NICK WALKER

Ph.D. Candidate in Computer Science

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nickwalker.us

Education

2018— **University of Washington** – *Seattle, WA*
- Ph.D. Computer Science. "Making Robot Behaviors Automatically Transparent"
- Advisor: Maya Cakmak

2018–20 **University of Washington** – *Seattle, WA*
- M.S. Computer Science

2014–18 **The University of Texas** – *Austin, TX*
- B.S.A. Computer Science
- Polymathic Scholar (Interdisciplinary Honors)

Conference

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

[p1] **" Fast Explicit-Input Assistance for Teleoperation in Clutter."** N. Walker, X. Yang, A. Garg, M. Cakmak, D. Fox, C. Pérez-D'Arpino. *In review,* Mar. 2024

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

Refereed Symposium, Workshop

[w6] **"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, Korea, Jul. 2023

[w5] **"Influencing Behavioral Attributions to Robot Motion During Task Execution."** N. Walker, C. Mavrogiannis, S. Srinivasa, M. Cakmak. *Proc. 2021 ICRA Workshop Modern Approaches for Intrinsically-Motivated Intelligent Behavior.* Xi'an, China, Jun. 2021

[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

Recognition

2024 Best Short Paper – *ACM/IEEE International Conference on Human-Robot Interaction*
2020— Graduate Research Fellowship – *National Science Foundation*
2018–19 Computer Science & Engineering Research Fellowship – *Allen School, UW*
2018 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*
2017 TIDES Fellowship – *Texas Institute for Discovery Education in Science, UT*
2014–18 College of Natural Sciences Scholarship – *College of Natural Sciences, UT*

Work and Teaching Experience

2022 Su. **Research Intern** – *NVIDIA*
- Developed and studied new teleoperation interfaces

2021 Sp. **Teaching Assistant** – *UW CSE 478 (Robotics)*
- Updated assignments based on an autonomous race-car platform

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

2016 Su. **Research Engineer Intern** – *USAA*
- Developed experimental brain-computer interface software and hardware
- Work contributed to a SPIE conference publication

2015 Su. **Research Engineer Intern** – *USAA*
- Characterized the performance of automated speech transcription vendors
- Developed evaluation methodology that led to a patent application

Service

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

Reviewing

HRI	‘24, ‘23, ‘22	IJSR	‘23, ‘22	RSS	‘21
ICRA	‘24, ‘23, ‘21, ‘19	THRI	‘23, ‘20	SSRR	‘21
IROS	‘24, ‘21	TAFFC	‘22, ‘21	Sci. Rob.	‘21
CoRL	‘23, ‘22	RA-L	‘21	TCDS	‘20

Outreach

2019 **Demo Assistant** – *UW Engineering Discovery Days*
- Organized and helped run an exhibit demonstrating our lab’s research

2019 **Program Assistant** – *UTCS Robotics Camp*
- Helped high school students assemble robot kit, program intelligent behaviors

2017, 2018 **Demo Assistant** – *Explore UT*
- Ran demos on our robots and explained lab’s research to community members

2017, 2018 **Workshop Assistant** – *UT Introduce a Girl to Engineering Day*
- Taught grade school girls about electricity using Play-Doh and LEDs

2017, 2018 **Workshop Instructor** – *UT Computer Science, Code Longhorn & First Bytes Camps*
- Taught high school students from underrepresented groups about web technologies

2016–18 **Peer Mentor** – *Freshman Research Initiative*
- Helped first- and second-year students formulate their research projects

Skills

- Experienced with robotics software – *ROS, C++, Python*
- Experienced with robotics platforms – *Stretch, Fetch, Kuri, HSR*
- Proficient with user research – *Study Design, Hypothesis Testing, Amazon Mechanical Turk*
- Proficient with machine learning techniques, tools – *PyTorch, Numpy, Pandas*
- Proficient with web technologies – *PHP, Typescript, HTML, CSS*
- Handy with digital media – *Premiere, Photoshop, Illustrator, InDesign*

Personal

nickwalker.us
github.com/nickswalker
flickr.com/photos/nickwalker-us
strava.com/athletes/35387878