NICK WALKER

Robotics Researcher

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EDUCATION

Ph.D. Computer Science	*University of Washington, Seattle, WA*	2018–25
M.S. Computer Science	*University of Washington, Seattle, WA*	2018–20
B.S.A. Computer Science	*The University of Texas, Austin, TX*	2014–18

APPOINTMENTS

Postdoctoral Research Associate	*Massachusetts Institute of Technology*	2025—

PUBLICATIONS

Thesis

[t1] "Making Robot Behaviors Automatically Transparent." N. Walker. *The University of Washington*. Mar. 2025

Conference

[c12] "I Can Tell What I Am Doing: Toward Real-World Natural Language Grounding of Robot Experiences." Z. Wang, B. Liang, V. Dhat, Z. Brumbaugh, N. Walker, R. Krishna, M. Cakmak. *Proc. of The 8th Conf. Robot Learning*. Munich, Germany, Nov. 2024

[c11] "Fast Explicit-Input Assistance for Teleoperation in Clutter." N. Walker, X. Yang, A. Garg, M. Cakmak, D. Fox, C. Pérez-D'Arpino. *2024 IEEE/RSJ Int. Conf. Intelligent Robots Systems*. Abu Dhabi, UAE, Oct. 2024

[c10] "Using 3D Mice to Control Robot Manipulators." V. Dhat, N. Walker, M. Cakmak. *ACM/IEEE Int. Conf. Human-Robot Interaction*. Boulder, CO, USA, Mar. 2024

[c9] "Not All Who Wander Are Lost: A Localization-Free System for In-the-Wild Mobile Robot Deployments." A. Nanavati*, N. Walker*, L. Taber, C. Mavrogiannis, L. Takayama, M. Cakmak, S. Srinivasa. *Proc. 2022 ACM/IEEE Int. Conf. Human-Robot Interaction*. Sapporo, Hokkaido, Japan, Mar. 2022

[c8] "Influencing Behavioral Attributions to Robot Motion During Task Execution." N. Walker, C. Mavrogiannis, S. Srinivasa, M. Cakmak. *Proc. 5th Conf. Robot Learning*. London, UK, Nov. 2021

[c7] "Learning Backchanneling Behaviors for a Social Robot via Data Augmentation from Human-Human Conversations." M. Murray, N. Walker, A. Nanavati, P. Alves-Oliveira, N. Filippov, A. Sauppe, B. Mutlu, M. Cakmak. *Proc. 5th Conf. Robot Learning*. London, UK, Nov. 2021

[c6] "Human Perceptions of a Curious Robot that Performs Off-Task Actions." N. Walker, K. Weatherwax, J. Alchin, L. Takayama, M. Cakmak. *Proc. 2020 ACM/IEEE Int. Conf. Human-Robot Interaction*. Oxford, UK, Mar. 2020

[c5] "Open-World Reasoning for Service Robots." Y. Jiang*, N. Walker*, J. Hart, P. Stone. *Proc. 29th Int. Conf. Automated Planning Scheduling*. Berkeley, Jul. 2019

[c4] "Improving Grounded Natural Language Understanding through Human-Robot Dialog." J. Thomason, A. Padmakumar, J. Sinapov, N. Walker, Y. Jiang, H. Yedidsion, J. Hart, P. Stone, R. J. Mooney. *Int. Conf. Robotics Automation*. Montreal, May 2019

[c3] "PRISM: Pose Registration for Integrated Semantic Mapping." J. W. Hart, R. Shah, S. Kirmani, N. Walker, K. Baldauf, N. John, P. Stone. *2018 IEEE/RSJ Int. Conf. Intelligent Robots Systems*. Madrid, Spain, Oct. 2018

[c2] "Automatic Curriculum Graph Generation for Reinforcement Learning Agents." M. Svetlik, M. Leonetti, J. Sinapov, R. Shah, N. Walker, P. Stone. *Proc. Thirty-First AAAI Conf. Artificial Intelligence*. San Francisco, Feb. 2017

[c1] "Wearable ear EEG for brain interfacing." E. D. Schroeder, N. Walker, A. S. Danko. *Proc. of SPIE 10051, Neural Imaging Sensing*. San Francisco, Feb. 2017

Preprint

[a2] "Interpretable Robot Failure Attribution to Assist Remote Robot Supervisors." N. Walker, Z. Wang, M. Grotz, M. Cakmak. *Preprint*:undefined, Mar. 2025

[a1] "An Architecture for Person-Following using Active Target Search." M. Kim, M. Arduengo, N. Walker, Y. Jiang, J. W. Hart, P. Stone, L. Sentis. *arXiv*:1809.08793, Sept. 2019

Journal

[j1] "Jointly Improving Parsing and Perception for Natural Language Commands through Human-Robot Dialog." J. Thomason, A. Padmakumar, J. Sinapov, N. Walker, Y. Jiang, H. Yedidsion, J. Hart, P. Stone, R. J. Mooney. *Journal of Artificial Intelligence Research*. Feb. 2020

Patent

[p1] "Transcription analysis platform." M. J. Szentes, C. Chavez, R. E. Lewis, N. S. Walker. *US11837214*, Dec. 2023

Refereed Symposium, Workshop

[w6] "Can Large Language Models Help Developers with Robotic Finite State Machine Modification?." X. Gan*, Y. R. Song*, N. Walker, M. Cakmak. *LangRob Workshop at Conf. Robot Learning*. Munich, Germany, Nov. 2024

[w5] "Towards robustly picking unseen objects from densely packed shelves." M. Grotz, J. Lowry, S. Atar, Y. Li, P. Torrado, B. Yang, N. Walker, M. Murray, D. Fox, M. Cakmak, J. R. Smith. *Proc. RSS Workshop Perception Manipulation Challenges for Warehouse Automation*. Daegu, Republic of Korea, Jul. 2023

[w4] "Desiderata for Planning Systems in General-Purpose Service Robots." N. Walker*, Y. Jiang*, M. Cakmak, P. Stone. *Proc. of 2019 ICAPS Workshop Planning Robotics*. Berkeley, Jul. 2019

[w3] "Neural Semantic Parsing with Anonymization for Command Understanding in General-Purpose Service Robots." N. Walker, Y.-T. Peng, M. Cakmak. *RoboCup 2019: Robot Soccer World Cup XXIII*. Sydney, Jul. 2019

[w2] "LAAIR: A Layered Architecture for Autonomous Interactive Robots." Y. Jiang*, N. Walker*, M. Kim, N. Brissonneau, D. S. Brown, J. W. Hart, S. Niekum, L. Sentis, P. Stone. *AAAI Fall Symp. Reasoning Learning in Real-World Systems for Long-Term Autonomy*. Arlington, Oct. 2018

[w1] "Interaction and Autonomy in RoboCup@Home and Building-Wide Intelligence." J. Hart, H. Yedidsion, Y. Jiang, N. Walker, R. Shah, J. Thomason, A. Padmakumar, R. Fernandez, J. Sinapov, R. Mooney, P. Stone. *AAAI Fall Symp. Artificial Intelligence Human-Robot Interaction*. Arlington, Oct. 2018

Periodical Feature

[f2] "A Guide to Transit-Oriented Running in Seattle." N. Walker. *The Urbanist*, Nov. 2023

[f1] "Wandering Robots in the Wild." N. Walker, A. Nanavati. *IEEE Spectrum*, Jul. 2022

RESEARCH EXPERIENCE

Postdoctoral Research Associate *Massachusetts Institute of Technology* 2025—
- Improving methods for reinforcement and imitation learners to communicate their uncertainty

Graduate Research Assistant *University of Washington* 2018–25
- Learning models that help robot supervisors diagnose failures [t1]
- Generating communicative motion and language during task execution [c8,c12,t1]
- Perceptions of intrinsically motivated robot behaviors [c6,c8]

Research Intern *NVIDIA* 2022 Su.
- Designed and evaluated teleoperation assistance for manipulation in clutter [c11]

Research Engineer Intern *USAA* 2016 Su.
- Ear-worn brain-computer interface software and hardware for biometric authentication [c1]

Undergraduate Research Assistant *University of Texas* 2016–18
- Long-term autonomy for service robots [w2, w4]
- Mobile manipulation in homes and offices [j1,a1,w1]
- Grounded natural language understanding [c5,j1]
- Automated curriculum learning for reinforcement learning agents [c2]

Research Engineer Intern *USAA* 2015 Su.
- Evaluation of automated speech transcription vendors [p1]

GRANTS

Documenting Geyser Basin on the University of Washington Campus 2025
4Culture, Preservation Special Projects Grant. $9,500. PI.

A Speech and Language Dataset of GPSR Commands 2020
RoboCup Federation, League Development Grant. $2,200. PI.

TEACHING EXPERIENCE

Teaching Assistant *UW CSE 478 (Robotics)* 2021 Sp.
- Updated assignments, developed unit tests and CI-based autograder used in 5+ offerings

Teaching Assistant *UW CSE 481C (Robotics Capstone)* 2019 Wi.
- Developed assignments, supported undergraduates using the Kuri robot

MENTORING

Aidan Alchin – *Highschool Intern* 2019
Kavi Dey – *Highschool Intern » Harvey Mudd* 2021–22
Zachary Brumbaugh – *Undergraduate Researcher » startup* 2022–23
Zihan Wang – *Graduate Researcher* 2023–25
Joe Sluis – *Undergraduate Researcher » startup* 2022–25
Brian Yao – *Undergraduate Researcher » Amazon* 2022–25
Xiangyu Gan – *Undergraduate Researcher* 2023–24
Yuxin Ray Song – *Undergraduate Researcher » Researcher, MIT* 2023–24
Varad Dhat – *Graduate Researcher » Torc Robotics* 2023–25

Helena Merker – *Graduate Researcher* 2025—
Daphne Chen – *Graduate Researcher* 2025—

LEADERSHIP AND PROFESSIONAL SERVICE

Director – *Drumheller Marathon & Half Marathon* 2022—
Director – *Light Rail Relay* 2021—
Organizer – *Northwest Robotics Symposium* 2022
NSF GRFP Seminar Coordinator – *Allen School Graduate Student Committee, UW* 2020
Organizer – *Practical Service Robots Workshop, RSS* 2020
Organizer – *Imitation Learning Workshop, RSS* 2020
Technical Committee – *RoboCup@Home* 2019–20
Peer Mentor – *Allen School First Year Graduate Student Mentoring, UW* 2019–21
Reader – *Allen School Ph.D. Admissions Committee, UW* 2018

Reviewing

HRI	'26–'22	IJSR	'25, '23–'22	T-RO	'24	Sci. Rob.	'21
ICRA	'26–'23, '21, '19	RA-L	'25, '21	TAFFC	'22–'21	TCDS	'20
CHI	'25	THRI	'25–'23, '20	RSS	'21		
CoRL	'25–'22	IROS	'24, '21	SSRR	'21		

RECOGNITION

Best Paper: Short Contributions – *ACM/IEEE International Conference on Human-Robot Interaction* 2024
Graduate Research Fellowship – *National Science Foundation* 2020–25
Computer Science & Engineering Research Fellowship – *Allen School, UW* 2018–19
Best Poster, with UT Austin Villa – *RoboCup@Home DSPL* 2018
Commencement Student Speaker – *College of Natural Sciences, UT* 2018
GRFP Honorable Mention – *National Science Foundation* 2018
Dean's Honored Graduate – *College of Natural Sciences, UT* 2018
Outstanding Undergraduate Researcher Award Honorable Mention – *Computing Research Association* 2018
TIDES Fellowship – *Texas Institute for Discovery Education in Science, UT* 2017
College of Natural Sciences Scholarship – *College of Natural Sciences, UT* 2014–18

SKILLS

Languages – *Python, C++, Javascript/HTML/CSS, Answer Set Programming*
Frameworks & Tools – *PyTorch, ROS, Docker, Isaac Sim*
Digital media – *Premiere, Photoshop, Illustrator*

PERSONAL

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