

# Hanjun Park

Department of Industrial, Manufacturing, & Systems Engineering

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## ACADEMIC APPOINTMENT

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**Assistant Professor** 09/2025–Present

*Texas Tech University*

- Department of Industrial, Manufacturing, and Systems Engineering

**Graduate Research Assistant** 2019–2025

*Occupational Ergonomics and Biomechanics Laboratories*

- Faculty Advisors: Maury A. Nussbaum & Divya Srinivasan

**Graduate Research Assistant** 2012–2014

*Life Enhancing Technology Laboratory*

- Faculty Advisor: Woojin Park

## EDUCATION

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**Ph.D., Industrial and Systems Engineering** 08/2025

Virginia Tech, Blacksburg, VA

- Graduate Certificate in Data Analytics

**M.S., Industrial Engineering** 08/2014

Seoul National University, Seoul, Korea

**B.S., Industrial and Systems Engineering** 12/2011

Georgia Institute of Technology, Atlanta, GA

## PUBLICATIONS

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**Peer-Reviewed Journal Publications** (\* corresponding-author)

[J.7] **Park, H.**, Kim, S., Nussbaum, M.A., & Srinivasan, D.\* (2026). Adaptation to a whole-body powered exoskeleton: Human-exoskeleton coordination during load-handling tasks. *Annals of Biomedical Engineering*. *Accepted*

[J.6] **Park, H.\***, & Nussbaum, M.A. (2025). Muscle synergy analysis during pseudo-static and dynamic overhead tasks with arm-support exoskeletons. *Journal of Biomechanics*, 113135. doi:10.1016/j.jbiomech.2025.113135

[J.5] Ransing, V., Park, J., Ye, Y., **Park, H.**, Kim, S., Du, J., & Srinivasan, D.\* (2025). Efficacy of virtual reality-based approach for users to understand the potential benefits and limitations of using exoskeletons. *Human Factors*, 67(11), 1136-1151. doi:10.1177/00187208251346627

- [J.4] **Park, H.**, Noll, A., Kim, S., & Nussbaum, M.A.\* (2025). Passive arm-support and back-support exoskeletons have distinct phase-dependent effects on physical demands during cart pushing and pulling: An exploratory study. *Applied Ergonomics*, 126, 104510. doi:10.1016/j.apergo.2025.104510
- [J.3] **Park, H.**, Kim, S., Nussbaum, M.A., & Srinivasan, D.\* (2023). A pilot study investigating motor adaptations when learning to walk with a whole-body powered exoskeleton. *Journal of Electromyography and Kinesiology*, 69, 102755. doi:10.1016/j.jelekin.2023.102755
- [J.2] **Park, H.**, Kim, S., Nussbaum, M.A., & Srinivasan, D.\* (2022). Effects of using a whole-body powered exoskeleton during simulated occupational load-handling tasks: A pilot study. *Applied Ergonomics*, 98, 103589. doi:10.1016/j.apergo.2021.103589
- [J.1] **Park, H.**, Park, W.\*, & Kim, Y. (2014). Manikin families representing obese airline passengers in the U.S. *Journal of Healthcare Engineering*, 5(4), 479-504. doi:10.1260/2040-2295.5.4.479

### Journal Publications in Progress

- Santos, F., Son, C.\*, **Park, H.**, Xue. C, Yang, J., & Liang, N. Design, fabrication, and testing of an ergonomic intervention for a virtual reality headset using 3D printing. *Ergonomics*. *In Revision*
- **Park, H.\***, & Nussbaum, M.A. Characterizing adaptation to using exoskeletons: A narrative review and assessment framework for occupational contexts. *Applied Ergonomics*. *Under Review*
- Santos, F., Son, C.\*, **Park, H.**, Xue. C, Yang, J., & Liang, N. Biomechanical effects of virtual reality headset support and task demands on the neck. *IIEE Transactions on Occupational Ergonomics and Human Factors*. *Submitted*
- **Park, H.\***, & Nussbaum, M.A. Perceptual adaptations to back-support exoskeletons: evidence from measures of workload and discomfort. *In Preparation*
- Lee, W., Kwon, S., **Park, H.\***, Hwang, D.\* Data-driven identification of troubleshooting patterns in 3D printing: a text mining approach. *In Preparation*

### Peer-Reviewed Conference Proceedings

- [C.6] **Park, H.**, Kim, S., Nussbaum, M.A., & Srinivasan, D. (2022). Changes in kinematics and muscle activity when learning to use a whole-body powered exoskeleton for stationary load handling. *Proceedings of the 66th Human Factors and Ergonomics Society Annual Meeting*, 66(1), 273–274.
- [C.5] **Park, H.**, Lee, Y., Kim, S., Nussbaum, M.A., & Srinivasan, D. (2021). Gait kinematics when learning to use a whole-body powered exoskeleton. *Proceedings of the 65th Human Factors and Ergonomics Society Annual Meeting*, 65(1), 1367–1368.

- [C.4] **Park, H.,** Kim, S., Lawton, W., Nussbaum, M.A., & Srinivasan, D. (2020). Effects of using a whole-body powered exoskeleton on physical demands during manual handling. *Proceedings of the 64th Human Factors and Ergonomics Society Annual Meeting, 64(1), 888–889.* - **Won Best Student Paper Award at the Occupational Ergonomics Technical Group**
- [C.3] Jung, J., **Park, H.,** Hwang, D., Son, M., Beck, D., Park, J., & Park, W. (2014). A review on interaction techniques in virtual environments. *Proceedings of the 2014 International Conference on Industrial Engineering and Operations Management (pp. 1582-1590).*
- [C.2] Beck, D., Hwang, D., Son, M., Jung, J., **Park, H.,** Park, J., & Park, W. (2013). A Review on Techniques for Evaluating Physical Stresses Associated with the Use of Various Input Devices. *Proceedings of the 2013 Fall Conference of Ergonomics Society of Korea (ESK), Jeju, Korea.*
- [C.1] Jung, J., **Park, H.,** Hwang, D., Son, M., Beck, D., Park, J., & Park, W. (2013). A Review on Object Manipulation Techniques in Virtual Environments and their Performance Metrics. *Proceedings of 2013 Fall Conference of Ergonomics Society of Korea (ESK), Jeju, Korea.*

## HONORS & AWARDS

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- Best Experimental Paper Award, OETG at HFES 2024
- Best Student Poster Presentation Award, ASSP Regional Conference 2023
- IISE Future Faculty Fellow (3F) Program Awardee 2023–2024
- NIOSH Training Fellow, Virginia Tech 2023–2025
  - Fellowship includes monthly stipend, tuition, and required fees
- ISE Graduate Travel Award (\$900), Virginia Tech 2022
- Best Student Paper Award, OETG at HFES 2020
- VT HFES Student Chapter Research Competition Award 2020
- Grado Department of ISE Fellowship, Virginia Tech 2018
  - Fellowship includes monthly stipend, tuition, and required fees
- Brain Korea 21 Scholarship, Seoul National University 2014
- Lecture & Research Scholarship, Seoul National University 2013

## PRESENTATIONS

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### Peer-reviewed Conference Oral Presentations

- [O.9] Santos, F., **Park, H.,** & Son, C. (2025). A 3D-printed shoulder support to reduce neck strain during prolonged virtual reality (VR) device use: pilot findings. *69th Human Factors and Ergonomics Society Annual Meeting, Chicago, IL.*
- [O.8] **Park, H.,** Ojelade A., Kim, S., & Nussbaum, M.A. (2024). Effects of using arm-support exoskeletons on muscle coordination during a pseudo-static overhead task: preliminary analysis of muscle synergy. *68th Human Factors and Ergonomics Society Annual Meeting, Phoenix, AZ.* - **Won Best Experimental Paper Award at the Occupational Ergonomics Technical Group.**

- [O.7] **Park, H.**, Noll, A., Kim, S., & Nussbaum, M.A. (2023). Effects of using passive back- and arm-support exoskeletons for cart pushing and pulling. *67th Human Factors and Ergonomics Society Annual Meeting, Washington, DC.*
- [O.6] Noll, A., Nussbaum, M.A., Kim, S., & **Park, H.** (2023). Reliability Analysis of Task Performance and Subjective Measures for Assessment of Occupational Exoskeletons. *67th Human Factors and Ergonomics Society Annual Meeting, Washington, DC.*
- [O.5] **Park, H.**, Kim, S., Nussbaum, M.A., & Srinivasan, D. (2022). Changes in kinematics and muscle activity when learning to use a whole-body powered exoskeleton for stationary load handling. *66th Human Factors and Ergonomics Society Annual Meeting, Baltimore, MD.*
- [O.4] **Park, H.**, Lee, Y., Kim, S., Nussbaum, M.A., & Srinivasan, D. (2021). Gait kinematics when learning to use a whole-body powered exoskeleton. *65th Human Factors and Ergonomics Society Annual Meeting, Baltimore, MD.*
- [O.3] **Park, H.**, Kim, S., Lawton, W., Nussbaum, M.A., & Srinivasan, D. (2020). Effects of using a whole-body powered exoskeleton on physical demands during manual handling. *64th Human Factors and Ergonomics Society Annual Meeting.*
- [O.2] Beck, D., Hwang, D., Son, M., Jung, J., **Park, H.**, Park, J., & Park, W. (2013). A Review on Techniques for Evaluating Physical Stresses Associated with the Use of Various Input Devices. *2013 Fall Conference of Ergonomics Society of Korea (ESK), Jeju, Korea.*
- [O.1] Jung, J., **Park, H.**, Hwang, D., Son, M., Beck, D., Park, J., & Park, W. (2013). A Review on Object Manipulation Techniques in Virtual Environments and their Performance Metrics. *2013 Fall Conference of Ergonomics Society of Korea (ESK), Jeju, Korea.*

### Poster Presentations

- [P.3] Santos, F., Son, C., **Park, H.**, Xue, C., Yang, J., & Liang, N. Design, fabrication, and testing of an ergonomic intervention for virtual reality headset using 3D printing. (2026). WCOE Research Day, Texas Tech University, Lubbock, TX.
- [P.2] **Park, H.**, Ojelade, A., Kim, S., & Nussbaum, M. A. (2023). Effects of different arm-support exoskeletons on muscle activation patterns during a pseudo-static overhead task - preliminary analysis of muscle synergy. *37th American Society of Safety Professionals (ASSP) Region VI Professional Development Conference (PDC) in Myrtle Beach, South Carolina, September 2023. - Won Student Presentation Award*
- [P.1] **Park, H.**, Kim, S., Nussbaum, M. A., & Srinivasan, D. (2020). Effects of using a whole-body powered exoskeleton on physical demands during manual material handling. *2020 Annual HFES/INFORMS Poster Competition, Virginia Tech, VA, October 2020. - Won Student Poster Presentation Award*

### Invited Seminars

- [S.3] **Park, H.** (2025). Characterizing Human Motor Adaptation and Learning When Using Different Occupational Exoskeletons. *Invited Seminar at the Department of Psychological Sciences, Texas Tech University, October.*

[S.2] **Park, H.** (2025). Characterizing Human Motor Adaptation and Learning When Using Different Occupational Exoskeletons. *Invited Seminar at the Department of Industrial, Manufacturing, and Systems Engineering, Texas Tech University, April.*

[S.1] **Park, H.** (2025). Characterizing Human Motor Adaptation and Learning When Using Different Occupational Exoskeletons. *Invited Seminar at the Department of Industrial and Systems Engineering, Kennesaw State University, March.*

### **Invited Panel Talk**

[T.1] **Park, H.** (2025). From Student to Professor: Exploring Careers in Occupational Ergonomics. Panel Member. *Occupational Ergonomics Technical Group of HFES, September.*

## **TEACHING EXPERIENCE**

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### **Instructor of Record**

*Texas Tech, Dept. of Industrial, Manufacturing, & Systems Engineering*

- IE 5304: Biomechanics & Work Physiology (n = 11) *Spring, 2026*

*Virginia Tech, Dept. of Industrial and Systems Engineering*

- ISE 4624: Work Physiology (n = 36) *Fall, 2023*
- ISE 3614: Human Factors Engineering and Ergonomics (taught online, n = 7) *Summer, 2023*

### **Guest Lecturer**

*Virginia Tech, Dept. of Industrial and Systems Engineering*

- ISE 3624: Industrial Ergonomics *Spring, 2023*  
"NIOSH Lifting Equation and Controls" (n = 100)
- ISE 4644: Occupational Safety and Hazards Control *Fall, 2018*  
"Review on Hazard Analysis and Prevention" (n = 20)

### **Graduate Teaching Assistant**

*Virginia Tech, Dept. of Industrial and Systems Engineering*

- ISE 3624: Industrial Ergonomics *Spring, 2019*
- ISE 4624: Work Physiology *Spring, 2019*
- ISE 4644: Occupational Health and Hazards Control *Fall, 2018*

## **PROFESSIONAL EXPERIENCES**

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**Software Engineer, Military duty** *10/2014–03/2018*  
Kornic Glory, Seoul, Korea

**Research Intern** *06/2011–08/2011*  
LG Electronics, Seoul, Korea

## **ADVISING & MENTORING**

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### **Dissertation/Thesis Committee Member**

- Daniel Leibman, TTU (PhD, Psychology) Chair: Heesun Choi (2025–Present)

- Armina Rahman, TTU (PhD, IMSE) Chair: Changwon Son (2025–Present)
- Felipe Santos, TTU (PhD, IMSE) Chair: Changwon Son (2025–Present) [O.9], [JP.5], [JP.2]

### Research Mentoring

#### Voluntary Postdoc Position

- Leonardo Wei, Texas Tech (MS, ISE) (01/2026–Present)

#### M.S. Students

- Delaney Sheppard, Texas Tech (MS, BIOE) (02/2026–Present)
- Alex Noll, Virginia Tech (MS, ISE) (08/2022–08/2024) [J.4], [C.8], [C.7]

#### Undergraduate Students

- Enriquez Bazoalto Kaylee, (ISE) (05/2025-08/2025)

## PROFESSIONAL SERVICE ACTIVITIES

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### Service to Profession

Session Chair, the 69th HFES Annual Meeting, Atlanta, GA 2025

### Archival Journal

- Reviewer, *PLOS One* 2026–Present
- Reviewer, *IJIE: Theory, Applications, and Practice* 2026–Present
- Reviewer, *International Journal of Mechanical System Dynamics* 2026–Present
- Reviewer, *IEEE Transactions on Human-Machine Systems* 2025–Present
- Reviewer, *Ergonomics in Design* 2024–Present
- Reviewer, *IISE Transactions on Occupational Ergonomics and Human Factors* 2023–Present
- Reviewer, *Human Factors and Ergonomics Society Proceedings* 2021–Present

### Service to Institution

Texas Tech Regional Science Fair (K-12) Special Award Judge 2026

Texas Tech Regional Science Fair (K-12) Ribbon Judge 2026

Dean’s Representative, Dissertation Defense of Yves Valentin  
(MS in Human Factors Psychology, TTU Department of Psychological Sciences) 2026

TTU Graduate Academic Advisor 2025–Present

#### VT Chapter of the Human Factors and Ergonomics Society (HFES)

- Officer: *Webmaster* 2020–2022

#### National Biomechanics Day

- *Led lab tours and biomechanics activities for local high school students* 2020–2025

#### VT Center for the Enhancement of Engineering Diversity (CEED) TechGirls Summer Camp

- *Led hands-on biomechanics activities* 2019

#### VT College of Engineering Alumni Outreach Event

- *Led lab tours for alumni* 2019

## PROFESSIONAL AFFILIATIONS

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Member, Institute of Industrial and Systems Engineers (IISE)	<i>2023–Present</i>
Member, Human Factors and Ergonomics Society (HFES)	<i>2020–Present</i>
Steering Committee member, K-Human Factors and Ergonomics Society (K-HFES)	<i>2021–Present</i>

## REMARK

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Dual Citizenship: U.S.A. and Republic of Korea