



THE IALH UPDATE

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Pedestrian Wearables for Interactions with Autonomous Vehicles



Photo created using AI technology, Canva.com

According to ACM, the Association of Computing Machinery, up to 30% of new cars are expected to be autonomous or self-driving vehicles by 2030. Their introduction raises a number of concerns for pedestrians, including the loss of driver cues. Several devices, known as external human-machine interfaces (eHMIs) have been designed to transmit vehicle intent and awareness information to pedestrians. However, many involve the use of vehicle and street infrastructure and personal feedback to pedestrians is limited.

In a recent publication, IALH Research Fellow Sowmya Somanath (Computer Science) and colleagues at the University of Victoria and the University of Calgary discuss the development of pedestrian wearables (clothing and accessories-based devices) “whose primary purpose is to alert pedestrians of relevant information such as oncoming [autonomous vehicles] and their intentions.”

In this project, five participants were asked to design at least three pedestrian-wearables. Participants considered the following in designing the devices:

- Human movement – “participants proposed easily moldable devices that conformed to the shape of the human body”
- Form – “devices were designed to be smooth to touch and easily moldable for seamless integration onto the wearer’s body while maintaining comfort and allowing for dynamic mobility”
- Sensory interaction – “devices alerted at least one of [the following senses:] sight, hearing or touch, and activations were a result of communication received from autonomous vehicles”
- Placement – where the devices are placed on users will likely “determine how well they will be received and adopted”
- Accessibility – devices should be placed “in a somewhat conspicuous location while remaining accessible to the wearer at all times to ensure alerts [can] be easily recognized”
- Proxemics – some designs considered “shared spaces among road users”; and
- Attachment – the way in which the devices are worn should be similar to that type of clothing

The most commonly proposed wearables included squeezing socks, constricting bands, and alerting

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headphones. These specific devices were considered desirable “due to their hidden and unobtrusive nature and their adaptability to different individuals and environments.” Other designs included a light-projecting necklace, an inflating jacket, and a shape-changing scarf.

The researchers concluded that “pedestrian-wearables hold promise as technologies that serve to communicate between [autonomous vehicles] and pedestrians...[They] can take several forms and communicate using varied modalities, ensuring a ...diverse range of pedestrians...can benefit from the information and make safe street crossing decisions.”

To read the full article, go to <https://dl.acm.org/doi/fullHtml/10.1145/3544549.3585655>.

Resources

Behaviour Changes in Dementia

People living with dementia may experience sensory, communication and behaviour changes. The webinar entitled *Focus on Behaviour: Understanding Behaviour Changes* explores the impact of dementia on various behaviours and provides some tips and strategies to cope with changes that may occur. Hosted by the Alzheimer Society of BC. Available at <https://www.youtube.com/watch?v=drSeR6Hfne8>.

It's Time to Act: A Review of Assisted Living in BC

Assisted living settings provide older adults with their own private living space as well as the opportunity to share meals and activities with others. This may be an ideal housing option for individuals who are finding it difficult to remain in their own home but who are not in need of long-term care. A recent report from the Office of the Seniors Advocate entitled *It's Time to Act: A Review of Assisted Living in BC* explores a number of topics related to service provision, funding and waitlists. Highlights from the report indicate that:

- The average age at time of admission to publicly subsidized assisted living in BC is 81 years.
- Compared to five years ago, individuals in publicly subsidized assisted living are frailer. More individuals are experiencing cognitive decline and/or requiring assistance with activities of daily living (for example, bathing, dressing).
- Although spending for publicly subsidized assisted living has increased substantially in the past five years, there has been no increase in either the number of units or the level of support provided.
- The waitlist for publicly subsidized assisted living units is longer than the waitlist for publicly funded long term care.

To read the full report go to <https://www.seniorsadvocatebc.ca/app/uploads/sites/4/2023/06/Assisted-Living-Review-2023.pdf>.

Congratulations



IALH Leadership

IALH Research Fellow **Nathan Lachowsky** (Public Health and Social Policy) has been reappointed as IALH's Acting Director until June 30, 2024. He has also been appointed Associate Dean Research in the Faculty of Human and Social Development.



Retirement

Congratulations to IALH Research Fellow **Debra Sheets** (Nursing) on her retirement. Debra will be continuing her work on making Victoria a Dementia Friendly Community.

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Congratulations (cont'd)



Recognition of Research Excellence

Congratulations to IALH faculty affiliates **Josh Giles** (Mechanical Engineering) and **Helen Monkman** (Health Information Science) and IALH student affiliate **Tess Carswell** (Mechanical Engineering) on receiving a CIHR Institute of Musculoskeletal Health and Arthritis Inclusive Research Excellence Prize for Patient Engagement for a project entitled *A Patient-Oriented Research Approach to Studying Sex Differences in the Prosthetic Needs and Priorities of Lower Limb Amputees*. Research on lower limb amputees often focuses on male participants despite females experiencing unique challenges impacting their prosthetic success and quality of life. The researchers included a committee of female lower limb amputees as patient partners on the project and found the committee's work to be critical for expanding understanding of the needs of female lower limb amputees. The committee will continue to participate in future research efforts.



Congratulations to IALH Research Fellow **Nathan Lachowsky** (Public Health and Social Policy) on receiving an Excellence in Research Award from the Canadian Association for HIV Research and the Canadian Foundation for AIDS Research for his work on improving the lives of individuals who are living with HIV or at risk.



Congratulations to IALH Research Fellow **Christine Ou** (Nursing) on receiving the 2023 Best of JOGNN Award (Journal of Obstetric, Gynecologic and Neonatal Nursing) for her paper *Trajectories and Correlates of Anger During the Perinatal Period*.



Supporting Policy Development

Congratulations to IALH Research Fellow **Nancy Clark** (Nursing) on receiving funding from the BC Ministry of Health's Seed Grant program for a project entitled *Identifying Gaps and Challenges in the Mental Health and Substance Use Workforce in BC*. Seed Grants provide funding for critical research that responds to government's research questions to support decision making and policy development.

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