics in Computing [2018]

## INTERNSHIP

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**NUPT Center for Learning, Energy and Networks (NCLEN)** *Jul. 2017 - May 2018*  
*Research Intern, Advisor: Prof. Kun Wang*  
Project: IoT devices collaboration enhancement and IoT data processing.

**NUPT Center for Learning, Energy and Networks (NCLEN)** *Jul. 2015 - May 2017*  
*Undergraduate Research Assistant, Advisor: Prof. Kun Wang*  
Project 1: Electricity price forecasting in smart grid.  
Project 2: Multimedia load reduction for IoT networks.

## TEACHING ASSISTANT

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- CSE111: Introduction to Quantitative Analysis and Reasoning with Computing [Spring 2019, Spring 2020]
- CSE305: Introduction to Programming Language [Fall 2018]
- CSE321: Embedded and Real-time Operating System [Fall 2019]
- CSE341: Computer Organization [Fall 2020, Spring 2021]
- CSE460: Data Models and Query Languages (Guest Lecturer) [Summer 2019]