Mia E. Hoffman

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EDUCATION

UNIVERSITY OF WASHINGTON — Seattle, WA

PhD Candidate, Mechanical Engineering, University of Washington, Seattle
Advisors: Dr. Kat Steele and Dr. Heather Feldner — 2021 – Present
Research: *Mobility and Accessible Play Technologies for Young Children*

Graduate Certificate in Disability Studies — 2023 – Present

MS, Mechanical Engineering — 2021 – 2023

UNIVERSITY OF NOTRE DAME — Notre Dame, IN

BS, Mechanical Engineering
Advisor: Maria Holland | Minor: Bioengineering
Senior Thesis: *Computational Study on the Mechanics of Growth and Brain Folding of Non-human Primate Brains.*

RESEARCH EXPERIENCE

Sep 2021 - present	**Biomechanics & Accessibility** Neuromechanics & Mobility Lab, University of Washington Co-advisor: Katherine M. Steele IMPACT Collaboratory, University of Washington Co-advisor: Heather A. Feldner *Mobility and accessible play technology for young children*
Aug 2018 – May 2021	**Medical Imaging & Solid Mechanics** CoMMaND Lab, University of Notre Dame Advisor: Maria Holland *Computational mechanics of the non-human primate brain*
May – Aug 2019	**Auditory Neuroscience & MRI,** NSF Neuroimaging REU Auditory Perception and Cognition Lab, University of Minnesota Advisor: Andrew Oxenham *Identification of "pitch-sensitive regions" of the brain*
May – Aug 2018	**Auditory Neuroscience**, NSF Advancing Human Health, From Nano to Network REU Carney Lab, University of Rochester, Rochester, NY Advisor: Laurel H. Carney *Impact of a precursor noise on the efferent auditory system*
June – Aug 2016	**Data-Driven Methods**, Future Matters Program Battelle Center for Mathematical Medicine, Nationwide Children's Hospital Advisor: William C. Ray *Identification of proteins for the diagnosis of preeclampsia*

PUBLICATIONS

[7] Ingraham, Kim A, NL Zaino, C Feddema, **Mia E. Hoffman**, L Gijbels, A Sinclair, AN Meltzoff, PK Kuhl, HA Feldner, KM Steele. "Quantifying joystick interactions and movement patterns of toddlers with disabilities using powered mobility with an instrumented Explorer Mini." IEEE Transactions on Neural Systems and Rehabilitation Engineering. 2025. 10.1109/TNSRE.2025.3528454

[6] Zaino, Nicole L., K Ingraham, **Mia E. Hoffman**, H Feldner, K Steele. "Quantifying toddler exploration in seated and standing postures with powered mobility." Assistive Technology. 2024. 10.1080/10400435.2024.2400463

[5] Abuatiq, Reham A., **Mia E. Hoffman**, AL Fiss, J Looper, H Feldner. "Exploring the Efficacy of a Dynamic Harness System on Gross Motor Development and Motivation for Infants With Down Syndrome: A Pilot Study." Pediatric Physical Therapy. 2024. 10.1097/PEP.0000000000001130

[4] **Hoffman, Mia E.**, Katherine M. Steele, Jon E. Froehlich, Kyle N. Winfree, and Heather A. Feldner. "Off to the Park: A Geospatial Investigation of Ride-on Car Usage." Disability & Rehabilitation: Assistive Technology. 2024. 10.1080/17483107.2023.2248218

[3] **Hoffman, Mia E.**, Katherine M. Steele, Kyle N. Winfree, and Heather A. Feldner. "The Impact of the Built Environment on Early Power Mobility Access." UrbanAccess'22 Workshop at ASSETS. https://accessiblecities.github.io/UrbanAccess2022/#accepted-papers

[2] Demirci, Nagehan, **Mia E. Hoffman**, and Maria A. Holland. "Systematic cortical thickness patterns and curvature patterns in primates." Neuroimage. 2023. 10.1080/17483107.2023.2248218

[1] Darayi, Mohsen, **Mia E. Hoffman**, John Sayut, Shuolun Wang, Nagehan Demirci, Jack Consolini, and Maria A. Holland. 2021. "Computational Models of Cortical Folding: A Review of Common Approaches." *Journal of Biomechanics.* 2021. 10.1016/j.jbiomech.2021.110851.

PRESENTATIONS

Oral Presentations

[10] **Hoffman, ME.** HA Feldner, T Li. "Co-Designing a Switch Accessible Digital Play Environment for Children in Partnership with Clinicians and Families." 2025 Combined Sections Meeting (CSM), February 2025, Houston, TX.

[9] **Hoffman, ME.** "Co-designing Switch Accessible Play for Young Children Receiving Early Intervention." Justys F. Lehmann Symposium, June 10, 2024, Seattle, WA.

[8] **Hoffman, ME.**, Sloane B, Fragomeni A, Steele KM, Kenyon LK, Logan SW, Feldner HA. "A Comparison of Methods for Assessing Young Children's Mobility Device Use in Real-world Settings." Northwest Biomechanics Symposium, May 17-18, 2024, Eugene, OR.

[7] Looper JE, Fiss, A, Abuatiq, R., **Hoffman, ME.**, Feldner, H.A. "Dynamic Supported Play Environments to Encourage Mobility and Exploration in Toddlers with Down Syndrome". 2024 Combined Sections Meeting (CSM), February, 2024, Boston, MA.

[6] Abuatiq, R., **Hoffman, ME.**, Fiss, A., Looper, J., Feldner, H.A. "Exploring the Benefits of a Dynamic Harness System Using Partial Body Weight Support on Gross Motor Development for Infants with Down Syndrome". Academy of Pediatric Physical Therapy Annual Conference, October 28, 2023, Omaha, NE.

[5] **Hoffman, ME.**, Abuatiq R., Fiss AL., Looper J., Steele KM., Feldner HA. "Quantifying the Activity Levels of Toddlers with Down Syndrome Playing in a Partial Body Weight Support System". AACPDM, September 10-13, 2023, Chicago, IL.

[4] **Hoffman, ME.**, Sloane B., Fragomeni A., Steele KM., Feldner HA. "Exploring the World on Wheels: A Geospatial Comparison of Two Pediatric Mobility Devices". RESNA, July 24- 26, 2023, New Orleans, LA.

[3] **Hoffman, ME.,** Steele KM., Winfree KN., Feldner HA. "Why Can't I go to the Park?" A Geospatial Analysis of How the Built Environment Impacts Adapted Ride-on Car Use". International Seating Symposium, April 13-15, 2023, Pittsburgh, PA.

[2] **Hoffman, ME.**, Steele KM., Winfree KN., Feldner HA. "A Geospatial Investigation of Adapted Ride-on Car Usage and the Lived Environment". Justys F. Lehmann Symposium, June 2, 2022, Seattle, WA.

[1] **Hoffman, ME.**, Holland, MA. "Analyzing the Cortical Thickness of the Primate Brain using Magnetic Resonance Imaging". WE20, November 2-13, 2020, Virtual Meeting.

Poster Presentations

[16] Feldner HA, Fragomeni A, **Hoffman ME,** Ingraham KE, Keithley K, Kuhl PK, Lynn A, Meltzoof A, Zaino NL, Steele KM. "He could go wherever he wanted": Driving proficiency, developmental change, and caregiver perceptions following powered mobility training for children 1-3 years with disabilities. AACPDM, 2023, Chicago, IL.

[15] Zaino NL, Ingraham KA, **Hoffman ME**, Feldner HA, Steele KM. "Quantifying toddler exploration in seated and standing postures with powered mobility." RESNA, 2023, New Orleans, LA.

[14] **Hoffman, ME.**, Campos Zamora D., Froehlich, JE. Steele, KM. Feldner, HA. ""Turn right here": A Quantitative Approach to Testing the Efficacy of Novel Steering Modifications for Adapted Ride-on Cars". CREATE Research Showcase, June 1, 2023, Seattle, WA.

[13] **Hoffman, ME.**, Abuatiq R, Looper J, Fiss A, Steele KM, Feldner, HA. "Quantifying the Activity Levels of Toddlers with Down syndrome Playing in a Partial Bodyweight Support System". Northwest Biomechanics Symposium (NWBS), May 19-20, 2023, Seattle, WA.

[12] **Hoffman, ME.**, Campos Zamora D., Froehlich, JE. Steele, KM. Feldner, HA. ""Turn right here": A Quantitative Approach to Testing the Efficacy of Novel Steering Modifications for Adapted Ride-on Cars". International Seating Symposium, April 13-15, 2023, Pittsburgh, PA.

[11] **Hoffman, ME.**, Steele KM., Winfree KN., Feldner HA. ""Watch where I am going": a geospatial investigation of adapted ride-on car usage". AACPDM, September 21-24, 2022, Las Vegas, NV.

[10] **Hoffman, ME.**, Steele KM., Winfree KN., Feldner HA. "A Geospatial Investigation of Adapted Ride-on Car Usage and the Lived Environment". CREATE Community Day & Research Showcase, June 8, 2022, Seattle, WA.

[9] **Hoffman, ME.**, Feldner HA., Steele, KM. "Grab the Wheel: Steering Modifications for Adapted Ride-on Cars". NWBS 2022, May 20-21, 2022, Pullman, WA.

[8] **Hoffman, ME.**, Demirci N., and Holland, MA. "The Relation Between Cortical Thickness and Morphology: A Study of Nonhuman Primate Brains". SB3C 2021, June 14-18, 2021, Virtual Meeting.

[7] **Hoffman, ME.**, Sayut, J., Holland, MA., "Analyzing the Cortical Thickness of Mammalian Species through the Segmentation of Magnetic Resonance Imaging Scans". SB3C 2020, June 17-20, 2020, Virtual Meeting.

[6] **Hoffman, ME.**, Holland, MA., "Analyzing the Cortical Thickness of the Primate Brain through the Segmentation of Magnetic Resonance Imaging". Neurizons 2020, May 26-29, 2020, Virtual Meeting.

[5] **Hoffman, ME.**, Carney, LH., "The Effects of a Precursor Noise on the Intelligibility of Speech Stimuli". Undergraduate Research and Experiential Learning Showcase, November 9, 2020, Notre Dame, IN.

[4] **Hoffman, ME.**, Mehta, AH., Allen, EJ., Oxenham, AJ., "Locating Pitch in the Brain Using Harmonic and Inharmonic Tones". Summer Undergraduate Research Symposium, August 7, 2019, Minneapolis, MN.

[3] **Hoffman, ME.**, Carney, LH., "The Effects of a Precursor Noise on the Intelligibility of Speech Stimuli". Notre Dame Scholars Visit Poster Fair, March 25, 2019, Notre Dame, IN.

[2] **Hoffman, ME.**, Carney, LH., "The Effects of a Precursor Noise on the Intelligibility of Speech Stimuli". Kearns Research Symposium, July 30, 2018, Rochester, NY.

[1] **Hoffman, ME.**, Rumpf, W., Buhimschi, IA., Ray, W., "Using Cluster Analysis to Discover Protein Groupings that Identify Preeclampsia". End of Summer Poster Competition, August 5, 2016, Columbus, OH.

MENTORING

2025 – Present	Spencer Hensley, Computer Science Undergraduate Researcher
2025 – Present	Katie Leija, Mechanical Engineering Undergraduate Researcher
2024 – Present	Aislinn Knight, DPT Research Capstone Student
Summer 2024	Riley Bernas, CNT REU Student
2024 – Present	Alisha Bose, HCDE Undergraduate Researcher
2023 – Present	Tiffany Li, DPT Research Capstone Student
2023 – Present	Kate Bokowy, ME Undergraduate Researcher
Fall 2023	Mentor at 2023 NextProf Pathfinder Workshop, Oct 22-24, 2023, Ann Arbor, MI.

TEACHING

Fall 2024 *Teaching Assistant*	**Introduction to Design Processes** (University of Washington, Seattle, WA) • Independently run two design studio sections for senior ME students • Provide feedback on designs and design processes
Winter-Spring 2023 *Advisor*	**HuskyADAPT Mechanical Engineering Capstones** (University of Washington, Seattle, WA) • Team 1: Creating a child-safe, switch-accessible housing for a MakeyMakey • Team 2: Methodology for volunteers to adapt a joystick-controlled bumper car
Winter-Spring 2022 *Advisor*	**HuskyADAPT Mechanical Engineering and Bioengineering Capstone** (University of Washington, Seattle, WA) • Team: Designing an accessible way for collaborative play for a young child with cerebral palsy
Spring 2021 *Teaching Assistant*	**Introduction to Electrical Engineering and Embedded Systems** (University of Notre Dame, Notre Dame, IN) • Independently taught experimental physical computing lab sessions • Graded 120 lab reports weekly

INVITED TALKS

Nov 2024	Accessible Design Lecture, ME493, University of Washington, Seattle, WA.
Nov 2022	Meta Day, University of Washington, Seattle, WA.
Oct 2022	Oregon Health and Science University Seminar Guest Speaker, virtual.

PROFESSIONAL DEVELOPMENT

Translational Research Program	ITHS TL1 Training Program, 2024- 2025, Seattle, WA.
Skills Development Workshop	2022 NextProf Pathfinder Workshop, Oct 2-4, 2022, San Diego, CA. Link.

HONORS & AWARDS

2024	National Institute of Health INCLUDE TL1 Fellowship
2023	Student Scientific Paper Competition Winner, RESNA 2023
2023	Honorable Mention for Best Poster, Northwest Biomechanics Symposium
2022	Honorable Mention for Accessibility, CREATE Accessible and Inclusive Textiles Hackfest
2021	Ron and Wanda Crockett Endowed Fellowship in Mechanical Engineering
2021	University of Notre Dame Bioengineering Outstanding Undergraduate Researcher Award
2021	National Science Foundation Graduate Research Fellowship Link
2019, 2020	Dean's List, University of Notre Dame
2018	Sorin Fellow, University of Notre Dame
2018	Dean's Citation for Broadening Participation in Research, University of Rochester
2017	Glenna R. Joyce Scholarship, Merit Scholarship, University of Notre Dame

SERVICE

HuskyADAPT *University of Washington* Link	Student Executive Chair Design Chair	April 2023 – present June 2022 – June 2023
Mechanical Engineering Graduate Student Association (MEGA) *University of Washington*	Social Chair Member	March 2022 – January 2023 July 2021 – present
Enable ND *University of Notre Dame* Link	President Vice-President Director of Research and Development	2020 - 2021 2019 2018 - 2019
Society of Women Engineers *University of Notre Dame*	Director of Diversity Director of Outreach	2020-2019 2018-2019