Curriculum Vitae

Ameer Helmi, Ph.D.

Ph.D. in Robotics
Oregon State University

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U.S. Citizen

SUMMARY

- Robotics Engineer with 5+ years of experience across robot design, human-robot interaction, and computer vision.
- Developing responsible AI and robotics for promoting human wellness.
- Extensive project management and customer service experience advising multidisciplinary teams and leading electronic transformations within healthcare systems.

EDUCATION

Oregon State University Corvallis, OR
Doctor of Philosophy, Robotics 08/2019 - 06/2024
GPA: 3.8/4.0
Advisor: Dr. Naomi T. Fitter
Dissertation: Mediating Child Physical Activity with Assistive Robots

University of Illinois at Chicago Chicago, IL
Bachelor of Science in Biomedical Engineering 08/2009 - 06/2013
GPA: 3.7/4.0

SKILLS AND CERTIFICATIONS

Programming: Robot Operating System (ROS), Python, MATLAB, Linux, Arduino, Git, ROS2, C++, C#, ASP.Net, CUDA
Hardware: 3D Printing, CAD
Technical Skills: Machine Learning, Human-Robot Interaction, Mixed-Method Data Collection, Statistical Analysis, Assistive Technology, Clinical Studies
Certifications: University of Washington Professional & Continuing Education C# and ASP.Net
Languages: English (fluent), Farsi (intermediate)

RESEARCH & WORK EXPERIENCE

Honeydew Consulting, FL 04/2025 – Present
Senior Consultant
- Implemented complete audit for Mass General Brigham Epic Beaker build, utilizing custom made Excel scripts.
- Initiated complex workflow design, working directly with executive leadership to ensure customer success.

Lakeland Regional Health, Lakeland, FL 12/2024 – 04/2025
Systems Analyst III
- Resolved up to 10 customer tickets per day with Ivanti Web Desk, implementing complex fixes for laboratory workflows.
- Developed change control and workflow processes with expertise to improve future implementations of additional clinics and laboratories.

Oregon State University, Corvallis, OR 06/2024 – 08/2024
Faculty Research Assistant
- Mentored 6 summer students through Research Experience for Undergraduates program, guiding them in machine learning projects and technical content creation.
- Served as senior lab mentor, advising on study design and robot construction for 10 graduate students.

Oregon State University, Corvallis OR 09/2019 – 08/2024
Graduate Research Assistant
- Designed and built 5 assistive robot systems using a human-centered design process, integrating a TurtleBot2 base, Python3, LIDAR, ROS, behavior trees for autonomy, and 3D-printed multi-sensory hardware.
- Developed affective computing machine learning models using a cost-effective thermal camera for automatic detection of affect changes in children with disabilities.
- Utilized Python and OpenCV to develop a region-of-interest tracker with an overhead camera sensor.
- Conducted 5 multi-month child-robot interaction studies in collaboration with physical therapists, studying the effects of an assistive robot on improving children's levels of physical activity.
- Extensive publication and presentation record to prestigious conferences and journals (ICRA, IROS, HRI).

Oregon State University, Corvallis OR 09/2019 – 06/2020
Teaching Assistant
- Partnered with teacher to develop ROS2 assignments for graduate Introduction to Robotics course with 20 students.
- Demonstrated consistent and professional correspondence with students for undergraduate Intermediate Dynamics course with 100 students.
- Adapted course material for virtual teaching and provided consistent feedback for undergraduate Introduction to Python course with 80 students.

Epic, Seattle, WA 08/2015 – 12/2018

Technical Consultant

- Spearheaded quality control application build for Virtua Health.
- Directed a cross-functional team of 8 as application manager in implementing workflows at Yale New Haven Health.
- Managed a team of 5 application coordinators to develop unique hybrid Cytogenetics and Molecular Diagnostics workflows at the University of California, Los Angeles.

Epic, Verona, WI 06/2013 – 08/2015

Technical Solutions Engineer

- Delivered robust and creative solutions for over 200 system issue logs as technical engineer of Baptist Memorial Health Care and Cambridge University Hospital (CUH).
- Improved CUH laboratory result turnaround times by 20% through development of novel integrated Cytogenetics/Molecular workflow system.
- Developed multiple software enhancements and fixed 22 system bugs in M Cache system code.

Hospira, Lake Forest, IL 01/2012 - 05/2012

Engineering Intern

- Conducted rigorous impact testing and risk analysis on Symbiq infusion pumps, contributing to improved product reliability and patient safety.
- Designed and tested a new shroud cover for Symbiq infusion pumps, utilizing SolidWorks and 3D printing to enhance product durability and performance.
- Collaborated with quality and manufacturing teams to implement corrective designs, ensuring compliance with industry standards and regulatory requirements.

University of Illinois at Chicago, Chicago, IL 08/2009 – 06/2013

Undergraduate Research Assistant

- Created novel design of a fully automated glaucoma diagnosis device with MATLAB and Arduino.
- Implemented and tested a real-time weather data collection system with MATLAB and Arduino for land-mine detection.
- Developed integrated LabVIEW GUI for Capnograph instrument used in a cancer detection study.
- Led 50 team members as president of the Chicago Engineering Design Team robotics club.

PUBLICATIONS

Unpublished Manuscripts (In Preparation and Under Review)

Helmi, A., Mayoral, R. M., Wang, T. H., Logan, S. W., & Fitter, N. T. (2024). Go Go Gadget GoBot: Leaning into the Novelty Effect for Reengagement with Modular Robotic Hardware. In *review to the International Journal of Social Robotics (SORO)*.

Peer-Reviewed Conference Papers

Helmi, A., Wang, T. H., Logan, S. W., & Fitter, N. T. (2025). Green Means Go(Bot): Using an Assistive Robot to Encourage Independent Walking Practice by a Child with Motor Disabilities . In *International Conference on Rehabilitation Robotics (ICORR)* IEEE.

Helmi, A., Sloane, B. M., Logan, S. W., & Fitter, N. T. (2024, October). Clinician Perspectives on Autonomy and Trust in Robots for Pediatric Interventions. Accepted to the *International Conference on Social Robotics (ICSR)*. Springer.

Mayoral, R. M., **Helmi, A.**, Warren, S. T., Logan, S. W., & Fitter, N. T. (2023, October). Robottheory Fitness: GoBot's Engagement Edge for Spurring Physical Activity in Young Children. In *International Conference on Intelligent Robots and Systems (IROS)* (pp. 7939-7944). IEEE.

Helmi, A., Wang, T. H., Logan, S. W., & Fitter, N. T. (2023, September). Harnessing the Power of Movement: A Body-Weight Support System & Assistive Robot Case Study. In *International Conference on Rehabilitation Robotics (ICORR)* (pp. 1-6). IEEE.

Helmi, A., Koenig, K. M., & Fitter, N. T. (2022, December). A Model Child? Behavior Models for Simulated Infant-Robot Interaction. In *International Conference on Social Robotics* (pp. 3-12). Springer.

Helmi, A., Noregaard, S., Giulietti, N., Logan, S. W., & Fitter, N. T. (2022, May). Let Them Have Bubbles! Filling Gaps in Toy-Like Behaviors for Child-Robot Interaction. In *International Conference on Robotics and Automation (ICRA)* (pp. 7417-7422). IEEE.

Vinoo, A., Case, L., Zott, G. R., Vora, J. R., **Helmi, A.**, Logan, S. W., & Fitter, N. T. (2021, August). Design of an Assistive Robot for Infant Mobility Interventions. In *International Conference on Robot & Human Interactive Communication (RO-MAN)* (pp. 604-611). IEEE.

Zhang, B. J., Quick, R., **Helmi, A.**, & Fitter, N. T. (2020, October). Socially Assistive Robots at Work: Making Break-Taking Interventions more Pleasant, Enjoyable, and Engaging. In *International Conference on Intelligent Robots and Systems (IROS)* (pp. 11292-11299). IEEE.

Journal Articles

Helmi, A., Scheide, E., Wang, T. H., Logan, S. W., Hollinger, G. A., & Fitter, N. T. (2025). GoBot: An Autonomous Assistive Robot using Behavior Trees to Encourage Child Mobility. Accepted *to the Transactions in Human-Robot Interaction Journal (THRI)*.

Helmi, A., Wang, T. H., Logan, S. W., & Fitter, N. T. (2025) Look at Them Go! Using an Autonomous Assistive GoBot to Encourage Movement Practice by Two Children with Motor Disabilities. Accepted *to Robotics and Automation Letters (RA-L)*.

Mayoral, R. M., **Helmi, A.**, Logan, S. W., & Fitter, N. T. (2024). GoBot Go! Using a Custom Assistive Robot to Promote Physical Activity in Children. In *Journal of Translational Engineering in Health and Medicine, 12*, 613-621. IEEE.

Raja Vora, J., **Helmi, A.**, Zhan, C., Olivares, E., Vu, T., Wilkey, M., Noregaard, S., Fitter, N. T., & Logan, S. W. (2021). Influence of a Socially Assistive Robot on Physical Activity, Social Play Behavior, and Toy-Use Behaviors of Children in a Free Play Environment: A within-subjects Study. In *Frontiers in Robotics and AI, 8*, 768642.

Short Peer-Reviewed Conference Workshop Papers

Helmi, A., Phillips, C., Castillo, F., Logan, S. W., & Fitter, N. T. (2023) OverTrack: Overhead Camera Tracking Tool for Child-Robot Interaction. In *Workshop on Social Robot Navigation: Advances and Evaluation, International Conference on Intelligent Robots and Systems (IROS)*. IEEE.

Helmi, A., Dassonville, L., Zhan, C., & Fitter, N. T. (2022) GoBot Dance: An Air Dancer-Inspired Robot for Child-Robot Interaction. In *from modelling to understanding children's behavior in the context of robotics and social artificial intelligence Workshop, International Conference on Social Robotics (ICSR)*. Springer.

Helmi, A., Wang, T. H., Zhan, C., Nys, K., Sankari, P., Logan, S. W., Fitter, & N. T. (2022). GoBot Throw: A Toy-Inspired Ball-Launching Robot for Child-Robot Interaction. In *from modelling to understanding children's behavior in the context of robotics and social artificial intelligence Workshop, International Conference on Social Robotics (ICSR)*. Springer.

Helmi, A., & Fitter, N. T. (2021). Lights, Camera, Action! Evaluating Robot Reward Behaviors in Free Play with Children. In *Interdisciplinary Research Methods for Child-Robot Relationship Formation Workshop, International Conference on Human-Robot Interaction (HRI)*. IEEE.

Helmi, A., & Fitter, N. T. (2020). Using Motion Expert Feedback to Design Models for Infant-Robot Interaction. In *Workshop on Child-Robot Interaction, International Conference on Social Robotics (ICSR)*. Springer.

PRESENTATIONS

Conference Presentations

Helmi, A (2025). Green Means Go(Bot): Using an Assistive Robot to Encourage Independent Walking Practice by a Child with Motor Disabilities . Presented at the *International Conference on Rehabilitation Robotics (ICORR)*, Chicago, IL.

Helmi, A. (2022). A Model Child? Behavior Models for Simulated Infant-Robot Interaction. Presented at the *International Conference on Social Robotics (ICSR)*, Florence, Italy.

Helmi, A. (2022). GoBot Throw and GoBot Dance: Assistive Robot for Child-Robot Interaction. Presented at the *Modelling to Understanding Children's Behavior in the Context of Robotics and Social Artificial Intelligence Workshop, International Conference on Social Robotics (ICSR)*, Florence, Italy.

Helmi, A. (2022). Let Them Have Bubbles! Filling Gaps in Toy-Like Behaviors for Child-Robot Interaction. Presented at the *IEEE International Conference on Robotics and Automation (ICRA)*, Philadelphia, PA.

Helmi, A. (2021). Design of an Assistive Robot for Infant Mobility Interventions. Presented at the *IEEE International Conference on Robot and Human Interactive Communication (RO-MAN)*, Vancouver, Canada.

Helmi, A. (2021). Lights, Camera, Action! Evaluating Robot Reward Behaviors in Free Play with Children. Presented at the *Interdisciplinary Research Methods for Child-Robot Relationship Formation Workshop, International Conference on Human-Robot Interaction (HRI)*, Boulder, CO.

Helmi, A. (2020). Using Motion Expert Feedback to Design Models for Infant-Robot Interaction. Presented at the *Child-Robot Interaction Workshop, International Conference on Social Robotics (ICSR)*, Golden, CO.

Poster Presentations

Helmi, A. (2024). Pilot Observations of an Autonomous Red Light, Green Light Robot for Interactions with Children with Disabilities. Poster presented at the *ACM/IEEE International Conference on Human-Robot Interaction (HRI)*, Boulder, CO.

Helmi, A. (2023). OverTrack: Overhead Camera Tracking Tool for Child-Robot Interaction. Poster presented at the *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, Detroit, MI.

Helmi, A. (2023). Harnessing the Power of Movement: A Body-Weight Support System & Assistive Robot Case Study. Poster presented at the *International Consortium on Rehabilitation Robotics (ICORR)*, Singapore.

Helmi, A. (2023). Illuminating Engagement: Real-Time Thermal Imaging of Child Affect During Child-Robot Interactions. Poster presented at the *International Consortium on Rehabilitation Robotics (ICORR)*, Singapore.

Helmi, A. (2022). Let Them Have Bubbles! Filling Gaps in Toy-Like Behaviors for Child-Robot Interaction. Poster presented at the *IEEE International Conference on Robotics and Automation (ICRA)*, Philadelphia, PA.

Invited Talks

Helmi. A. (2024). Go Go Gadget GoBot: Leaning into the Novelty Effect for Reengagement with Modular Robotic Hardware. Presented at the *Northwest Robotics Symposium (NWRS)*, Corvallis, OR.

Helmi, A. (2022). Design of an Assistive Robot for Infant Mobility Interventions. Presented at the *Northwest Robotics Symposium (NWRS)*, Seattle, WA.

MENTORSHIP

Graduate Researchers

- Susan Liu: Master's Student in Artificial Intelligence at Oregon State University (OSU), 2023-2024
- Rafael Morales Mayoral: Master's Student in Robotics at OSU, 2022-2024

Undergraduate Researchers

- Kevin Sabbe: Summer REU student at OSU, 2024, from OSU
- Lara Rupnawar: Summer REU Student at OSU, 2023, incoming OSU student
- April X. Murray: Undergraduate researcher at OSU, 2022-2024
- Sydney Fujimoto: Undergraduate researcher at OSU, 2023-2024
- Emily Shannon: Interdisciplinary Senior Capstone Team Member at OSU, 2022-2023
- Bethany Bibler: Interdisciplinary Senior Capstone Team Member at OSU, 2022-2023
- Susan Liu: Interdisciplinary Senior Capstone Team Member at OSU, 2022-2023

- Luke Dassonville: Summer REU Student at OSU, 2022, incoming OSU student
- Fernando Castillo: Summer REU Student at OSU, 2022, from Pomona College
- Rafael Morales Mayoral: Undergraduate researcher at OSU, 2021-22
- Christine Zhan: Mechanical Engineering Capstone Team Member at OSU, 2021-2022
- Pico Sankari: Mechanical Engineering Capstone Team Member at OSU, 2021-2022
- Kenneth Nys: Mechanical Engineering Capstone Team Member at OSU, 2021-2022
- Kristen Koenig: Summer REU Student at OSU, 2021, from Vassar College
- Shel-Twon Warren: Summer REU Student at OSU, 2021, from University of Arkansas
- William Kistler: Mechanical Engineering Capstone Team Member at OSU, 2020-2021
- Joshua Moore: Mechanical Engineering Capstone Team Member at OSU, 2020-2021
- Emily Ball: Mechanical Engineering Capstone Team Member at OSU, 2020-2021
- David Rosales: Mechanical Engineering Capstone Team Member at OSU, 2020-2021
- Brandon Einck: Mechanical Engineering Capstone Team Member at OSU, 2020-2021
- Misael Torres: STEM Leaders Researcher at OSU, 2020-21
- Connor Phillips: Summer REU Student at OSU, 2020, from Arizona State University
- Joshua Phelps: Summer Undergraduate Researcher at OSU, from Brown University

PROFESSIONAL AFFILIATIONS

- IEEE Member
- ACM Member
- International Consortium for Rehabilitation Robotics (ICORR) Member
- Oregon State Robotics Graduate Student Association (RGSA) Treasurer (2020-2022)

CONFERENCE AND JOURNAL REVIEWS

- IEEE International Conference on Robotics and Automation (ICRA)
- International Consortium for Rehabilitation Robotics (ICORR)
- IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)
- ACM/IEEE International Conference on Human-Robot Interaction (HRI)
- International Conference on Social Robotics (ICSR)
- Robotics: Science and Systems (RSS)
- Frontiers in Robotics and AI
- Transactions in Human-Robot Interaction (THRI)