

Shibo Zhang

Machine Learning

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Research Interests

Human Activity Recognition, Machine Learning, Deep Learning

Education

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

Work Experience

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| Research Assistant , HABitsLab, Northwestern University, Evanston, IL | 2016 - Present |
| Machine Learning Intern , OPPO Research Institute, Palo Alto, CA | Jul - Sep, 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 (**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] **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] 🏆 **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)
- [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

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| 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 (IMWUT)
Journal of Biomedical and Health Informatics (JBHI)
Journal of Medical Internet Research (JMIR)
Geriatrics & Gerontology International
Journal of Vibration and Control
IEEE Access

Teaching Assistant

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

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