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JUSTIN M. HANEY, Ph.D.
SENIOR STAFF CONSULTANT

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Dr. Haney is a Senior Staff Consultant for Engineering Systems Inc. (ESi). His background includes biomedical engineering and industrial engineering with a focus on biomechanics, ergonomics, and occupational safety. He has extensive experience conducting human motion analyses and evaluating human behavior, performance, and mental workload in experimental studies related to workplace safety.

Prior to joining ESi, Dr. Haney was a Research Biomedical Engineer at the National Institute for Occupational Safety and Health (NIOSH). His previous research investigated human motion behavior and perceived safety during human-robot interaction in the workplace. He has presented his work at a variety of professional scientific conferences and has published several peer-reviewed journal articles and conference proceedings.

Areas of Specialization

Biomechanical Accident Reconstruction
Human Factors and Ergonomics
Slips, Trips, and Falls
Occupational Safety
Experimental Design and Testing
Human Motion Analysis
Motion Capture Systems
Biomechanical and Physiological Instrumentation
Statistical Data Analysis
Human-Robot Interaction

Education

Ph.D., Industrial and Operations Engineering, University of Michigan, 2019
M.S., Bioengineering, University of Pittsburgh, Pittsburgh, PA, 2014
B.S., Bioengineering, University of Pittsburgh, Pittsburgh, PA, 2012

Professional Affiliations/Honors

American Society of Safety Professionals (ASSP)
Member

Human Factors and Ergonomics Society (HFES)
Occupational Ergonomics Technical Group, Member
Human-AI-Robot Teaming Technical Group, Member
Forensics Professional Technical Group, Member

Positions Held

Engineering Systems Inc., Ann Arbor, MI
Senior Staff Consultant, 2025 – Present

National Institute for Occupational Safety and Health (NIOSH), Division of Safety Research, Morgantown, WV
Research Biomedical Engineer, 2019 – 2025

University of Michigan, Inclusive Mobility Laboratory, Ann Arbor, MI
Graduate Student Researcher, 2015 – 2019

Creighton University, Rehabilitation Science Research Laboratory, Omaha, NE
Research Associate, 2014 – 2015

University of Pittsburgh, Human Movement and Balance Laboratory, Pittsburgh, PA
Graduate Student Researcher, 2012 – 2014

Shriners Hospitals for Children, Movement Analysis Laboratory, Erie, PA
Biomechanical Researcher, 2011

Professional Activities

ASCE International Conference on Computing in Civil Engineering, Reviewer
Human Factors, Reviewer
IISE Transactions on Occupational Ergonomics, Reviewer
International Association for Automation and Robotics in Construction, Reviewer
Journal of Applied Ergonomics, Reviewer
Journal of Safety Research, Reviewer
Proceedings of the Human Factors and Ergonomics Society Annual Meeting, Reviewer

Publications/Presentations

“Effects of robot arm design and movement speed during human-robot interaction.” **Haney, J.M.**, Ammons, D., & Choi, HS. (2025). Applied Ergonomics, 129, 104578.

- "Case study evaluation of an auditory alert for an autonomous mobile robot." **Haney, J.M.**, Cheng, M., & Haas E.J. (2025). *Robotics Tomorrow*. Published May 29, 2025, at: <https://www.roboticstomorrow.com/article/2025/05/case-study-evaluation-of-an-auditory-alert-for-an-autonomous-mobile-robot/24681>
- "Enhancing Safety in Collaborative Workspaces: Defining Attention and Avoidance Zones Using Path Planning With Mobile Robotic Systems." Cheng, M.H., Camargo, H.E., & **Haney, J.M.** (2024). *Proceedings of the ASME 2024 International Mechanical Engineering Congress and Exposition. Volume 11: Safety Engineering, Risk and Reliability Analysis; Research Posters*. Portland, Oregon, USA. November 17–21, 2024. V011T14A011. American Society of Mechanical Engineers.
- "A Literature Review on Safety Perception and Trust during Human-Robot Interaction with Autonomous Mobile Robots That Apply to Industrial Environments." **Haney, J.M.**, & Liang, C.J. (2024). *IIE Transactions on Occupational Ergonomics and Human Factors*, 1-22.
- "Safety Perception and Behaviors during Human-Robot Interaction in Virtual Environments." Mitchell, D., Choi, H., & **Haney, J.M.** (2021). *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, 64(1), 2087-2091.
- "The Effect of Prolonged Walking with Intermittent Standing on Erector Spinae and Soleus Muscle Oxygenation and Discomfort." Chambers, A.J., **Haney, J.M.**, Huppert, T., & Redfern, M.S. (2019). *Journal of sports science & medicine*, 18(2), 337.
- "Modeling Hand Trajectories during Sequential Reach Movements in a Pulley Threading Task." **Haney, J.M.**, Wang, T., D'Souza, C., Jones, M. L. H., & Reed, M. P. (2018). *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, 62(1), 823-827.
- "Spatial and Temporal Patterns in Sequential Precision Reach Movements." **Haney, J.M.**, Wang, T., D'Souza, C., Jones, M.L.H., & Reed, M.P. (2017). *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, 61(1), 929-930.
- "Ergonomic Guidelines for Proper Seated Posture." **Haney, J.M.** & Lim, S. (August 2017). Poster presented at FDA and PTO 3rd Annual Wellness Fair. Detroit, MI.

- "A Pilot Study of the Effects of Pulley Location and Design Parameters on Hand Movements during Pulley Threading Operations." **Haney, J.M.**, Owczarczak, M., D'Souza, C., Jones, M.L.H., & Reed, M.P. (2016). Proceedings of the Human Factors and Ergonomics Society Annual Meeting, 60(1), 908-912.
- "Ergonomic Guidelines for Proper Seated Posture." Green, C. & **Haney, J.M.** (July 2016). Poster presented at FDA and PTO 2nd Annual Wellness Fair. Detroit, MI.
- "Persistence of motor unit firing in people with Parkinson's disease-related fatigue." Katsavelis D., **Haney, J.M.**, Nun L., & Threlkeld A. (2016). American Physical Therapy Association Combined Sections Meeting. Conference Abstract. Anaheim, CA.
- "Knee Flexion during Resisted Side-Stepping Decreases Tensor Fascia Lata Muscle Activation." Scharmann A., Donnelly M., **Haney, J.M.**, & Threlkeld A. (2016). American Physical Therapy Association Combined Sections Meeting. Conference Abstract. Anaheim, CA
- "The effect of flooring on muscle oxygenation during long-term walking using near infrared spectroscopy." **Haney, J.M.**, Redfern M.S., Huppert T., & Chambers A.J. (2014). World Congress of Biomechanics. Boston, MA.
- "The effect of flooring on soleus muscle oxygenation during long-term standing using near infrared spectroscopy." **Haney, J.M.**, Redfern M.S., Huppert T., & Chambers A.J. (2014). The Midwest American Society of Biomechanics Regional Conference. Akron, OH.
- "Effects of prolonged standing on oxygen saturation in the soleus and erector spinae muscles of the lower back using near infrared spectroscopy." **Haney, J.M.**, Redfern M.S., Huppert T., & Chambers A.J. (2013). American Society of Biomechanics Conference. Omaha, NE.