Jonathon Fagert, Ph.D., P.E.

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RESEARCH AREAS

- Physics-Guided Machine Learning
- Structures as Sensors: Enabling Smart Cities and Infrastructure

EDUCATION

Carnegie Mellon University, Pittsburgh, PA, USA

Doctor of Philosophy (Ph.D.) in Civil and Environmental Engineering — May 2021
- Advisors: Professor Hae Young Noh
- Thesis Title: *Human Gait Health and Activity Monitoring Using Structural Vibration Sensing*

Case Western Reserve University, Cleveland, OH, USA

Master of Science in Civil Engineering — May 2010
- Cumulative GPA: 4.0 / 4.0

Bachelor of Science in Civil Engineering — May 2009
- Cumulative GPA: 3.97/4.0

APPOINTMENTS

Assistant Professor of Engineering, School of Natural Sciences, Mathematics & Computing — Aug 2021 – Present
Baldwin Wallace University, Berea, OH, USA

Graduate Research Assistant, Dept. of Civil and Envir. Engineering — Aug 2016 – May 2021
Carnegie Mellon University, Pittsburgh, PA, USA

Adjunct Professor, School of Architecture and Design — Jan 2016 – May 2016
New York Institute of Technology, New York, NY, USA
- Course Title: ARCH 312: Reinforced Concrete Design

Adjunct Professor, School of Architecture and Design — Aug 2015 – Dec 2015
New York Institute of Technology, New York, NY, USA
- Course Title: ARCH 211: Statics and Strength of Materials

Structural Design Engineer — Jul 2011 – Jul 2016
Murray Engineering, P.C., New York, NY, USA

Bridge Design Engineer — May 2010 – Jul 2011
Transystems Corporation, Cleveland, OH, USA

ACADEMIC HONORS & AWARDS

Best Student Paper Award — 2021
Dynamics of Civil Structures Technical Division
Society for Experimental Mechanics (SEM) IMAC Conference

Best Paper Award — 2020
Second Nurse Care Activity Recognition Challenge
HASCA Workshop, UbiComp, 2020

Best Student Paper Award — 2020
Dynamics Committee, Engineering Mechanics Institute (EMI) Conference

Best Journal Paper Award — 2020
SHM/NDE Technical Committee, American Society of Mechanical Engineers

Outstanding Teaching Assistant Award — 2020
Department of Civil and Environmental Engineering, CMU

Best Student Paper Award — 2019
Dynamics Committee, Engineering Mechanics Institute (EMI) Conference

Best Team Proposal — 2019
Los Alamos National Lab Advanced Studies Institute Science of Signatures Program

Best Poster Award 2019
The 18th ACM/IEEE International Conference on Information Processing in Sensor Networks (IPSN 2019)

Best Paper Award 2018
IEEE International Conference on Machine Learning Applications

Best Student Paper Award 2018
Dynamics Committee, Engineering Mechanics Institute (EMI) Conference

Presidential Fellowship 2016
Carnegie Mellon University

Student of the Year 2010
Ohio Transportation Consortium

Kenneth M. Haber Award for Outstanding Senior in Civil Engineering 2009
Case Western Reserve University

RESEARCH EXPERIENCES

Carnegie Mellon University, Pittsburgh, PA, USA

Human Gait Health Monitoring Using Footstep-Induced Floor Vibrations Aug 2016 – present
Research Advisors: Professor Hae Young Noh and Professor Pei Zhang

The objective of this research is to model, characterize, and analyze structural vibrations generated from multiple concurrent persons to achieve robust human health and activity monitoring in indoor settings. Human activity monitoring is a critical aspect of smart and connected infrastructure. Identifying, tracking, and monitoring the condition and activity level of occupants provides information about their health status, well-being, and can reduce the occurrence of injury and illness. Primary research questions include the following:

- **Multiple Walkers**: How to model and separate structurally co-dependent multiple person footstep-induced vibrations?
- **Structural Variations**: How to characterize spatially-varying footstep force to structural vibration relationships?
- **Human Behavior Similarities**: How to characterize impulsive and continuous human activities with high signal similarity to enable robust detection, classification, and monitoring of hand washing?

Molded Structures with Embedded Fiber-Optic Sensors and Displays Aug 2018 – present
Research Advisors: Professor Hae Young Noh and Professor Scott Hudson

The objective of this research is to develop a technique for casting fiber bragg grating (FBG) sensors into every day objects to transform them into interactive surfaces. This project is a collaboration with CMU's Human Computer Interaction Institute (HCII).

Los Alamos National Lab, Los Alamos, NM, USA

Advanced Studies Institute Science of Signatures Program Apr 2019 – May 2019
Program Advisor: David Mascarenas This program at Los Alamos National Lab (LANL) is an intensive

interdisciplinary experience for the development of grant-level (3 year, $300,000/year) proposals. At the end of the program, the team's proposals were evaluated by an independent panel from LANL and my group's proposal was selected as the best.

Case Western Reserve University, Cleveland, OH, USA

Master's Student Thesis Jan 2010 – May 2010
- Project: The Principle of Stationary Potential Energy for Form-finding of Cables and Domes
- Supervisor: Professor Dario Gasparini
- Research areas: Finite Element Modeling, Historic Dome/Arch Construction

Case Western Reserve University, Cleveland, OH, USA

Graduate Research Assistant May 2010 – Aug 2010
- Project: Time Domain Reflectometry for Damage Detection in Concrete
- Supervisor: Professor Xiong (Bill) Yu
- Research areas: Structural Damage Detection, Embedded Sensing

PUBLICATIONS

JOURNALS

[J10] Jonathon Fagert, Mostafa Mirshekari, Shijia Pan, Linda Lowes, Megan Iammarino, Pei Zhang, and Hae Young Noh. Structure- and sampling-adaptive gait balance symmetry estimation using footstep-induced structural floor vibrations. *Journal of Engineering Mechanics*, 147(2):04020151, 2021

[J9] Mostafa Mirshekari, Jonathon Fagert, Shijia Pan, Pei Zhang, and Hae Young Noh. Obstruction-invariant occupant localization using footstep-induced structural vibrations. *Mechanical Systems and Signal Processing*, 153:107499, 2021

[J8] Sai Swaminathan, Jonathon Fagert, Michael Rivera, Andrew Cao, Gierad Laput, Hae Young Noh, and Scott Hudson. Optistructures: Fabrication of room-scale interactive structures with embedded fiber bragg grating optical sensors and displays. *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies*, 4(2), 2020

[J7] Asim Smailagic, Pedro Costa, Alex Gaudio, Kartik Khandelwal, Mostafa Mirshekari, Jonathon Fagert, Devesh Walawalkar, Susu Xu, Adrian Galdran, Pei Zhang, Aurélio Campilho, and Hae Young Noh. O-medal: Online active deep learning for medical image analysis. *WIREs Data Mining and Knowledge Discovery*, page e1350, 2020

[J6] Mostafa Mirshekari, Jonathon Fagert, Shijia Pan, Pei Zhang, and Hae Young Noh. Step-level occupant detection across different structures through footstep-induced floor vibration using model transfer. *Journal of Engineering Mechanics*, 146(3):04019137, 2020

Received "Best Journal Paper Award" from SHM/NDE Technical Committee, ASME.

[J5] Pei Zhang, Shijia Pan, Mostafa Mirshekari, Jonathon Fagert, and Hae Young Noh. Structures as sensors: Indirect sensing for inferring users and environments. *Computer*, 52(10):84–88, 2019

[J4] Shijia Pan, Mostafa Mirshekari, Jonathon Fagert, Carlos Ruiz, Hae Young Noh, and Pei Zhang. Area occupancy counting through sparse structural vibration sensing. *IEEE Pervasive Computing*, 18(1):28–37, 2019

[J3] Mostafa Mirshekari, Shijia Pan, Jonathon Fagert, Eve M Schooler, Pei Zhang, and Hae Young Noh. Occupant localization using footstep-induced structural vibration. *Mechanical Systems and Signal Processing*, 112:77–97, 2018

[J2] Shijia Pan, Mostafa Mirshekari, Jonathon Fagert, Ceferino Gabriel Ramirez, Albert Jin Chung, Chih Chi Hu, John Paul Shen, Pei Zhang, and Hae Young Noh. Characterizing human activity induced impulse and slip-pulse excitations through structural vibration. *Journal of Sound and Vibration*, 414:61–80, 2018

[J1] Shijia Pan, Tong Yu, Mostafa Mirshekari, Jonathon Fagert, Amelie Bonde, Ole J Mengshoel, Hae Young Noh, and Pei Zhang. Footprintid: Indoor pedestrian identification through ambient structural vibration sensing. *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies*, 1(3):1–31, 2017

ARCHIVAL JOURNAL-LEVEL CONFERENCES

[JC2] Asim Smailagic, Pedro Costa, Hae Young Noh, Devesh Walawalkar, Kartik Khandelwal, Adrian Galdran, Mostafa Mirshekari, Jonathon Fagert, Susu Xu, Pei Zhang, et al. Medal: Accurate and robust deep active learning for medical image analysis. In *2018 17th IEEE International Conference on Machine Learning and Applications (ICMLA)*, pages 481–488. IEEE, 2018

Review Process: **31% acceptance rate.** Archived conference for original research in Machine Learning with an emphasis on applications, novel algorithms, and systems. Anonymous peer review of complete manuscript prior to acceptance. **Received "Best Paper Award" at ICMLA 2018.**

[JC1] Shijia Pan, Ceferino Gabriel Ramirez, Mostafa Mirshekari, Jonathon Fagert, Albert Jin Chung, Chih Chi Hu, John Paul Shen, Hae Young Noh, and Pei Zhang. Surfacevibe: vibration-based tap & swipe tracking on ubiquitous surfaces. In *2017 16th ACM/IEEE International Conference on Information Processing in Sensor Networks (IPSN)*, pages 197–208. IEEE, 2017

Review Process: **18.3% acceptance rate.** Highly selective and archived conference on information processing in sensor networks. Two-rounds of anonymous peer review of complete manuscript prior to acceptance.

BOOK CHAPTERS

[B1] Hae Young Noh, Jonathon Fagert, and Pei Zhang. Big data analysis for civil infrastructure. In M. Wang, J. Lynch, and H. Sohn, editors, *Sensor Technologies for Civil Infrastructures, Volume 2: Applications in structural health monitoring*. Submitted to Elsevier

CONFERENCES

[C10] 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 acceleration-based wearable sensor. In *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*, pages 390–395, 2020

Received Best Paper in the Second Nurse Care Activity Recognition Challenge (part of HASCA Workshop, UbiComp, 2020)

[C9] 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. In *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*, pages 525–531, 2020

[C8] Jonathon Fagert, Mostafa Mirshekari, Shijia Pan, Pei Zhang, and Hae Young Noh. Vibration source separation for multiple people gait monitoring using footstep-induced floor vibrations. *Structural Health Monitoring*, 2019

[C7] Mostafa Mirshekari, Jonathon Fagert, Shijia Pan, Pei Zhang, and Hae Young Noh. Physics-guided model transfer for human gait monitoring using footstep-induced floor vibration. *Structural Health Monitoring*, 2019

[C6] Laixi Shi, Mostafa Mirshekari, Jonathon Fagert, Yuejie Chi, Hae Young Noh, Pei Zhang, and Shijia Pan. Device-free multiple people localization through floor vibration. In *Proceedings of the 1st ACM International Workshop on Device-Free Human Sensing*, pages 57–61, 2019

[C5] Yue Zhang, Shijia Pan, Jonathon Fagert, Mostafa Mirshekari, Hae Young Noh, Pei Zhang, and Lin Zhang. Occupant activity level estimation using floor vibration. In *Proceedings of the 2018 ACM International Joint Conference and 2018 International Symposium on Pervasive and Ubiquitous Computing and Wearable Computers*, pages 1355–1363, 2018

[C4] Mostafa Mirshekari, Jonathon Fagert, Amelie Bonde, Pei Zhang, and Hae Young Noh. Human gait monitoring using footstep-induced floor vibrations across different structures. In *Proceedings of the 2018 ACM International Joint Conference and 2018 International Symposium on Pervasive and Ubiquitous Computing and Wearable Computers*, pages 1382–1391, 2018

[C3] Tong Yu, Shijia Pan, Susu Xu, Xinlei Chen, Mostafa Mirshekari, Jonathon Fagert, Hae Young Noh, Pei Zhang, and Ole J Mengshoel. Ilpc: Iterative learning using physical constraints in real-world sensing data. In *Workshops at the Thirty-Second AAAI Conference on Artificial Intelligence*, 2018

[C2] Jonathon Fagert, Mostafa Mirshekari, Shijia Pan, Pei Zhang, and Hae Young Noh. Monitoring hand-washing practices using structural vibrations. *Structural Health Monitoring*, 2017

[C1] Jonathon Fagert, Mostafa Mirshekari, Shijia Pan, Pei Zhang, and Hae Young Noh. Characterizing left-right gait balance using footstep-induced structural vibrations. In *Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems 2017*, volume 10168, page 1016819. International Society for Optics and Photonics, 2017

EXTENDED ABSTRACTS

[PA6] Jonathon Fagert, Mostafa Mirshekari, Shijia Pan, Pei Zhang, and Hae Young Noh. Structural property guided gait parameter estimation using footstep-induced floor vibrations. In *Dynamics of Civil Structures, Volume 2*, pages 191–194. Springer, 2020

[PA5] Jonathon Fagert, Mostafa Mirshekari, Shijia Pan, Pei Zhang, and Hae Young Noh. Gait health monitoring through footstep-induced floor vibrations. In *Proceedings of the 18th International Conference on Information Processing in Sensor Networks*, pages 319–320, 2019

[PA4] Jonathon Fagert, Mostafa Mirshekari, Shijia Pan, Pei Zhang, and Hae Young Noh. Characterizing structural changes to estimate walking gait balance. In *Dynamics of Civil Structures, Volume 2*, pages 333–335. Springer, 2019

[PA3] Yue Zhang, Shijia Pan, Jonathon Fagert, Mostafa Mirshekari, Hae Young Noh, Pei Zhang, and Lin Zhang. Vibration-based occupant activity level monitoring system. In *Proceedings of the 16th ACM Conference on Embedded Networked Sensor Systems*, pages 349–350, 2018

[PA2] Yue Zhang, Shijia Pan, Jonathon Fagert, Mostafa Mirshekari, Hae Young Noh, Pei Zhang, and Lin Zhang. Occupant-induced office floor vibration dataset for activity level monitoring. In *Proceedings of the First Workshop on Data Acquisition To Analysis*, pages 5–6, 2018

[PA1] Amelie Bonde, Mostafa Mirshekari, Jonathon Fagert, Shijia Pan, Hae Young Noh, and Pei Zhang. Seat vibration for heart monitoring in a moving automobile. In *Proceedings of the First Workshop on Data Acquisition To Analysis*, pages 7–8, 2018

PRESENTATIONS AND TALKS

INVITED TALKS

Research Seminar — Fall 2020
Title: "Human Gait Health Monitoring using Structural Vibration Sensing"
Department Seminar and Case ASCE Joint Speaker, Case Western Reserve University

Research Seminar — Fall 2020
Title: "Human Gait Health Monitoring using Structural Vibration Sensing"
Electrical Engineering and Computer Science Technical Seminar Series, University of California, Merced

PRESENTATIONS

J. Fagert, P. Zhang, and H. Noh, "Human Gait Health Monitoring using Structural Vibration Sensing," in *BuildSys/SenSys Doctoral Colloquium*, Columbia University, New York, NY, USA, 2019.

J. Fagert, M. Mirshekari, S. Pan, P. Zhang, and H. Noh, "Vibration Source Separation for Multiple People Monitoring Using Footstep-Induced Floor Vibrations," in *Engineering Mechanics Institute (EMI) Conference*, Caltech, Pasadena, CA, USA, 2019.

TEACHING EXPERIENCES

Carnegie Mellon University, Pittsburgh, Pennsylvania, USA
Future Faculty Program — Aug 2016 – May 2021

- Program description: Through the program students develop and document their teaching skills, learn the principles of effective course design and pedagogy through seminars, and receive feedback on their teaching.

Guest Lecturer Fall 2020
- Lecture Topic: Intro to Structural Health Monitoring and Sensing (part of 12-200: CEE Challenges: Design in a Changing World)
- Lecture description: Overview and introduction to structural health monitoring, sensing hardware, and tools for data acquisition. Students are guided through simulating/building their own sensor using Arduino and TinkerCAD.

Guest Lecturer Fall 2020
- Lecture Topic: Intro to Hardware and Arduino (part of 18-644/14-840: Mobile Hardware for Software Engineers)
- Lecture description: Overview and introduction to sensing hardware and tools for data acquisition.

Guest Lecturer Fall 2019
- Lecture Topic: Moments and Moments About an Axis (part of 12-212: Statics)
- Lecture description: Analysis of moments about points and objects. This is a critical topic for an understanding of many concepts in Civil and Structural Engineering.

Guest Lecturer Spring 2019
- Lecture Topic: Features (part of 12-761: Special Topics: Sensing and Data Mining for Smart Structures and Systems)
- Lecture description: Feature selection is a critical component of machine learning. Selection of informative and relevant features from sensing data assists with the development of accurate learning models.

Teaching Assistant Spring 2018, Spring 2019
- Course Title: 12-761: Special Topics: Sensing and Data Mining for Smart Structures and Systems
- Teaching Faculty: Professor Hae Young Noh
- Course description: This course introduces smart monitoring systems for physical structures and systems using sensing and data analytics. For this course I managed three student groups throughout their entire project development by holding weekly guided meetings that aimed at understanding the research questions of the students' work and their ideas for approaching and solving their problems.

Teaching Assistant Fall 2016, Fall 2017
- Course Title: 12-212: Statics
- Teaching Faculty: Professor Hae Young Noh
- Course description: An introductory course to statics for undergraduate civil engineering students. In this course I assisted students with understanding the structural behavior and how to apply the concepts of statics and truss analysis to their final projects, which consisted of design and construction of a balsa wood cantilever structure.

New York Institute of Technology, School of Architecture and Design , New York, NY, USA
Adjunct Professor Spring 2016
- Course Title: ARCH 312: Reinforced Concrete Design
- Course description: This course introduces the principles of reinforced concrete design to Architectural Students. The focus of the course is to provide real-world perspective on reinforced concrete design to assist the students with the design process in their careers, while also establishing an understanding of the critical components of reinforced concrete design.

Adjunct Professor Fall 2015
- Course Title: ARCH 211: Statics and Strength of Materials
- Course description: This course serves as an introduction to statics and strength of materials for second year architectural students. My focus in teaching this course was to find ways to relate course content to real-world design scenarios from my work experience. In place of final exams, I developed a final project which involved analysis and design of a mock floor structure; the goal of this project was to have students extend their knowledge beyond problem sets and understand how the information learned in the course is useful for their future design careers.

New York University Polytechnic School of Engineering , New York, NY, USA
Professional Consultant/Teaching Assistant Spring 2014, Spring 2015
- Course Title: CE-UY 4822: Civil Engineering Design II
- Teaching Faculty: Professor Walid Aboumoussa
- Course description: This course serves as the final senior design course for Civil Engineering students. The course objective is to design and develop construction-detail level drawings for a civil engineering project. My role in the course was to serve as a professional consultant and teaching assistant.

Case Western Reserve University , Cleveland, OH, USA
Student Grader Spring 2009
- Course Title: ENGR 200: Statics and Strength of Materials
- Teaching Faculty: Professor David Zheng

STUDENTS MENTORED

Sruti Srinidhi 2020
Electrical and Computer Engineering Undergraduate Student
Mentoring Description: Sruti has been doing research with us since the beginning of 2020. She is working with us on our project for monitoring handwashing activity using structural vibration sensing. She is in charge of analyzing handwashing datasets in preparation of submitting a journal paper on this topic. I hold weekly progress meetings with her to discuss the progress and help her with development of our approach.

Jingxiao Liu, Yiwen Dong, and Joanna Zou 2020
Civil and Environmental Engineering Graduate Students
Mentoring Description: Jingxiao, Yiwen, and Joanna were involved in our gait health monitoring research in the Spring of 2020. Their work was focused on detection and tracking of Muscular Dystrophy using footstep-induced vibration sensing. We met weekly to discuss their approach for analyzing data collected from Muscular Dystrophy patients as part of our collaboration with Nationwide Children's Hospital. Their work resulted in publication of a paper in the "Combining Physical and Data-Driven Knowledge in Ubiquitous Computing (CPD) Ubicomp 2020 Workshop".

Charyl Tan 2019
Civil and Environmental Engineering Undergraduate Student
Mentoring Description: Charyl was working with our group during the summer of 2019. Her work primarily involved development of a localization demo for the footstep project (inspired by the Harry Potter's Marauder map). Her work resulted in a demo presentation at the IWSHM conference in Fall 2019.

Sarah Hamilton 2019
Civil and Environmental Engineering Undergraduate Student
Mentoring Description: Sarah was a member of our research team during the summer of 2019. She was primarily involved in the handwashing project and she organized and executed the real-world experimentation for the project. During this time, I met with her on a weekly basis and tracked her progress. I also worked closely with her to on developing our experimental protocol and with preliminary data analysis.

Clara Nelson and Ahmed Al-badawi 2018
Civil and Environmental Engineering Graduate Students
Mentoring Description: Clara and Ahmed worked with us during the summer of 2018. They were in charge of the design, modeling, and construction of a wood-framed test floor structure in our lab. During this time, I had frequent meetings with them to track their progression, provide design advice, and assist with the construction process. The result of their summer program was a completed wood floor test structure which has been featured in several of our subsequent publications.

PROFESSIONAL ACTIVITIES

DFHS '20: The 2nd ACM International Workshop on Device-Free Human Sensing, Part of BuildSys 2020
General Co-Chair 2020

DATA '20: The 3rd Workshop on Data Acquisition to Analysis, Part of SenSys/BuildSys 2020
Technical Program Committee Member 2020

IEEE Internet of Things Journal
Reviewer 2020

IEEE Sensors Journal
Reviewer 2020

IEEE Access Interdisciplinary Journal
Reviewer 2020

CML-IOT '19: Continual and Multimodal Learning for Internet of Things, A Ubicomp 2019 Workshop
Technical Program Committee Member 2019

IEEE Journal of Biomedical and Health Informatics
Reviewer 2018

PROFESSIONAL AND COMMUNITY SERVICES

Carnegie Mellon University
Department of Civil and Environmental Engineering
- Volunteered for panel discussion for 12-790 Teaching Workshop 2019
- Volunteered for panel discussion for junior PhD students taking the Comprehensive Exam 2018
- Volunteered for Department Orientation Session: "Our Community" 2017, 2018
- Participated on student panel with the external review committee for ABET accreditation 2017

National Engineer's Week "Engineer the Future"
Volunteer 2017

Structural Engineers Association of New York (SEAoNY)
Co-Chair, Education and University Outreach Committee Aug 2013 – Jul 2016
- Oversaw committee connecting engineering professionals and university students
- Organized annual "Structure Quest" event with over 100 students and professional attendees

Zeta Psi Fraternity of North America
President, Nu Chapter (CWRU) Jan 2007 – Dec 2007
- Received the "Most Outstanding Chapter" award from Fraternity Headquarters for performance during the 2007 and 2008 academic years
- Managed committee to reform chapter scholarship - received recognition from Director of Greek Life for being the most rigorous program on campus
- Received the annual "President's" award from Fraternity Headquarters - highest award given to an undergraduate for service to the fraternity

Undergraduate Representative to International Headquarters Aug 2007 – Aug 2008
- Sole undergraduate member serving on governing board of an international fraternity overseeing chapters in the United States and Canada

Boy Scouts of America
Eagle Scout (Rank Achieved in 2005)

PROFESSIONAL AFFILIATIONS

American Society of Civil Engineers (ASCE)
Student Member 2019 – Present

Structural Engineering Institute (SEI)
Student Member 2019 – Present

Engineering Mechanics Institute (EMI)
Student Member 2019 – Present

Society of Photographic Instrumentation Engineers (SPIE)
Student Member 2016 – Present

Tau Beta Pi Engineering Honors Society
Member 2007 – Present

IN THE MEDIA

My research project is mentioned in several media outlets. Some examples are listed below (with embedded hyperlinks):
- **Scientific American**: Sophie Bushwick. Footstep sensors identify people by gait. *Scientific American*, 2020
- **Phys.org:** Alexandra George. Footsteps to preventing falls. *phys.org*, 2018
- **EE World Online:** Jennifer Delaosa. Bed frame sensors fortify fall prevention strategies. *EE World Online*, 2018

My research on Active Learning for analyzing medical images can be found in:

- **Techxplore:** Alexandra George. Recognizing disease using less data. *TechXplore*, 2019

I have been mentioned in CMU CEE News multiple times for my ongoing research projects:

- **Gait Health Monitoring:** Amish embrace technology to help children. *CEE News*, 2019
- **Handwashing Monitoring:** Sensing an opportunity to reduce infection rates. *CEE News*, 2019

PROFESSIONAL CERTIFICATION

Licensed Professional Engineer, New York State (PE #093274)