

Shibo Zhang

Machine Learning

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Research Interests

Human Activity Recognition, Machine Learning, Deep Learning

Education

Ph.D. , Computer Science, Northwestern University	2017 - Present
M.S. , Computer Science, Northwestern University	2015 - 2016
M.Eng., S.B. , Electrical Engineering, Harbin Institute of Technology	2008 - 2014

Work Experience

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

Selected 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
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
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
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] 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)
- [4] 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)
- [5] 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)
- [6] 🏆 (Best Paper Award) Food Watch: Detecting and Characterizing Eating Episodes Through Feeding Gestures
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)
- [7] An Iterative Dimensionality-Scaling System for Real-Time Health Monitoring Applications
Haik Kalantarian, Majid Sarrafzadeh, **Shibo Zhang**, Nabil Alshurafa
2016 IEEE International Conference on Healthcare Informatics (ICHI), 2016. DOI: [10.1109/ICHI.2016.89](https://doi.org/10.1109/ICHI.2016.89)

Services

Conference Reviewer

The 22nd ACM International Conference on Multimodal Interaction (ICMI) (Demo)	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

Journal Reviewer

Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies
Journal of Biomedical and Health Informatics
Journal of Vibration and Control
IEEE Access

Teaching Assistant

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

Selected Awards

NSF Student Attendance Scholarship	2018
Best Paper Award, EAI International Conference on Body Area Networks	2016
Outstanding Undergraduate Thesis Award (3%)	2012