

EVIDENCE IN THE MAKING

ARTIFICIAL INTELLIGENCE GIVES REAL HOPE

Mobile Robots Assist People with Dementia

THE CHALLENGE

Older adults with Alzheimer's disease are often unable to complete routine daily activities because they can't remember the proper sequence of steps. To address this issue, Dr. Alex Mihailidis of the University of Toronto and the Toronto Rehabilitation Institute has developed an automated prompting system called the COACH (Cognitive Orthosis for Assisting aCTivities in the Home). Using tiny cameras to monitor activities and computer screens for demonstrations, the COACH provides verbal or visual prompts to help with basic tasks. "It doesn't just say, 'Remember to wash your hands'," he says. "It prompts with specific steps like 'turn the water on', 'use soap' and 'dry your hands'. Dr. Mihailidis and his research team have already shown that the system works effectively in long-term care facilities to encourage older adults with moderate-to-severe Alzheimer's disease to wash their hands properly. They are now adapting the COACH both to help with other daily living activities and to operate in individual homes.

Research: The team is conducting a large survey of caregivers to understand which activities cause the most difficulty, and how technology could help. "Technology can play a huge role in care of people with dementia," says Dr. Mihailidis, who heads the technology team for the Canadian Consortium on Neurodegeneration in Aging (CCNA). "It's one way to make homecare affordable and relieve stress on caregivers." The researchers have been developing a mobile robot that can follow an adult around the house to offer assistance. A 2013 pilot project showed that 10 older adults with Alzheimer's disease could follow prompts to wash their hands and make tea and, for the most part, enjoyed interacting with the robots. More research is needed to make the system practical, affordable and easily applied across various activities and environments.

Sources: Boger, Jennifer, Amaya Arcelus and Alex Mihailidis (in press). "Themes learned through the development of intelligent environments that support healthy well-being." *Journal of Ambient Intelligence and Smart Environments*. Mihailidis, Alex, Jennifer Boger, Tammy Craig and Jesse Hoey. "The COACH prompting system to assist older adults with dementia through hand washing: An efficacy study." *BMC Geriatrics*, 8, 28 (2008); doi:10.1186/1471-2318-8-28.

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