

# Shibo Zhang

## Machine Learning

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I am actively looking for a researcher position. My research area is *ubiquitous computing* 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., S.B.</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

### Reviewer

Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT)	2020
Journal of Biomedical and Health Informatics (JBHI)	2019, 2020
Journal of Medical Internet Research (JMIR)	2020
Journal of Vibration and Control	2019, 2020
IEEE Access	2019, 2020
22nd ACM International Conference on Multimodal Interaction (ICMI)	2020
The annual symposium on Computer-Human Interaction in Play (CHI PLAY)	2020
24th Annual International Symposium on Wearable Computers (ISWC)	2020
18th Annual IEEE Conference on Pervasive Computing and Communications (PerCom)	2020
IEEE-EMBS International Conference on Biomedical and Health Informatics (BHI)	2019

### Teaching Assistant

EECS 397, 497: Wireless and Mobile Health (mHealth)	2017 - 2019
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## Awards

Best Poster Award, UbiComp (2%)	2020
Best Presentation Award - Audience Choice Tied, Runner-up, UbiComp (1.3%)	2020
Distinguished Paper Award, IMWUT Vol.3 (3.7%)	2019
Best Paper Award, ACM BodyNets	2016
Outstanding Undergraduate Thesis Award (3%)	2012