

# Shibo Zhang

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I am actively looking for a researcher position. My research area is *machine learning* and *passive sensing*, with a focus on human activity recognition and health monitoring. I am interested in applying machine learning and deep learning to all kinds of real-world problems to facilitate human life.

## Research Interests

Human Activity Recognition, Machine Learning, Deep Learning, Mobile Health

## Education

<b>Ph.D.</b> , Computer Science, Northwestern University	2017 - 2021
<b>M.S.</b> , Computer Science, Northwestern University	2015 - 2017
<b>M.Eng., B.S.</b> , Electrical Engineering, Harbin Institute of Technology	2008 - 2014

## Work Experience

<b>Research Assistant</b> , HABitsLab, Northwestern University, Evanston, IL	2016 - Present
<b>Machine Learning Intern</b> , OPPO Research Institute, Palo Alto, CA	Jul - Sep, 2019
<b>Intern</b> , DJI Technology Co., Shenzhen	Jun - Jul, 2015
<b>Trainee</b> , Eaton Corp., Global Research & Technology, Shanghai	2014 - 2015
<b>Research Assistant</b> , Eaton Corp., Global Research & Technology, Shanghai	2012 - 2014

## Publications

### Journal Papers

- [1] SyncWISE: Window Induced Shift Estimation for Synchronization of Video and Accelerometry from Wearable Sensors  
Yun C. Zhang\*, **Shibo Zhang\***, Miao Liu, Elyse Daly, Samuel Battalio, Santosh Kumar, Bonnie Spring, James M. Rehg, Nabil Alshurafa (\* equal contribution)  
*Proc. ACM Interact. Mob. Wearable Ubiquitous Technol. (IMWUT/UbiComp)* 4.3 (Sept. 2020). 2020. doi: [10.1145/3411824](https://doi.org/10.1145/3411824)
- [2] 🏆 NeckSense: A Multi-Sensor Necklace for Detecting Eating Activities in Free-Living Conditions (**Best Presentation Award Runner-up at UbiComp**)  
**Shibo Zhang**, Yuqi Zhao, Dzong Tri Nguyen, Runsheng Xu, Sougata Sen, Josiah Hester, Nabil Alshurafa  
*Proc. ACM Interact. Mob. Wearable Ubiquitous Technol. (IMWUT/UbiComp)* 4.2 (June 2020). 2020. doi: [10.1145/3397313](https://doi.org/10.1145/3397313)
- [3] Deep Learning Algorithms for Bearing Fault Diagnostics—A Comprehensive Review  
Shen Zhang, **Shibo Zhang**, Bingnan Wang, Thomas. G. Habetler  
*IEEE Access* 8 (2020) pp. 29857–29881. 2020. doi: [10.1109/ACCESS.2020.2972859](https://doi.org/10.1109/ACCESS.2020.2972859)
- [4] 🏆 micro-Stress EMA: A Passive Sensing Framework for Detecting In-the-wild Stress in Pregnant Mothers (**Distinguished Paper Award**)  
Zachary D. King, Judith Moskowitz, Begum Egilmez, **Shibo Zhang**, Lida Zhang, Michael Bass, John Rogers, Roozbeh Ghaffari, Laurie Wakschlag, Nabil Alshurafa  
*Proc. ACM Interact. Mob. Wearable Ubiquitous Technol. (IMWUT/UbiComp)* 3.3 (Sept. 2019). ACM, 2019. doi: [10.1145/3351249](https://doi.org/10.1145/3351249)
- [5] I Sense Overeating: Motif-based Machine Learning Framework to Detect Overeating Using Wrist-worn Sensing  
**Shibo Zhang**, William Stogin, Nabil Alshurafa  
*Information Fusion* 41 (2018) pp. 37–47. 2018. doi: [10.1016/j.inffus.2017.08.003](https://doi.org/10.1016/j.inffus.2017.08.003)

## Conference Papers

- [1] Deep Generative Cross-modal On-body Accelerometer DataSynthesis from Videos  
**Shibo Zhang**, Nabil Alshurafa  
*Adjunct Proceedings of the 2020 ACM International Joint Conference on Pervasive and Ubiquitous Computing and Proceedings of the 2020 ACM International Symposium on Wearable Computers (UbiComp/ISWC '20 Adjunct)*, September 12–16, 2020, Virtual Event, Mexico, 2020. DOI: [10.1145/3410530.3414329](https://doi.org/10.1145/3410530.3414329)
- [2] 🏆 VibroScale: Turning Your Smartphone into a Weighing Scale (**Best Poster Award**)  
**Shibo Zhang**, Qiuyang Xu, Sougata Sen, Nabil Alshurafa  
*Adjunct Proceedings of the 2020 ACM International Joint Conference on Pervasive and Ubiquitous Computing and Proceedings of the 2020 ACM International Symposium on Wearable Computers (UbiComp/ISWC '20 Adjunct)*, September 12–16, 2020, Virtual Event, Mexico, 2020. DOI: [10.1145/3410530.3414397](https://doi.org/10.1145/3410530.3414397)
- [3] Multiscale Directional Fusion for Depth Map Super Resolution with Denoising  
Dan Xu, Xiaopeng Fan, **Shibo Zhang**, Yang Wang, Debin Zhao, Wen Gao  
*2019 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2019. DOI: [10.1109/ICASSP.2019.8683638](https://doi.org/10.1109/ICASSP.2019.8683638)
- [4] Estimating Caloric Intake in Bedridden Hospital Patients with Audio and Neck-worn Sensors  
**Shibo Zhang**, Dzung Nguyen, Gan Zhang, Runsheng Xu, Nikolaos Maglaveras, Nabil Alshurafa  
*2018 IEEE/ACM International Conference on Connected Health: Applications, Systems and Engineering Technologies (CHASE)*, 2018. DOI: [10.1145/3278576.3278577](https://doi.org/10.1145/3278576.3278577)
- [5] HABits Necklace: A Neck-worn Sensor That Captures Eating Related Behavior and More  
**Shibo Zhang**, Dzung Nguyen, Zachary King, Jishnu Pradeep, Nabil Alshurafa  
*Proceedings of the 2018 ACM International Joint Conference and 2018 International Symposium on Pervasive and Ubiquitous Computing and Wearable Computers (UbiComp)*, 2018. DOI: [10.1145/3267305.3267665](https://doi.org/10.1145/3267305.3267665)
- [6] When Generalized Eating Detection Machine Learning Models Fail in the Field?  
**Shibo Zhang**, Rawan Alharbi, Matthew Nicholson, Nabil Alshurafa  
*Proceedings of the 2017 ACM International Joint Conference on Pervasive and Ubiquitous Computing and Proceedings of the 2017 ACM International Symposium on Wearable Computers (UbiComp Workshops)*, 2017. DOI: [10.1145/3123024.3124409](https://doi.org/10.1145/3123024.3124409)
- [7] 🏆 Food Watch: Detecting and Characterizing Eating Episodes Through Feeding Gestures (**Best Paper Award**)  
**Shibo Zhang**, Rawan Alharbi, William Stogin, Mohamad Pourhomayun, Bonnie Spring, Nabil Alshurafa  
*Proceedings of the 11th EAI International Conference on Body Area Networks (BodyNets)*, 2016. DOI: [10.4108/eai.15-12-2016.2267793](https://doi.org/10.4108/eai.15-12-2016.2267793)

## Services

Journal Reviewer of IMWUT, JBHI, JMIR, JVC, IEEE Access

Conference Reviewer of CHI, ISWC, ICMI, PerCom, BHI, CHI PLAY

Teaching Assistant, EECS 397, 497: Wireless and Mobile Health (mHealth) 2017/2018/2019

## Awards

Best Poster Award, UbiComp 2020 (2%)

Best Presentation Award Runner-up - Audience Choice Tied, UbiComp 2020 (1.3%)

Distinguished Paper Award, IMWUT 2019 (3.7%)

NSF Student Attendance Scholarship 2018

Best Paper Award, ACM BodyNets 2016

Outstanding Undergraduate Thesis Award (3%)

## Skills

Programming Language: Python (PyTorch, TensorFlow), Matlab, C/C++, R