

HRI '24: Workshop on Aging in Place

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CCS CONCEPTS

• **Human-centered computing** → *Accessibility technologies; User interface design; HCI theory, concepts and models.*

KEYWORDS

Aging in Place, Care Robots, Learning Preferences

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WORKSHOP DESCRIPTION

The world's age is increasing [3]. Yet, as the number of older adults who require physical and cognitive assistance grows, healthcare resources are unable to meet the demand, inducing high care provider turnover and burnout rates, and degrading the quality and availability of care [2]. Care robots could help alleviate the burden on care providers, as they can support care providers with physical and cognitive assistance, such as physically demanding or repetitive house chores and medicine dispensing.

Where prior workshops on care robotics have focused on either specific technologies or domains for aging in place, in our workshop, we propose to investigate how to best model and leverage the different stakeholders in the network of care of the older adult (family, friends, nurses, the care robot, etc.) in order to meet evolving needs and preferences of the older adult. As such, the goal of this workshop is to identify key research thrusts that will enable care robots to (1) identify and meet the cognitive and physical needs of an older adult as these needs change over time and (2) coordinate the network of care of the older adult in order to successfully facilitate aging in place.

The organizers are affiliated with the AI Institute for Collaborative Assistance and Responsive Interaction for Networked Groups (AI-CARING) [1], whose focus is supporting older adults and their

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network of care. The findings of the workshop will inform further discussions on how researchers at AI-CARING can successfully improve the quality of life of aging adults living at home.

OVERVIEW

Format and Activities

In order to be geographically inclusive, and take advantage of relationships we have fostered with care providers at our local assisted living facilities, we propose a hybrid half-day workshop.

This workshop will offer participants the opportunity to present their work through spotlight talks and a poster session and to network and collaboratively explore these topics through a panel session with invited speakers from industry and academia. In the panel, we will discuss accessibility, socio-economic considerations and challenges, and the priorities of the target population. We will also discuss perspectives on integration and testing with end users, multi-modal interactions via conversational agents, and what technology is missing for care robots to successfully enable aging in place.

Speakers and Panelists

- (1) Dr. Zackory Erickson is an Assistant Professor in The Robotics Institute at Carnegie Mellon University, where he leads the Robotic Caregiving and Human Interaction (RCHI) Lab. He research focuses on developing new robot learning, mobile manipulation, and sensing methods, with applications in physical human-robot interaction and healthcare.
- (2) Dr. Laurel Riek is a Professor in Computer Science and Engineering at the University of California, San Diego, with a joint appointment in the Department of Emergency Medicine, and is affiliated with the Contextual Robotics Institute and Design Lab. Dr. Riek directs the Healthcare Robotics Lab, and leads research in human-robot interaction (HRI), assistive and accessible technology, embodied AI, and health informatics. Her group does research in human-robot teaming, assistive robotics, embodied AI, and health informatics. Current research projects have applications in acute care, neuro-rehabilitation, and home health.
- (3) Dr. Charlie Kemp is the chief technology officer for Hello Robot Inc., which develops compact, lightweight, affordable, and force-sensitive mobile manipulators. In 2007, he founded the Healthcare Robotics Lab at Georgia Tech, where he was

an associate professor in the Department of Biomedical Engineering. His lab has conducted extensive research on mobile manipulators to assist older adults and people with disabilities.

- (4) Dr. Jesus Favela is a professor at the Computer Science Department of the Center for Scientific Research and Higher Education (CICESE), Mexico, where he leads the Mobile and Ubiquitous Healthcare Laboratory. Over the last 20+ years, his research has focused on developing and evaluating assistive interactive technologies for aging, with an emphasis on supporting people with dementia and their caregivers.

Schedule

Invited speaker presentations will be 25 minutes with a 5-minute Q & A.

9:00 AM | Welcome & Opening Remarks
 9:10 AM | Invited Speaker: Dr. Laurel Riek
 9:40 AM | Invited Speaker: Dr. Charlie Kemp
 10:10 AM | Spotlight talks from accepted submissions
 11:00 AM | Coffee Break
 11:20 AM | Invited Speaker Panel Discussion
 12:00 PM | Poster Session
 12:45 PM | Closing Remarks

Target audience or prerequisites

Example topics for contributed papers include socially conscious, trustworthy, and transparent AI, personalized longitudinal interaction, multiagent coordination, and design of software and hardware for care robotics. We suggest that submissions to this workshop conduct research that is motivated by at least one of these themes, with applications and plans to test with elderly end users in the future or present. We will have submissions provide a short statement discussing the relevance of their work for the target population of this workshop.

Submissions

We will accept extended abstracts (2 pages excluding references), short papers (4 pages excluding references), opinion pieces (4 pages excluding references), and full-length papers (8 pages excluding references). All of these papers will receive two high-quality reviews by a program committee.

Advertisement

As the organizers of this workshop are committed to diversity and inclusion, we will encourage international contributions and will advertise the workshop through robotics worldwide and the HRI announcements mailing list, in addition to AI Caring and university mailing lists. We expect the number of accepted papers to be 12-15, and the number of attendees to be approximately 40-50. The proposals will be submitted via EasyChair.

Documentation

We will record the spotlight talks and invited speakers and if permitted by the speakers, will make those recordings available via the workshop website. The accepted workshop submissions and

pdf versions of the posters will be made available on our workshop website.

ORGANIZER SHORT CVS

- (1) Nina Moorman is a Ph.D. Candidate at Georgia Institute of Technology. Through her research, she hopes to develop algorithms that enable robots to learn and improve through human interaction in unstructured residential environments.
- (2) Michelle Zhao is a Ph.D. Student at Carnegie Mellon University. Her research studies preference learning and mutual adaptation in human-robot collaboration.
- (3) Dr. Henny Admoni is a Associate Professor at Carnegie Mellon University. Dr. Admoni's research focuses on robotics, human-robot interaction, machine learning, computer vision, artificial intelligence, human-computer interaction, and cognitive science.
- (4) Dr. Reid Simmons is a Research Professor at Carnegie Mellon University. Dr. Simmons' research focuses on multirobot coordination, human-robot social interaction, and probabilistic reasoning in robotics.
- (5) Dr. Matthew Gombolay is an Assistant Professor of Interactive Computing at the Georgia Institute of Technology. Dr. Gombolay's research interests span robotics, AI/ML, human-robot interaction, and operations research.

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