

## Chen Song

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### CONTACT INFORMATION

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### RESEARCH INTERESTS

Cyber-Physical System Security and Architecture Design, Smart and Mobile Health, Emerging Biometrics.

### EDUCATION

**University at Buffalo, the State University of New York (SUNY)**, New York

Ph.D, Computer Science & Engineering, Aug. 2014 - Present

**University at Buffalo, the State University of New York (SUNY)**, New York

M.S., Electrical Engineering, Sep. 2012 - May. 2014

**Fudan University**, Shanghai, China

B.S., Optic Science & Engineering, Jun. 2006 - Jul. 2010

### CONFERENCE PUBLICATIONS

- C18. **Chen Song**, Feng Lin, Yan Zhuang, Wenyao Xu, Changzhi Li, Kui Ren, “*Cardiac Scan: A Non-Contact and Continuous Heart-Based User Authentication System*”, ACM Annual International Conference on Mobile Computing and Networking (**MobiCom’17**), Snowbrid, Utah, October 2017
- C17. Jerry Ajay, **Chen Song**, Aditya Singh Rathore, Chi Zhou, Wenyao Xu, “*Instruction Level Power Analysis and Optimization of 3D Printers*”, ACM International Conference on Architectural Support for Programming Languages and Operating Systems (**ASPLOS’17**), Xi’an, China, April 2017
- C16. Tri Vu, Hoan Tran, Kun Woo Cho, **Chen Song**, Feng Lin, Michelle Hartley-McAndrew, Kathy Doody, Chang Wen Chen, Wenyao Xu, “*Efficient and Effective Visual Stimuli Design for Quantitative Autism Screening: An Exploratory Stud*”, IEEE International Conference on Biomedical and Health Informatics (**BHI’17**), Orlando, Florida, February 2017
- C15. **Chen Song**, Aosen Wang, Feng Lin, Ruogang Zhao, Zhanpeng Jin, Wenyao Xu, “*A Temporal-spatial Compressed Sensing Architecture for Efficient High-throughput Information Acquisition in Organs-on-a-chip*”, IEEE International Conference on Biomedical and Health Informatics (**BHI’17**), Orlando, Florida, February 2017 (**Best Paper Award**: 0.3%, 1 out of 322.)
- C14. **Chen Song**, Feng Lin, Zongjie Ba, Kui Ren, Chi Zhou, Wenyao Xu, “*My Smartphone Knows What You Print: Exploring Smartphone-based Side-channel Attacks Against 3D Printers*”, ACM Conference on Computer and Communications Security (**CCS’16**), Vienna, Austria, October 2016
- C13. Kun Woo Cho, Feng Lin, **Chen Song**, Xiaowei Xu, Michelle Hartley-McAndrew, Kathy Doody, Wenyao Xu, “*Gaze-Wasserstein: Exploring A Quantitative Screening Approach to Autism Spectrum Disorder*”, IEEE Annual Wireless Health Conference (**WH’16**), Washington D.C., October, 2016
- C12. Jerry Ajay, Aditya Singh Rathore, **Chen Song**, Chi Zhou, Wenyao Xu, “*Don’t Forget Your Electricity Bills! An Empirical Study of Characterizing Energy Consumption of 3D Printers*”, ACM Asia-Pacific Workshop on Systems (**APSys’16**), Hong Kong, China, August 2016
- C11. Feng Lin, **Chen Song**, Xiaowei Xu, Lora Cavuoto, Wenyao Xu, “*Patient Handling Activity Recognition Approach Through Pressure-Map Manifold Learning Using Smart Insole*”, IEEE

1st International Conference on Connected Health: Applications, Systems and Engineering Technologies (**CHASE'16**), Washington D.C., June 2016

- C10. **Chen Song**, Aosen Wang, Kui Ren, Wenyao Xu, “*EyeVeri: A Secure and Usable Approach for Smartphone User Authentication*”, IEEE International Conference on Computer Communications (**INFOCOM'16**), San Francisco, California, April 2016
- C9. Kun Woo Cho, Feng Lin, **Chen Song**, Xiaowei Xu, Fuxing Gu, Wenyao Xu, “*Thermal Handprint Analysis for Forensic Identification using Heat-Earth Mover's Distance*”, IEEE International Conference on Identity, Security and Behavior Analysis (**ISBA'16**), Sendai, Japan, February 2016
- C8. **Chen Song**, Aosen Wang, Kathy Doody, Michelle Hartley-McAndrew, Jana Mertz, Wenyao Xu, “*Analyzing Dynamic Components of Social Scene Parsing Strategy in Autism Spectrum Disorder*”, IEEE International Conference on Biomedical and Health Informatics (**BHI'16**), Las Vegas, California, January 2016
- C7. Yan Zhuang, **Chen Song**, Feng Lin, Yiran Li, Changzhi Li, Wenyao Xu, “*On the Feasibility of Non-contact Cardiac Motion Sensing for Emerging Heart-based Biometrics*”, IEEE Radio and Wireless Symposium (**RWS'16**), Austin, Texas, January 2016
- C6. Feng Lin, Aosen Wang, **Chen Song**, Wenyao Xu, Zhinan Li, Qin Li, “*A Comparative Study of Smart Insole on Real-World Step Count*”, IEEE Signal Processing in Medicine and Biology Symposium (**SPMB'15**), Philadelphia, Pennsylvania, December 2015
- C5. Xiaowei Xu, Feng Lin, Aosen Wang, **Chen Song**, Yu Hu, Wenyao Xu, “*On-bed Sleep Posture Recognition Based on Body-Earth Mover's Distance*”, IEEE Conference on Circuits and Systems (**BioCAS'15**), Atlanta, Georgia, October 2015
- C4. Aosen Wang, **Chen Song**, Xiaowei Xu, Feng Lin, Zhanpeng Jin, Wenyao Xu, “*Selective and Compressed Sensing for Energy-Efficient Implantable Neural Encoding*”, IEEE Conference on Circuits and Systems (**BioCAS'15**), Atlanta, Georgia, October 2015
- C3. Yan Zhuang, **Chen Song**, Aosen Wang, Feng Lin, Yiran Li, Changzhan Gu, Changzhi Li, Wenyao Xu, “*SleepSense: Non-invasive Sleep Event Recognition Using An Electromagnetic Probe*”, IEEE International Conference on Implantable and Wearable Body Sensor Networks Conference (**BSN'15**), MIT, Cambridge, June 2015
- C2. Aosen Wang, **Chen Song**, Zhanpeng Jin, Wenyao Xu, “*Adaptive Compressed Sensing Architecture in Wireless Brain Computer Interface*”, ACM/IEEE Design Automation Conference (**DAC'15**), San Francisco, California, June 2015
- C1. Aosen Wang, **Chen Song**, Wenyao Xu, “*A Configurable Quantized Compressed Sensing Architecture for Low-Power Tele-Monitoring*”, International Green Computing Conference (**IGCC'14**), Dallas, Texas, November 2014
- J4. Feng Lin, **Chen Song**, Xiaowei Xu, Lora Cavuoto, Wenyao Xu, “*Patient handling activity recognition through pressure-map manifold learning using a footwear sensor*”, The Elsevier Smart Health (**SH'16**)
- J3. **Chen Song**, Aosen Wang, Kathy Ralabate Doody, Michelle Hartley-McAndrew, Jana Mertz, Feng Lin, Wenyao Xu, “*A Comparative Study of Social Scene Parsing Strategies between Children with and without Autism Spectrum Disorder*”, The North American Journal of Medical Sciences (**NAJMS'16**)
- J2. Yin Bi, Mingsong Lv, **Chen Song**, Wenyao Xu, Guan Nan, Wang Yi, “*AutoDietary: A Wearable Acoustic Sensor System for Food Intake Recognition in Daily Life*”, IEEE Sensors Journal (**SJ'16**)
- J1. Feng Lin, Yan Zhuang, **Chen Song**, Aosen Wang, Yiran Li, Changzhan Gu, Changzhi Li, Wenyao Xu, “*SleepSense: a Noncontact and Cost-effective Sleep Monitoring System*”, IEEE Transactions on Biomedical Circuits and Systems (**TBioCAS'15**)

JOURNAL  
PUBLICATIONS

INVITED TALKS	<p>T2. “<i>Eye-based User Authentication in Mobile Smartphones</i>”, University at Buffalo SUNY, Buffalo, New York, May 2017</p> <p>T1. “<i>Machine Learning and Inclusive Design</i>”, OCAD University, Toronto, Ontario, April 2017</p>
AWARDS AND HONORS	<ul style="list-style-type: none"> <li>• Best Paper Award, IEEE International Conference on Biomedical and Health Informatics (BHI), 2017</li> <li>• Student Travel Award, ACM Conference on Computer and Communications Security (CCS), 2016</li> <li>• Student Travel Award, ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp), 2014</li> </ul>
MEDIA COVERAGE	<ul style="list-style-type: none"> <li>• Research work on “Smartphone app for early autism detection” [C8, C13] is increasingly reported by public media outlets, including <i>Eurekalert</i>, <i>HealthNewsDigest</i> and <i>UB News Center</i>, November 2016.</li> <li>• Research work on “Smartphone hacks 3D Printers” [C14] is reported by more than <b>80</b> public media outlets, including <i>NSF Science’360</i>, <i>National Science Foundation’s News</i>, <i>Communications of the ACM news</i>, <i>Science Daily</i>, <i>Digital Trend</i>, <i>Fedscoop</i>, and <i>3DPrint</i>, October 2016</li> <li>• Research work on “Smart Necklace for Food-intake Monitoring” [J2] is reported by more than <b>50</b> public media outlets, including <i>The Wall Street Journal</i>, <i>National Public Radio’s News</i>, <i>Science Daily</i>, <i>Sohu.com</i> and <i>IEEE Spectrum</i>, March 2016</li> </ul>
EMPLOYMENT	<p><b>University at Buffalo, the State University of New York (SUNY)</b>, New York</p> <p>Research Assistant, Computer Science &amp; Engineering Department, Jun. 2016 - present</p> <p>Teaching Assistant, Computer Science &amp; Engineering Department, May. 2014 - 2016</p> <p><b>Shanghai Research Institute, Co., Ltd</b>, Shanghai, China</p> <p>Engineer, Letter Sorting R&amp;D Center, Jul. 2010 - Jul. 2012</p>
TEACHING ASSISTANT	<ul style="list-style-type: none"> <li>• CSE341: <i>Computer Organization</i>, Spring 2016</li> <li>• CSE341: <i>Computer Organization</i>, Fall 2015</li> <li>• CSE115/116: <i>Introduction to Computer Science</i>, Spring 2015</li> <li>• CSE115/116: <i>Introduction to Computer Science</i>, Fall 2014</li> </ul>