



Hae Young Noh

Associate Professor of Civil and Environmental Engineering

Bio

BIO

Hae Young Noh is an associate professor in the Department of Civil and Environmental Engineering. Her research introduced the new concept of “structures as sensors” to enable physical structures (e.g., buildings and vehicle frames) to be user- and environment-aware. In particular, these structures indirectly sense humans and surrounding environments through their structural responses (i.e., vibrations) by inferring the desired information (e.g., human behaviors, environmental conditions, heating and cooling system performance), instead of directly measuring the sensing targets with additional dedicated sensors (e.g., cameras, motion sensors). This concept brought a paradigm shift in how we view these structures and how the structures interact with us.

Traditionally, structures that we inhabit (such as buildings or vehicles) are considered as passive and unchanging objects that we need to monitor and control, utilizing a dense set of sensors to collect information. This has often been complicated by “noise” caused by the occupants and environments. For example, building vibrations induced by indoor and outdoor environmental and operational conditions (e.g., people walking around, traffic outside, heating system running, etc.), have been often seen as noise that needs to be removed in traditional building science and structural engineering; however, they are a rich source of information about structure, users, environment, and resources. Similarly, in vehicle engineering, researchers and engineers have been investigating control and dynamics to reduce vehicle vibration for safety and comfort. However, vibrations measured inside vehicles contain information about transportation infrastructure, vehicle itself, and driver.

Noh's work utilizes this “noise” to empower the structures with the ability to perceive and understand the information about users and surroundings using their own responses, and actively adopt and/or interact to enhance their sustainability and the occupants’ quality of life. Since she utilizes the structure itself as a sensing medium, information collection involves a simpler set of hardware that can be easily maintained throughout the structural lifetime. However, the analysis of data to separate the desired information becomes more challenging. This challenge is addressed through high-rate dynamic sensing and multi-source inferencing. Ultimately, her work aims to allow structural systems to become general sensing platforms that are easier and more practical to deploy and maintain in a long-term.

At Stanford University, Noh received her PhD and MS degrees in the CEE department and her second MS degree in Electrical Engineering. Noh earned her BS in Mechanical and Aerospace Engineering at Cornell University.

ACADEMIC APPOINTMENTS

- Associate Professor, Civil and Environmental Engineering

HONORS AND AWARDS

- Best Paper Award, ACM/IEEE International Conference on Internet of Things Design and Implementation (IoTDI) (2020)
- Best Student Paper Award, ASCE Engineering Mechanics Institute Dynamics Committee (ASCE EMI) (2020)
- Best Student Paper Award, ASCE Engineering Mechanics Institute Dynamics Committee (ASCE EMI) (2019)
- Best Demo Award, ACM Systems for Energy-Efficient Buildings, Cities, and Transportation (ACM BuildSys) (2019)
- Best Poster Award, IEEE/ACM Information Processing and Sensor Network (IPSN) (2019)

- Best Paper Award, IEEE International Conference on Machine Learning and Applications (ICMLA) (2018)
- Best Student Paper Award, ASCE Engineering Mechanics Institute Dynamics Committee (ASCE EMI) (2018)
- CIT Dean's Early Career Fellow, Carnegie Mellon University (2018)
- NSF CAREER Award, National Science Foundation (NSF) (2017)
- Google Faculty Research Award, Google (2017)
- People's Choice Paper Award, ACM Systems for Energy-Efficient Built Environments (ACM BuildSys) (2017)
- Best Poster Award & Best Poster Runner-Up, ACM Embedded Networked Sensor Systems (ACM SenSys) (2016)
- MobiSys 2016 Junior Faculty/Postdoc Grants, ACM Mobile Systems, Applications, and Services (ACM MobiSys) (2016)
- Best Poster Award, IEEE/ACM Information Processing and Sensor Network (IPSN) (2015)
- Google Faculty Research Award, Google (2014)
- Berkman Faculty Development Fund, Carnegie Mellon University (2013-2015)
- John A. Blume Fellowship, - (2010-2011)
- Samsung Scholarship Foundation Merit-Based Scholarship, Samsung Scholarship Foundation (2006-2010)
- American Society of Civil Engineers Essay Contest Award, American Society of Civil Engineers (2010)

PROFESSIONAL EDUCATION

- PhD, Stanford University , Civil and Environmental Engineering (2011)
- MS, Stanford University , Electrical Engineering (2011)
- MS, Stanford University , Civil and Environmental Engineering (2008)
- BS, Cornell University , Mechanical and Aerospace Engineering (2005)

Teaching

COURSES

2020-21

- Data Analytics for Physical Systems: CEE 154, CEE 254 (Aut)
- Structural Monitoring: CEE 286 (Win)

2019-20

- Structural Monitoring: CEE 286 (Win)

STANFORD ADVISEES

Postdoctoral Faculty Sponsor

Susu Xu

Master's Program Advisor

Ethan Chiu, Merrick Howarth, Marcella Li, Jacob May, Joseph Rodgers

Doctoral (Program)

Jingxiao Liu

Postdoctoral Research Mentor

Susu Xu

Publications

PUBLICATIONS

- **iLOCuS: Incentivizing Vehicle Mobility to Optimize Sensing Distribution in Crowd Sensing** *IEEE TRANSACTIONS ON MOBILE COMPUTING*
Xu, S., Chen, X., Pi, X., Joe-Wong, C., Zhang, P., Noh, H.
2020; 19 (8): 1831–47
- **Step-Level Occupant Detection across Different Structures through Footstep-Induced Floor Vibration Using Model Transfer** *JOURNAL OF ENGINEERING MECHANICS*
Mirshekari, M., Fagert, J., Pan, S., Zhang, P., Noh, H.
2020; 146 (3)
- **Diagnosis algorithms for indirect structural health monitoring of a bridge model via dimensionality reduction** *MECHANICAL SYSTEMS AND SIGNAL PROCESSING*
Liu, J., Chen, S., Berges, M., Bielak, J., Garrett, J. H., Kovacevic, J., Noh, H.
2020; 136
- **Occupant localization using footstep-induced structural vibration** *MECHANICAL SYSTEMS AND SIGNAL PROCESSING*
Mirshekari, M., Pan, S., Fagert, J., Schooler, E. M., Zhang, P., Noh, H.
2018; 112: 77–97
- **Characterizing human activity induced impulse and slip-pulse excitations through structural vibration** *JOURNAL OF SOUND AND VIBRATION*
Pan, S., Mirshekari, M., Fagert, J., Ramirez, C., Chung, A., Hu, C., Shen, J., Zhang, P., Noh, H.
2018; 414: 61–80
- **Track monitoring from the dynamic response of a passing train: A sparse approach** *MECHANICAL SYSTEMS AND SIGNAL PROCESSING*
Lederman, G., Chen, S., Garrett, J. H., Kovacevic, J., Noh, H., Bielak, J.
2017; 90: 141–53
- **PAS: Prediction-Based Actuation System for City-Scale Ridesharing Vehicular Mobile Crowdsensing** *IEEE INTERNET OF THINGS JOURNAL*
Chen, X., Xu, S., Han, J., Fu, H., Pi, X., Joe-Wong, C., Li, Y., Zhang, L., Noh, H., Zhang, P.
2020; 7 (5): 3719–34
- **O-MedAL: Online active deep learning for medical image analysis** *WILEY INTERDISCIPLINARY REVIEWS-DATA MINING AND KNOWLEDGE DISCOVERY*
Smailagic, A., Costa, P., Gaudio, A., Khandelwal, K., Mirshekari, M., Fagert, J., Walawalkar, D., Xu, S., Galdran, A., Zhang, P., Campilho, A., Noh, H.
2020; 10 (4)
- **Enhancing the Data Learning With Physical Knowledge in Fine-Grained Air Pollution Inference** *IEEE ACCESS*
Ma, R., Liu, N., Xu, X., Wang, Y., Noh, H., Zhang, P., Zhang, L.
2020; 8: 88372–84
- **Structures as Sensors: Indirect Sensing for Inferring Users and Environments** *COMPUTER*
Zhang, P., Pan, S., Mirshekari, M., Fagert, J., Noh, H.
2019; 52 (10): 84–88
- **Dynamic responses, GPS positions and environmental conditions of two light rail vehicles in Pittsburgh** *SCIENTIFIC DATA*
Liu, J., Chen, S., Lederman, G., Kramer, D. B., Noh, H., Bielak, J., Garrett, J. H., Kovacevic, J., Berges, M.
2019; 6: 146
- **Empirical investigation of regression models for predicting system behavior in air handling units** *SCIENCE AND TECHNOLOGY FOR THE BUILT ENVIRONMENT*
Velibeyoglu, I., Noh, H., Pozzi, M.
2019; 25 (3): 247–60
- **A graphical approach to assess the detectability of multiple simultaneous faults in air handling units** *ENERGY AND BUILDINGS*
Velibeyoglu, I., Noh, H., Pozzi, M.
2019; 184: 275–88

- **Characterizing Structural Changes to Estimate Walking Gait Balance**
Fagert, J., Mirshekari, M., Pan, S., Zhang, P., Noh, H., Pakzad, S.
SPRINGER INTERNATIONAL PUBLISHING AG.2019: 333–35
- **Detecting Anomalies in Longitudinal Elevation of Track Geometry Using Train Dynamic Responses via a Variational Autoencoder**
Liu, J., Wei, Y., Berges, M., Bielak, J., Garrett, J. H., Noh, H., Lynch, J. P., Huang, H., Sohn, H., Wang, K. W.
SPIE-INT SOC OPTICAL ENGINEERING.2019
- **A Damage Localization and Quantification Algorithm for Indirect Structural Health Monitoring of Bridges Using Multi-Task Learning**
Liu, J., Berges, M., Bielak, J., Garrett, J. H., Kovacevic, J., Noh, H., Bond, L. J., Holland, S., Laflamme, S.
AMER INST PHYSICS.2019
- **Area Occupancy Counting Through Sparse Structural Vibration Sensing** *IEEE PERSASIVE COMPUTING*
Pan, S., Mirshekari, M., Fagert, J., Ruiz, C., Noh, H., Zhang, P.
2019; 18 (1): 28–37
- **Gait Health Monitoring Through Footstep-Induced Floor Vibrations**
Fagert, J., Mirshekari, M., Pan, S., Zhang, P., Noh, H., Assoc Comp Machinery
ASSOC COMPUTING MACHINERY.2019: 319–20
- **Vehicle Dispatching for Sensing Coverage Optimization in Mobile Crowdsensing Systems**
Xu, S., Chen, X., Pi, X., Joe-Wong, C., Zhang, P., Noh, H., Assoc Comp Machinery
ASSOC COMPUTING MACHINERY.2019: 311–12
- **Secure Pairing via Video and IMU Verification**
Ruiz, C., Pan, S., Noh, H., Zhang, P., Han, J., Assoc Comp Machinery
ASSOC COMPUTING MACHINERY.2019: 333–34
- **Deskbuddy: an Office Activity Detection System**
Bonde, A., Pan, S., Noh, H., Zhang, P., Assoc Comp Machinery
ASSOC COMPUTING MACHINERY.2019: 352–53
- **Incentivizing Large-scale Vehicular Crowdsensing System For Smart City Applications**
Xu, S., Chen, X., Pi, X., Joe-Wong, C., Zhang, P., Noh, H., Lynch, J. P., Huang, H., Sohn, H., Wang, K. W.
SPIE-INT SOC OPTICAL ENGINEERING.2019
- **A Deep Autoencoder Model for Pollution Map Recovery with Mobile Sensing Networks**
Ma, R., Liu, N., Xu, X., Wang, Y., Noh, H., Zhang, P., Zhang, L., Assoc Comp Machinery
ASSOC COMPUTING MACHINERY.2019: 577–83
- **Device-free Multiple People Localization through Floor Vibration**
Shi, L., Mirshekari, M., Fagert, J., Chi, Y., Noh, H., Zhang, P., Pan, S., ACM
ASSOC COMPUTING MACHINERY.2019: 57–61
- **Device-free Sleep Stage Recognition through Bed Frame Vibration Sensing**
Hu, Z., Sezgin, E., Lin, S., Zhang, P., Noh, H., Pan, S., ACM
ASSOC COMPUTING MACHINERY.2019: 39–43
- **A Signal Quality Assessment Metrics for Vibration-based Human Sensing Data Acquisition**
Zhang, Y., Zhang, L., Noh, H., Zhang, P., Pan, S., Assoc Comp Machinery
ASSOC COMPUTING MACHINERY.2019: 29–33
- **WhereWear: Calibration-free Wearable Device Identification through Ambient Sensing**
Ruiz, C., Pan, S., Noh, H., Zhang, P., Assoc Comp Machinery
ASSOC COMPUTING MACHINERY.2019: 29–34
- **P-Loc: A Device-free Indoor Localization System Utilizing Building Power-line Network**
Zhou, T., Zhang, Y., Chen, X., Mosalam, K. M., Noh, H., Zhang, P., Zhang, L., ACM
ASSOC COMPUTING MACHINERY.2019: 611–15

- **Demo Abstract: Autonomous Inventory Monitoring through Multi-Modal Sensing (AIM3S) for Cashier-Less Stores**
Ruiz, C., Falcao, J., Pan, S., Noh, H., Zhang, P., Zhang, M.
ASSOC COMPUTING MACHINERY.2019: 395–96
- **Fine-Grained Recognition of Activities of Daily Living through Structural Vibration and Electrical Sensing**
Pan, S., Berges, M., Rodakowski, J., Zhang, P., Noh, H., Zhang, M.
ASSOC COMPUTING MACHINERY.2019: 149–58
- **AIM3S: Autonomous Inventory Monitoring through Multi-Modal Sensing for Cashier-Less Convenience Stores**
Ruiz, C., Falcao, J., Pan, S., Noh, H., Zhang, P., Zhang, M.
ASSOC COMPUTING MACHINERY.2019: 135–44
- **Smart Home Occupant Identification via Sensor Fusion Across On-Object Devices** *ACM TRANSACTIONS ON SENSOR NETWORKS*
Han, J., Pan, S., Sinha, M., Noh, H., Zhang, P., Tague, P.
2018; 14 (3-4)
- **Conductive Thread-Based Textile Sensor for Continuous Perspiration Level Monitoring** *SENSORS*
Jia, J., Xu, C., Pan, S., Xia, S., Wei, P., Noh, H., Zhang, P., Jiang, X.
2018; 18 (11)
- **Robust Building Energy Load Forecasting Using Physically-Based Kernel Models** *ENERGIES*
Prakash, A., Xu, S., Rajagopal, R., Noh, H.
2018; 11 (4)
- **MyoVibe: Enabling Inertial Sensor-Based Muscle Activation Detection In High-Mobility Exercise Environments** *ACM TRANSACTIONS ON SENSOR NETWORKS*
Mokaya, F., Noh, H., Lucas, R., Zhang, P.
2018; 14 (1)
- **Occupant-Induced Office Floor Vibration Dataset for Activity Level Monitoring**
Zhang, Y., Pan, S., Fagert, J., Mirshekari, M., Noh, H., Zhang, P., Zhang, L., ACM
ASSOC COMPUTING MACHINERY.2018: 5–6
- **Do You Peel What I Hear? Enabling Autonomous IoT Device Pairing using Different Sensor Types**
Han, J., Chung, A., Sinha, M., Harishankar, M., Pan, S., Noh, H., Zhang, P., Tague, P., IEEE
IEEE.2018: 836–52
- **Demo Abstract: PosePair: Pairing IoT Devices Through Visual Human Pose Analysis**
Ruiz, C., Pan, S., Sadde, A., Noh, H., Zhang, P., IEEE
IEEE.2018: 144–45
- **VVRRM: Vehicular Vibration-based Heart RR-Interval Monitoring System**
Bonde, A., Pan, S., Jia, Z., Zhang, Y., Noh, H., Zhang, P., Assoc Comp Machinery
ASSOC COMPUTING MACHINERY.2018: 37–42
- **UniverSense: IoT Device Pairing through Heterogeneous Sensing Signals**
Pan, S., Ruiz, C., Han, J., Bannis, A., Tague, P., Noh, H., Zhang, P., Assoc Comp Machinery
ASSOC COMPUTING MACHINERY.2018: 55–60
- **MedAL: Accurate and Robust Deep Active Learning for Medical Image Analysis**
Smailagic, A., Costa, P., Noh, H., Walawalkar, D., Khandelwal, K., Galdran, A., Mirshekari, M., Fagert, J., Xu, S., Zhang, P., Campilho, A., Wani, M. A., Kantardzic, et al
IEEE.2018: 481–88
- **Guiding the Data Learning Process with Physical Model in Air Pollution Inference**
Ma, R., Xu, X., Wang, Y., Noh, H., Zhang, P., Zhang, L., Abe, N., Liu, H., Pu, C., Hu, Ahmed, N., Qiao, M., Song, Y., et al
IEEE.2018: 4475–83
- **Human Gait Monitoring Using Footstep-Induced Floor Vibrations Across Different Structures**
Mirshekari, M., Fagert, J., Bonde, A., Zhang, P., Noh, H., ACM

ASSOC COMPUTING MACHINERY.2018: 1382–91

- **Occupant Activity Level Estimation Using Floor Vibration**

Zhang, Y., Pan, S., Fagert, J., Mirshekari, M., Noh, H., Zhang, P., Zhang, L., ACM
ASSOC COMPUTING MACHINERY.2018: 1355–63

- **Moisture Based Perspiration Level Estimation**

Jia, J., Xu, C., Pan, S., Xia, S., Wei, P., Noh, H., Zhang, P., Jiang, X., ACM
ASSOC COMPUTING MACHINERY.2018: 1301–8

- **PGA: Physics Guided and Adaptive Approach for Mobile Fine-Grained Air Pollution Estimation**

Chen, X., Xu, X., Liu, X., Pan, S., He, J., Noh, H., Zhang, L., Zhang, P., ACM
ASSOC COMPUTING MACHINERY.2018: 1321–30

- **Poster Abstract: Generative Model Based Fine-Grained Air Pollution Inference for Mobile Sensing Systems**

Ma, R., Xu, X., Noh, H., Zhang, P., Zhang, L., Assoc Comp Machinery
ASSOC COMPUTING MACHINERY.2018: 426–27

- **Demo Abstract: Vibration-Based Occupant Activity Level Monitoring System**

Zhang, Y., Pan, S., Fagert, J., Mirshekari, M., Noh, H., Zhang, P., Zhang, L., Assoc Comp Machinery
ASSOC COMPUTING MACHINERY.2018: 349–50

- **Poster Abstract: Robust Detection of Motor-Produced Audio Signals**

Bannis, A., Noh, H., Zhang, P., Assoc Comp Machinery
ASSOC COMPUTING MACHINERY.2018: 412–13

- **Structural Vibration Sensing to Evaluate Animal Activity on a Pig Farm**

Bonde, A., Pan, S., Sangpetch, O., Sangpetch, A., Woramontri, W., Noh, H., Zhang, P., ACM
ASSOC COMPUTING MACHINERY.2018: 25–26

- **Seat Vibration for Heart Monitoring in a Moving Automobile**

Bonde, A., Mirshekari, M., Fagert, J., Pan, S., Noh, H., Zhang, P., ACM
ASSOC COMPUTING MACHINERY.2018: 7–8

- **A data fusion approach for track monitoring from multiple in-service trains** *MECHANICAL SYSTEMS AND SIGNAL PROCESSING*

Lederman, G., Chen, S., Garrett, J. H., Kovacevic, J., Noh, H., Bielak, J.
2017; 95: 363–79

- **Bayesian Updating of Earthquake Vulnerability Functions with Application to Mortality Rates** *EARTHQUAKE SPECTRA*

Noh, H., Kiremidjian, A., Ceferino, L., So, E.
2017; 33 (3): 1173–89

- **Updating Structural Parameters with Spatially Incomplete Measurements Using Subspace System Identification** *JOURNAL OF ENGINEERING MECHANICS*

Park, S., Noh, H.
2017; 143 (7)

- **Track-monitoring from the dynamic response of an operational train** *MECHANICAL SYSTEMS AND SIGNAL PROCESSING*

Lederman, G., Chen, S., Garrett, J., Kovacevic, J., Noh, H., Bielak, J.
2017; 87: 1–16

- **SenseTribute: Smart Home Occupant Identification via Fusion Across On-Object Sensing Devices**

Han, J., Pan, S., Sinha, M., Noh, H., Zhang, P., Tague, P., Assoc Comp Machinery
ASSOC COMPUTING MACHINERY.2017

- **An energy-based sparse representation of ultrasonic guided-waves for online damage detection of pipelines under varying environmental and operational conditions** *MECHANICAL SYSTEMS AND SIGNAL PROCESSING*

Eydboosh, M., Berges, M., Noh, H.
2017; 82: 260–78

- **SurfaceVibe: Vibration-Based Tap & Swipe Tracking on Ubiquitous Surfaces**

-
- Pan, S., Ramirez, C., Mirshekari, M., Fagert, J., Chung, A., Hu, C., Shen, J., Noh, H., Zhang, P., IEEE
IEEE.2017: 197–208
- **Characterizing Left-Right Gait Balance Using Footstep-Induced Structural Vibrations**
Fagert, J., Mirshekari, M., Pan, S., Zhang, P., Noh, H., Lynch, J. P.
SPIE-INT SOC OPTICAL ENGINEERING.2017
 - **Poster Abstract: Interdependent Component Framework for Simulating Indoor Internet-of-Things Systems (Intercom)**
Bannis, A., Noh, H., Zhang, P., IEEE
IEEE.2017: 315–16
 - **Calibration-Free Footstep Frequency Estimation Using Structural Vibration**
Mirshekari, M., Zhang, P., Noh, H., Caicedo, J., Pakzad, S.
SPRINGER INTERNATIONAL PUBLISHING AG.2017: 287–89
 - **Individualized Calibration of Industrial-Grade Gas Sensors in Air Quality Sensing System**
Liu, X., Xu, X., Chen, X., Mai, E., Noh, H., Zhang, P., Zhang, L., ACM
ASSOC COMPUTING MACHINERY.2017
 - **Delay Effect in Mobile Sensing System for Urban Air Pollution Monitoring**
Liu, X., Chen, X., Xu, X., Mai, E., Noh, H., Zhang, P., Zhang, L., ACM
ASSOC COMPUTING MACHINERY.2017
 - **Automated synchronization of driving data using vibration and steering events** *PATTERN RECOGNITION LETTERS*
Fridman, L., Brown, D. E., Angell, W., Abdic, I., Reimer, B., Noh, H.
2016; 75: 9–15
 - **Sparse representation of ultrasonic guided-waves for robust damage detection in pipelines under varying environmental and operational conditions** *STRUCTURAL CONTROL & HEALTH MONITORING*
Eyboosh, M., Berges, M., Noh, H.
2016; 23 (2): 369–91
 - **Burnout: A Wearable System for Unobtrusive Skeletal Muscle Fatigue Estimation**
Mokaya, F., Lucas, R., Noh, H., Zhang, P., IEEE
IEEE.2016
 - **Occupant Traffic Estimation through Structural Vibration Sensing**
Pan, S., Mirshekari, M., Zhang, P., Noh, H., Lynch, J. P.
SPIE-INT SOC OPTICAL ENGINEERING.2016
 - **Characterizing Wave Propagation to Improve Indoor Step-Level Person Localization using Floor Vibration**
Mirshekari, M., Pan, S., Zhang, P., Noh, H., Lynch, J. P.
SPIE-INT SOC OPTICAL ENGINEERING.2016
 - **Robust Occupant Detection Through Step-Induced Floor Vibration by Incorporating Structural Characteristics**
Lam, M., Mirshekari, M., Pan, S., Zhang, P., Noh, H., Allen, M., Mayes, R. L., Rixen, D.
SPRINGER.2016: 357–67
 - **Development of empirical and analytical fragility functions using kernel smoothing methods** *EARTHQUAKE ENGINEERING & STRUCTURAL DYNAMICS*
Noh, H. Y., Lallemand, D., Kiremidjian, A. S.
2015; 44 (8): 1163-1180
 - **STIM: Smart Train Infrastructure Monitoring**
Lederman, G., Bielak, J., Noh, H., Assoc Comp Machinery
ASSOC COMPUTING MACHINERY.2015: 330–31
 - **Mitigating the effects of variable speed on drive-by infrastructure monitoring**
Thorsen, A., Lederman, G., Oshima, Y., Bielak, J., Noh, H., Lynch, J. P., Wang, K. W., Sohn, H.
SPIE-INT SOC OPTICAL ENGINEERING.2015

- **Effects of damage location and size on sparse representation of guided-waves for damage diagnosis of pipelines under varying temperature**
Eydboosh, M., Berges, M., Noh, H., Shull, P. J.
SPIE-INT SOC OPTICAL ENGINEERING.2015
- **Nonlinear feature extraction methods for removing temperature effects in multi-mode guided-waves in pipes**
Eydboosh, M., Berges, M., Noh, H., Shull, P. J.
SPIE-INT SOC OPTICAL ENGINEERING.2015
- **Temperature variation effects on sparse representation of guided-waves for damage diagnosis in pipelines**
Eydboosh, M., Berges, M., Noh, H., Shull, P. J.
SPIE-INT SOC OPTICAL ENGINEERING.2015
- **Rail-infrastructure Monitoring through the Dynamic Response of a Passing Train**
Lederman, G., Noh, H., Bielak, J., Chang, F. K., Kopsaftopoulos, F.
DESTTECH PUBLICATIONS, INC.2015: 1451–58
- **Indoor Person Identification through Footstep Induced Structural Vibration**
Pan, S., Wang, N., Qian, Y., Velibeyoglu, I., Noh, H., Zhang, P., ACM
ASSOC COMPUTING MACHINERY.2015: 81–86
- **Step-Level Person Localization Through Sparse Sensing Of Structural Vibration**
Mirshekari, M., Pan, S., Bannis, A., Lam, Y., Zhang, P., Noh, H., Assoc Comp Machinery
ASSOC COMPUTING MACHINERY.2015: 376–77
- **MyoVibe: Vibration Based Wearable Muscle Activation Detection In High Mobility Exercises**
Mokaya, F., Lucas, R., Noh, H., Zhang, P., ACM
ASSOC COMPUTING MACHINERY.2015: 27–38
- **Structural Sensing System with Networked Dynamic Sensing Configuration**
Pan, S., Mirshekari, M., Noh, H., Zhang, P., Assoc Comp Machinery
ASSOC COMPUTING MACHINERY.2015: 344–45
- **BOES: Building Occupancy Estimation System Using Sparse Ambient Vibration Monitoring**
Pan, S., Bonde, A., Jing, J., Zhang, L., Zhang, P., Noh, H., Lynch, J. P., Wang, K. W., Sohn, H.
SPIE-INT SOC OPTICAL ENGINEERING.2014
- **Toward characterizing the effects of environmental and operational conditions on diffuse-field ultrasonic guided-waves in pipes**
Eydboosh, M., Berges, M., Noh, H., Lynch, J. P., Wang, K. W., Sohn, H.
SPIE-INT SOC OPTICAL ENGINEERING.2014
- **Data-Driven Forecasting Algorithms for Building Energy Consumption** *Conference on Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems*
Noh, H. Y., Rajagopal, R.
SPIE-INT SOC OPTICAL ENGINEERING.2013
- **Development of fragility functions as a damage classification/prediction method for steel moment-resisting frames using a wavelet-based damage sensitive feature** *EARTHQUAKE ENGINEERING & STRUCTURAL DYNAMICS*
Noh, H. Y., Lignos, D. G., Nair, K. K., Kiremidjian, A. S.
2012; 41 (4): 681-696
- **Damage diagnosis algorithm using a sequential change point detection method with an unknown distribution for damage** *Conference on Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems*
Noh, H. Y., Rajagopal, R., Kiremidjian, A. S.
SPIE-INT SOC OPTICAL ENGINEERING.2012
- **Use of Wavelet-Based Damage-Sensitive Features for Structural Damage Diagnosis Using Strong Motion Data** *JOURNAL OF STRUCTURAL ENGINEERING-ASCE*
Noh, H. Y., Nair, K. K., Lignos, D. G., Kiremidjian, A. S.
2011; 137 (10): 1215-1228

- **Application of a sparse representation method using K-SVD to data compression of experimental ambient vibration data for SHM** *Conference on Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems 2011*
Noh, H. Y., Kiremidjian, A. S.
SPIE-INT SOC OPTICAL ENGINEERING.2011
- **Application of time series based damage detection algorithms to the benchmark experiment at the National Center for Research on Earthquake Engineering (NCREE) in Taipei, Taiwan** *SMART STRUCTURES AND SYSTEMS*
Noh, H. Y., Nair, K. K., Kiremidjian, A. S., Loh, C.
2009; 5 (1): 95-117
- **Application of a time series based damage detection algorithm to the Taiwanese benchmark experiment** *10th International Conference on Application of Statistics and Probability in Civil Engineering*
Noh, H., Nair, K. K., Kiremidjian, A. S., Loh, C.
TAYLOR & FRANCIS LTD.2007: 551-552