

Preface

Diane J. Cook and Narayanan C Krishnan
Washington State University

Parisa Rashidi
University of Florida

Marjorie Skubic
University of Missouri-Columbia

Alex Mihailidis
University of Toronto

The aging population, the increasing cost of formal health care, caregiver burden and the importance that older adults place on living independently in their own homes motivate the need for the development of patient-centric technologies that promote safe independent living. These patient-centric technologies need to address various aging related physical and cognitive health problems such as heart disease, diabetes, deterioration of physical function, falling, wandering, strokes, and memory problems, lack of medication adherence, cognitive decline and loneliness. Advances in the sensor and computing technology that allow for ambient unobtrusive and continuous home monitoring have opened new vistas for the development of such technologies.

AI is central to such systems as it deals with the process of transforming raw sensor data into human interpretable abstractions and innovating new human computer interfaces for the older adults. AI can help in decision making and analyzing the sheer volume of captured data from a variety of sensing technologies for understanding the physical activities, nighttime behaviors, medication taking, socialization and ongoing physiological changes in the older adults. As the availability of longitudinal data increases, we have an unprecedented opportunity to discover new early predictors of clinically significant events. This is a challenging research area that has seen increasing interest among the research community due to the need of the hour.

The goal of this symposium is to understand the role of AI in current research through presentation of case studies and work in progress research and to brainstorm novel technologies that can be innovated and improved by AI research. The symposium will bring together researchers working on various artificial intelligence aspects of gerontechnology in order to highlight the current challenges, as well as to identify the future grand challenges. Topics of discussion at the symposium include application of novel AI techniques in the following areas (but not restricted to):

1. Rehabilitation systems
2. Persuasive technology for health aging
3. Cognitive orthotics systems
4. Physiological change/anomaly detection
5. Socialization and emotional well-being in aging population
6. Medication adherence
7. Activity and behavior monitoring
8. Emergency situation detection
9. Privacy preservation
10. Evaluation mechanisms
11. Position papers on challenges faced by the caregiving and nursing community.

This symposium will feature presentations for all accepted papers. There will be invited talks and a panel discussion by experts from a variety of relevant fields.