

# Yiwen Dong

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🌐 <https://yiwen-dong.github.io/>

## RESEARCH INTERESTS

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- Ambient Intelligence for Health
- Structural Vibration Sensing
- Cyber-Physical-Human System

## EDUCATION

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### Stanford Institute for Human-Centered Artificial Intelligence (HAI)

Postdoctoral Fellow

Sept 2024 - present

### Stanford University

Ph.D. in Structural Engineering (minor in Electrical Engineering), Advisor: Hae Young Noh

2024

M.S., Structural Engineering, GPA 3.98/4.0

### Nanyang Technological University, Singapore

B.Eng., Civil Engineering, GPA 4.85/5.0

2018

## RESEARCH

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### Human Gait Monitoring through Footstep-Induced Floor Vibrations

Objective: Enable equitable and accessible in-home health monitoring

2020-present

- Pioneered the development of in-home human gait monitoring through footstep-induced floor vibrations, enabling low-cost, non-intrusive physical health monitoring in people's daily living spaces (e.g., home, office)
- Characterized gait-induced floor vibration signals to infer patients' gait characteristics, including spatiotemporal gait parameters and symptoms such as cadence, symmetry, balance, initial contact types, foot clearance, joint flexion angles, and ground reaction forces
- Developed physics-informed machine learning models, including 1) a non-parametric Bayesian model to identify the owner of the footsteps without identity labels from the newcomers; 2) a contrastive learning model to detect 3 common gait abnormality types that are robust to people's varying walking habits; and 3) a physics-informed heterogeneous graph neural network that integrates gait biomechanics and structural dynamics to guide the information flow during model training and testing; Achieving up to 20% accuracy improvement compared to the state-of-the-art black-box models
- Conducted experiments with 100+ participants, including patients from the collaborating hospitals, making real-world impact such as tracking 7-stage muscular dystrophy progression with 95% accuracy, detecting gait abnormalities with 93% accuracy, and estimating joint angles with  $\leq 5^\circ$  error, which are comparable to the performance of wearables and cameras, with up to 80% lower cost, less privacy concerns, and no device carrying

### Pig Health Monitoring through Floor Vibration and Video Data Fusion

Objective: Achieve real-time, remote precision livestock management and improve animal welfare

2020-present

- Monitored 50+ sows and 500+ piglets through a self-designed wireless sensing system that has been continuously collecting data for 3+ years in collaboration with USDA; achieved  $\geq 90\%$  accuracy in monitoring pig postures and daily activities through the development of video and vibration data processing algorithms
- Developed a contactless heart and respiration rate (HR/RR) monitoring system for mother pigs to predict the onset of parturition and their stress level during farrowing, resulting in comparable accuracy as Pulse Oximeters
- Analyzed pig walking video and floor vibration data to detect physical injury in sow for timely treatment; overcame the challenge of lacking pig training data by transferring shared knowledge of a large-scale human walking dataset.

### Context-Aware Crowd Monitoring in Sports Stadiums

Objective: to monitor and characterize the crowd reactions for public safety

2022-present

- Developed a crowd monitoring system through a context-aware probabilistic model that integrates spatiotemporal information about the game progress and facility layout with the crowd behaviors, leading to a 90% accuracy in crowd reaction and traffic monitoring for 6 basketball games at Stanford Pavilion and 2 football games at Michigan Stadium

## HONORS AND AWARDS

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- Stanford HAI Postdoctoral Fellowship 2024
- Best Paper Award, IMAC conference 2024
- SPIE Travel Grant for Smart Structures + NDE Conference 2024
- CEE Rising Star, MIT CEE Rising Star Committee 2023
- Best Student Paper Award (2nd place), ASCE EMI Dynamics Committee 2023
- Best Overall Presentation Award, Stanford Doerr School of Sustainability Research Review 2023
- Centennial Teaching Assistant Award, Stanford University 2023
- Stanford Blume Fellowship 2023
- Best Paper Award (runner-up), IMAC Conference 2023
- Best Poster Award (runner-up), BuildSys Conference 2022
- NSF Travel Grant for EWSHM Conference 2022
- Best Presentation Award, ECPLF Conference 2022
- NSF Travel Grant for MMLDT Conference 2021
- Best Paper Award, ACM UbiComp Nurse Care Competition 2020
- 2<sup>nd</sup> Place, ACM CPS-IoT Week Auto-Checkout Competition 2020
- Professional Engineers Board Gold Medal (National, Top 0.5%) 2018
- Dean's List Excellent Academic Award (School level, Top 5%) 2015, 2016, 2018
- NTU Science and Engineering Undergraduate Scholarship (full undergraduate scholarship) 2014-2018

### Grant Writing Experience:

- Stanford Medicine Transdisciplinary Initiatives Program Grant (under review) 2024
- Cisco Research Grant (under review) 2024
- NSF Future of Work at the Human-Technology Frontier (under review) 2023
- McGee and Levorsen Research Grant (awarded) 2023

## PUBLICATIONS

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### Journal Papers:

[J10] Kylie Clewes, Claire Hammond, **Yiwen Dong**, Mary Meyer, Evan Lowe, Jessica Rose. Neuromuscular impairments of cerebral palsy: contributions to gait abnormalities and implications for treatment. *Frontiers in Neuroscience*. ([link](#))

[J9] **Yiwen Dong**<sup>\*</sup>, Zihao Song<sup>\*</sup>, Jesse R Codling, Gary Rohrer, Jeremy Miles, Sudhendu Sharma, Tami Brown-Brandl, Pei Zhang, and Hae Young Noh (\*equal contribution). Robust Piglet Nursing Behavior Monitoring through Multi-Modal Fusion of Computer Vision and Structural Vibration. Submitted to *Computers and Electronics in Agriculture*. (under review, [link](#))

[J8] **Yiwen Dong**, Yuyan Wu, Yen-Cheng Chang, Jatin Aggarwal, Jesse R Codling, Hugo Latapie, Pei Zhang, and Hae Young Noh. Context-Aware Crowd Monitoring for Sports Games through Crowd-induced Structural Vibrations. *Invited* by *Data-Centric Engineering*. (accepted, [link](#))

[J7] **Yiwen Dong**, Sung Eun Kim, Kornél Schadl, Peide Huang, Wenhao Ding, Jessica Rose, and Hae Young Noh. In-home Gait Abnormality Detection through Footstep-Induced Floor Vibration Sensing and Self-Supervised Contrastive Learning. Submitted to *IEEE Journal of Biomedical and Health Informatics*. (accepted, [link](#))

[J6] **Yiwen Dong**, Yuyan Wu, Sung Eun Kim, Kornél Schadl, Jessica Rose, and Hae Young Noh. Modeling Foot-Floor

Interactions during Walking for Normal and Abnormal Gaits. **Invited** by *Journal of Engineering Mechanics*. (under revision, [link](#))

[J5] **Yiwen Dong**, Megan Iammarino, Jingxiao Liu, Jesse Codling, Jonathon Fagert, Mostafa Mirshekari, Linda Lowes, Pei Zhang, and Hae Young Noh. Sensing Ambient Floor Vibration Advances Accessibility of Functional Gait Assessment for Children with Muscular Dystrophies. *Nature Scientific Reports*, 2024. ([link](#))

[J4] **Yiwen Dong**, Hae Young Noh. Ubiquitous Gait Analysis through Footstep-Induced Floor Vibrations. *Sensors*, 2024. ([link](#))

[J3] **Yiwen Dong**, Jonathon Fagert, and Hae Young Noh. Characterizing the Variability of Footstep-Induced Structural Vibrations for Open-World Person Identification. *Mechanical Systems and Signal Processing*, 2023. ([link](#))

[J2] **Yiwen Dong\***, Amelie Bonde\*, Jesse R. Codling, Adeola Bannis, Jinpu Cao, Asya Macon, Gary Rohrer, Jeremy Miles, Sudhendu Sharma, Tami Brown-Brandl, Akkarit Sangpetch, Orathai Sangpetch, Pei Zhang, Hae Young Noh (\*equal contribution). PigSense: Structural Vibration-based Activity and Health Monitoring System for Pigs. *ACM Transactions on Sensor Networks*, 2023. ([link](#))

[J1] Jingxiao Liu, Siyuan Yuan, **Yiwen Dong**, Biondo Biondi, Hae Young Noh. TelecomTM: A Fine-Grained and Ubiquitous Traffic Monitoring System Using Pre-Existing Telecommunication Cables as Sensors. *ACM Interactive, Mobile, Wearable and Ubiquitous Technologies*, 2023. ([link](#))

### Journal-Level Conference Papers:

[JC2] **Yiwen Dong**, Yuyan Wu, Jesse R Codling, Jatin Aggarwal, Peide Huang, Wenhao Ding, Hugo Latapie, Pei Zhang, and Hae Young Noh. GameVibes: Vibration-based Crowd Monitoring for Sports Games through Audience-Game-Facility Association Modeling. *ACM International Conference on Systems for Energy-Efficient Built Environments (BuildSys)*, 2023. ([link](#), **Acceptance rate: 30%**)

[JC1] Amelie Bonde, Jesse R Codling, Kanittha Naruethep, **Yiwen Dong**, Wachirawich Siripaktanakon, Sripong Ariyadech, Akkarit Sangpetch, Orathai Sangpetch, Shijia Pan, Hae Young Noh, and Pei Zhang. PigNet: Failure-Tolerant Pig Activity Monitoring System Using Structural Vibration. In *IPSN '21: Proceedings of the 20th International Conference on Information Processing in Sensor Networks*, pages 328–340, 2021. ([link](#), **Acceptance rate: 25%**)

### Journal Papers In-Preparation:

[JP2] **Yiwen Dong**, Hae Young Noh. Integrating Biomechanics and Structural Dynamics for Lower-Limb Joint Motion Estimation During Walking. In preparation for *Journal of Sound and Vibration*.

[JP1] **Yiwen Dong**, Jinpu Cao, Larry Collin Marshall Jr, Jesse R Codling, Gary Rohrer, Jeremy Miles, Sudhendu Sharma, Tami Brown-Brandl, Pei Zhang, and Hae Young Noh. Is Continuous Monitoring of Cardiovascular and Respiratory Metrics Through Crate Vibrations Capable of Predicting Sow Farrowing Time? In preparation for *Journal of Animal Science*.

### Conference and Workshop Papers:

[C13] **Yiwen Dong\***, Haochen Sun\*, Ruizhi Wang\*, Hae Young Noh. Robust Person Identification Across Various Shoe Types Using Footstep-Induced Structural Vibrations. *Proceedings of SPIE Smart Structures and Nondestructive Evaluation*, 2024. ([link](#))

[C12] **Yiwen Dong**, Jingxiao Liu, Sung Eun Kim, Kornél Schadl, Jessica Rose, and Hae Young Noh. Graphical Modeling of the Lower-Limb Joint Motion from the Dynamic Floor Responses under Footstep Forces. *Proceedings of IMAC-XLII, Society of Experimental Mechanics*, 2024. ([link](#)) (**Best Paper Award**)

[C11] **Yiwen Dong**, Yuyan Wu, and Hae Young Noh. Detecting Gait Abnormalities in Foot-Floor Contacts During Walking Through Footstep-Induced Structural Vibrations. *14th International Workshop on Structural Health Monitoring (IWSHM)*, 2023. (in press, [link](#))

[C10] **Yiwen Dong**, and Hae Young Noh. Structure-agnostic gait cycle segmentation for in-home gait health monitoring through footstep-induced structural vibrations. *Proceedings of IMAC-XLII, Society of Experimental Mechanics*, 2023. ([link](#), **Best Paper Award Runner-Up**)

[C9] **Yiwen Dong**, Jonathon Fagert, Pei Zhang, and Hae Young Noh. Stranger Detection and Occupant Identification Using Structural Vibrations. *10th European Workshop on Structural Health Monitoring (EWSHM)*, Palermo, Italy. 2022.

([link](#))

[C8] **Yiwen Dong**, Jesse R Codling, Gary Rohrer, Jeremy Miles, Sudhendu Sharma, Tami Brown-Brandl, Pei Zhang, and Hae Young Noh. PigV<sup>2</sup>: Monitoring Pig Vital Signs through Ground Vibrations Induced by Heartbeat and Respiration. *ACM SenSys Workshop on Internet-of-Things and Sensing for Agriculture and Food Systems*, 2022. ([link](#))

[C7] **Yiwen Dong**, Jingxiao Liu, and Hae Young Noh (2022). GaitVibe+: Enhancing Structural Vibration-based Footstep Localization Using Temporary Cameras for In-home Gait Analysis. *ACM SenSys Workshop on Continual and Multimodal Learning for Internet of Things (CML-IOT)*, 2022. ([link](#))

[C6] **Yiwen Dong**, Jiacheng Zhu, and Hae Young Noh (2022). Re-Vibe: Vibration-based Indoor Person Re-Identification through Cross-Structure Optimal Transport. *ACM BuildSys Workshop on The Future of Work, Workplaces, and Smart Buildings (FoWSB)*, 2022. ([link](#))

[C5] **Yiwen Dong**, Joanna Jiaqi Zou, Jingxiao Liu, Jonathon Fagert, Mostafa Mirshekari, Linda Lowes, Megan Iammarino, Pei Zhang, and Hae Young Noh. MD-Vibe: Physics-informed analysis of patient-induced structural vibration data for monitoring gait health in individuals with muscular dystrophy. *UbiComp/ISWC 2020 Proceedings*, page 525–531, 2020. ([link](#))

[C4] **Yiwen Dong**, Jingxiao Liu, Yitao Gao, Sulagna Sarkar, Zhizhang Hu, Jonathon Fagert, Shijia Pan, Pei Zhang, Hae Young Noh, and Mostafa Mirshekari. A window-based sequence-to-one approach with dynamic voting for nurse care activity recognition using an acceleration-based wearable sensor. *UbiComp/ISWC 2020 Proceedings*, page 390-395, 2020. ([link](#), **Best Paper Award**)

[C3] Yuyan Wu, **Yiwen Dong**, Sumer Vaid Gabriella M. Harari, and Hae Young Noh. Emotion Recognition Using Footstep-induced Floor Vibration Signals. *14th International Workshop on Structural Health Monitoring (IWSHM)*, 2023. (in press, [link](#))

[C2] Jesse R Codling, **Yiwen Dong**, Amelie Bonde, Adeola Bannis, Asya Macon, Gary Rohrer, Jeremy Miles, Sudhendu Sharma, Tami Brown-Brandl, Hae Young Noh, and Pei Zhang. Sow posture and feeding activity monitoring in a farrowing pen using ground vibration. *ECPLF 2022 Proceedings*, page 240-248, 2022. ([link](#), **Best Presentation Award**)

[C1] Jesse R Codling, Amelie Bonde, **Yiwen Dong**, Siyi Cao, Akkarit Sangpetch, Orathai Sangpetch, Hae Young Noh, Pei Zhang. MassHog: Weight-Sensitive Occupant Monitoring for Pig Pens using Actuated Structural Vibrations. *UbiComp/ISWC 2021 Proceedings*, page 600–605, 2021. ([link](#))

#### Patent:

[P2] **Yiwen Dong**, Hae Young Noh. Human Gait Parameter and Health Information Extraction using Floor-Mounted Geophone Sensors. (Provisional Application Filed in 2023)

[P1] Yuyan Wu, **Yiwen Dong**, Hae Young Noh. Emotion Recognition Using Footstep-Induced Floor Vibrations. (Provisional Application Filed in 2023)

#### Dataset:

[D2] **Yiwen Dong**, Megan Iammarino, Jingxiao Liu, Jesse Codling, Jonathon Fagert, Mostafa Mirshekari, Linda Lowes, Pei Zhang, and Hae Young Noh. 2023. The MD-Vibe Dataset: Footstep-Induced Floor Vibration Data for Functional Gait Assessment of Individuals with Muscular Dystrophy. *Zenodo*, [link](#)

[D1] **Yiwen Dong**, Shijia Pan, Tong Yu, Mostafa Mirshekari, Jonathon Fagert, Amelie Bonde, Ole J. Mengshoel, Pei Zhang, and Hae Young Noh. 2021. The FootprintID Dataset: Footstep-Induced Structural Vibration Data for Indoor Person Identification with Different Walking Speeds. *Zenodo*, [link](#)

## PRESENTATIONS

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#### Invited Talks:

- **Re-imagining Human Health Monitoring through Structural Vibrations with Physics-Informed Learning**  
Shirley Ryan AbilityLab, Chicago, 2024  
University of California, San Diego, 2024

Northwestern University, 2024  
University of Illinois Urbana-Champaign, 2024  
Purdue University, 2024  
University of Massachusetts Lowell, 2024

- **HealthyVibes: In-Home Gait Health Monitoring through Footstep-Induced Structural Vibrations**

Northeastern University, 2023  
Tufts University, 2023  
University of Massachusetts Lowell, 2023  
MIT CEE Rising Star Workshop, 2023  
Stanford SUPER-MUIR-CEE Joint Seminar, 2023  
Stanford CEE Summer Seminar Series, 2022

- **Integration of Physics-based Building Model and Sensor Data for Adaptive Digital Twin**

NVIDIA GTC, 2023  
BuildSys, 2022

#### Conference Talks:

- *SPIE SS + NDE 2024*: Personalized Gait Health Monitoring through Footstep-Induced Floor Vibrations
- *IMAC 2024*: Graphical Modeling of the Lower-Limb Joint Motion from the Dynamic Floor Responses under Footstep Forces (**Best Paper Award**)
- *IWSHM 2023*: Detecting Gait Abnormalities in Foot-Floor Contacts During Walking Through Footstep-Induced Structural Vibrations
- *EMI 2023*: Understand Gait Biomechanics Through Structural Dynamics: Foot-Floor Contact Modeling through Footstep-Induced Floor Vibrations (**Best Student Paper Award 2nd Place**)
- *IMAC 2023*: Structure-Agnostic Gait Cycle Segmentation for In-Home Gait Health Monitoring through Footstep-Induced Structural Vibrations (**Best Paper Award Runner-Up**)
- *BuildSys FoWSB Workshop 2022*: Re-Vibe: Vibration-based Indoor Person Re-Identification through Cross-Structure Optimal Transport
- *SenSys CML-IoT Workshop 2022*: GaitVibe+: Enhancing Structural Vibration-based Footstep Localization Using Temporary Cameras for In-home Gait Analysis
- *SenSys ArgSys Workshop 2022*: PigV2: Monitoring Pig Vital Signs through Ground Vibrations Induced by Heartbeat and Respiration
- *EMI 2022*: Variability Characterization in Footstep-Induced Structural Vibrations for Online Person Identification
- *8WCSCM 2022*: Stranger Detection and Occupant Identification Using Structural Vibrations
- *MMLDT-CSET 2021*: Physics-guided Learning for In-home Gait Health Monitoring using Patient-induced Floor Vibrations
- *UbiComp CPD Workshop 2020*: Physics-informed analysis of patient-induced structural vibration data for monitoring gait health in individuals with muscular dystrophy

#### Posters and Demos:

- *MobiSys 2024*: Drive-by City Wide Trash Sensing for Neighborhood Sanitation Need
- *IPSN 2024*: Listen and Then Sense: Vibration-based Sports Crowd Monitoring by Pre-training with Public Audio Datasets
- *BuildSys 2023*: Characterizing Crowd Preferences on Stadium Facilities through Dynamic Inverse Reinforcement Learning.
- *IPSN 2023*: FreePulse Heart Rate Monitoring System using Ambient Structural Vibrations
- *Blume/SURI Annual Meeting 2022*: In-home Gait Health Monitoring through Footstep-Induced Floor Vibrations
- *BuildSys 2022*: Integration of physics-based building model and sensor data to develop an adaptive digital twin (**Best Poster Award Runner-Up**)
- *IPSN 2021*: Non-parametric Bayesian Learning for Newcomer Detection using Footstep-Induced Floor Vibration
- *SenSys 2021*: Social Distancing Monitoring for COVID-19 Recovery Through Footstep-Induced Floor Vibrations

## TEACHING EXPERIENCES

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**Data Analytics for Physical Systems (CEE 154/254), Stanford University**

*Guest Lecturer*

*Autumn 2023*

**Introduction to Embedded System Research (EECS 507), University of Michigan**

*Guest Lecturer, Project Mentor*

*Autumn 2022, 2023*

**Structural Monitoring (CEE 286), Stanford University**

*Teaching Assistant, Project Mentor*

*Winter 2021, 2022, 2023*

- Mentored 60+ students over 3 years of teaching, leading to 3 student-led publications and 1 best poster award
- Created 15 state-of-the-art research projects for graduate students to work on research problem formulation, research challenge identification, literature review, data analysis, paper writing, and academic presentation

**Data Analytics for Physical Systems (CEE 154/254), Stanford University**

*Head Teaching Assistant*

*Autumn 2021, 2022, 2023*

- Designed 4 MATLAB data analysis assignments for the course and a rubric for consistent grading among all teaching assistants
- Instructed coding and reviewing sessions weekly for students to prepare for assignments and projects; achieved an average evaluation score of 4.7/5.0

## SERVICE

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**The 2nd Workshop on Human-Centered Sensing, Networking, and Multi-Device Systems**

*General Chair*

2024

**Engineering Structures**

*Invited Reviewer*

2024

**ACM Transactions on Sensor Networks**

*Invited Reviewer*

2024

**EMI Structural Control and Health Monitoring Student Paper Competition**

*Judge*

2024

**Journal of Engineering Mechanics**

*Invited Reviewer*

2024

**ACM Conference on Systems for Energy-Efficient Buildings, Cities, and Transportation (BuildSys 2024)**

*Publicity Chair*

2024

**IMAC-XLII Conference, Society of Experimental Mechanics**

*Session Chair*

2024

**Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT)**

*Invited Reviewer*

2023, 2024

**ACM Conference on Embedded Networked Sensor Systems (SenSys 2023)**

*Publicity Chair*

2023

**ACM Computing Surveys**

*Invited Reviewer*

2023

**International Workshop on Structural Health Monitoring (IWSHM)**

*Committee Member, Reviewer*

2023

<b>Society of Experimental Mechanics, Dynamics of Civil Structures Division</b> <i>Member</i>	2022
<b>World Conference on Structural Control and Monitoring</b> <i>Session Co-Chair, Reviewer</i>	2022
<b>Engineering Mechanics Institute (EMI) Conference</b> <i>Session Co-Chair</i>	2022
<b>The Institution of Structural Engineers (IStructE)</b> <i>Chair Representative of Students</i>	2017

## LEADERSHIP AND OUTREACH

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<b>Stanford Women in Science and Engineering (WISE)</b> <i>Graduate Mentor</i>	2023
<b>NeurIPS High School Outreach</b> <i>Instructor</i>	2022
<ul style="list-style-type: none"> <li>Lectured on vibration-based smart home sensors for human health and activity monitoring with 40 black high school students in New Orleans, received 5/5 feedback scores</li> <li>Designed activities for the students to use their smartphones as sensors to detect footsteps as people walk by</li> <li>Organized a group discussion on the benefits and risks of smart home technologies to encourage critical thinking</li> </ul>	
<b>Stanford Environmental Health and Safety Committee</b> <i>Student Representative</i>	2020-2021
<b>Civil and Environmental Engineering Student Club</b> <i>President</i>	2017
<ul style="list-style-type: none"> <li>Led a committee of 60 Executives to initiate events to help 1182 undergraduates develop their academic and networking skills through structure design competitions, social events, sports games, and cultural festivals</li> <li>Initiated overseas community service program to build sewerage that brought clean water to 200 villagers in Laos</li> <li>Improved productivity by standardizing the procedures of event organizing, resulting in a 20% increase in proposal approval rate and accelerated post-event revision by 50%</li> </ul>	

## INDUSTRIAL EXPERIENCES

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<b>Skidmore, Owings and Merrill (SOM) LLP</b> <i>Structural Engineering Intern</i>	2020
<ul style="list-style-type: none"> <li>Designed structural models subjected to seismic, tornado, and snow loadings for the new terminal in Kansas City Airport; pushed forward 50% of schematic design to 100% completion in 3 months</li> </ul>	
<b>Aedifice, Start-up Venture Program</b> <i>Co-founder, Chief Marketing Officer</i>	2019
<ul style="list-style-type: none"> <li>Initiated the PaaS product as "Slack+GitHub" to address the pain point in construction management and conducted opportunity quantification, go-to-market strategy, and business modeling to evaluate the product-market fit</li> </ul>	
<b>AECOM</b> <i>Building Engineering Intern</i>	2017
<ul style="list-style-type: none"> <li>Designed building components in foundations and super-structures for a 12-story international school, including a 600 pile foundation, load transfer beams, and reinforcement concrete columns; Programmed VBA Macros in design spreadsheets, achieved 10 times faster computational speed when designing length and diameter of piles</li> </ul>	

- Examined reliability of the soil records queried from the government sensing network at given subway stations; Created a 2D finite element model in Abaqus FEA to estimate the ground settlement in 2050, achieved 90% accuracy when comparing predictions to the satellite InSAR data in 2016

## MEDIA COVERAGE

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- **NTU Alumni Spotlight:** The article highlights my academic achievements after graduation from NTU. ([link](#))
- **Stanford Report:** The video highlights my work for gait health monitoring and crowd activity sensing using human-induced structural vibrations. ([video link](#))
- **CBS TV Show:** "What Are Geophone Sensors?" This episode highlights my work for an in-home smart security system through footstep-induced floor vibrations. *CBS Mission Unstoppable, Season 3, Episode 13, 2022* ([video link](#))
- **The Wall Street Journal:** Smart Bandages, Vehicle-Damage Trackers and More Data-Collecting Devices of the Future. *Benoit Morenne. WSJ Data, 2021* ([link](#))
- **Scientific American:** Footstep sensors identify people by gait. *Sophie Bushwick. Scientific American, 2020* ([link](#))

## STUDENTS MENTORED

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- **Yuyan Wu** - Mentored as a B.S. student in Applied Physics, co-authored 2 papers, now a Ph.D. student at Stanford
- **Jatin Aggarwal** - Mentored as a first-year Ph.D. student, published 1 conference paper
- **Doyun Hwang** - Mentored as an M.S. student from Korea, now a Ph.D. student at Stanford
- **Barney Miao** - Mentored as an M.S. student, co-authored 1 award-winning poster, now a Ph.D. student at Stanford
- **Jinpu Cao** - Mentored as an M.S. student, co-authored 1 journal paper, now a Ph.D. student at Stanford
- **Caelia Marie Thomas** - Mentored as a cross-disciplinary Ph.D. student in Electrical Engineering
- **Chenbo Wang** - Mentored as an M.S. student at Stanford, now a Ph.D. student at Imperial College London
- **Jiale Zhang** - Mentored as an M.S. student in EECS from the University of Michigan, now a Ph.D. student there
- **Yen-Cheng Chang** - Mentored as a Ph.D. in EECS from the University of Michigan, co-authored 1 journal paper
- **Haochen Sun** - Mentored as an M.S. student at Stanford, co-authored 1 conference paper
- **Zihao Song** - Mentored as an M.S. student at Stanford, preparing 1 journal paper as co-first authors
- **Nomin-Erdene Bayarsaikhan** - Mentored as a cross-disciplinary B.S. student in Electrical Engineering at Stanford
- **Bernadeti Ausie M. Widawati** - Mentored as an international B.S. student in Mathematics from Singapore
- **Erin Liwen Su** - Mentored as a cross-disciplinary B.S. student from Human Biology at Stanford
- **Larry Collin Marshall Jr** - Mentored as a B.S. student from the University of Arkansas, now a Ph.D. at Stanford
- **Clyde Shah** - Mentored as a high school student from North Carolina