

**POSTDOCTORAL RESEARCH POSITION  
IN ARTIFICIAL INTELLIGENCE FOR ASSISTIVE TECHNOLOGIES  
David R. Cheriton School of Computer Science  
University of Waterloo, Waterloo, Ontario**

The Computational Health Informatics Laboratory (CHIL) in the David R. Cheriton School of Computer Science at the University of Waterloo seeks a highly qualified postdoctoral researcher to work on the newly funded DIY-AIDE project within the AGE-WELL Network of Centers of Excellence (NCE). See below for details on DIY-AIDE. Researchers are sought with expertise and interests in one or more of the following areas: human-interactive intelligent systems, affective computing, assistive technology, human behaviour modeling, computer vision, user-centered design, Markov decision processes, pervasive and ubiquitous computing, and probabilistic relational modeling. Candidates with interests in other areas, but who feel their research aligns well with the DIY-AIDE project are also welcome to apply.

Successful candidates will be expected to conduct independent research and to contribute to the DIY-AIDE project and to the AGE-WELL NCE. Successful candidates will also be expected to work closely with undergraduate, Master's and Ph.D. students. Publication of significant research in high quality venues will be a top priority for successful candidates. Expected start dates for the position are in the fall of 2015. Successful candidates will receive a one-year contract, with expected extensions based on performance to current funding timelines of three years.

The successful candidates must have obtained a recent Ph.D. in computer science, computer engineering, mathematics, or a related field. Candidates with a Ph.D. in biomedical engineering, medicine, psychology, or other clinical sciences will be considered if they have a demonstrated ability for technical (e.g. mathematical or computational) research, or if they fit exceptionally well within the scope of the DIY-AIDE project.

Applicants should email the following to Jesse Hoey (jhoey@cs.uwaterloo.ca):

- a complete CV,
- a research statement on the applicant's long-term research goals (max two pages),
- a statement on how the applicant sees him/herself aligning with DIY-AIDE (max one page),
- country of citizenship and date of availability,
- names and contact information of three references.

Applications without all of elements above will not be considered.

**RESEARCH PROJECT DIY-AIDE:**

DIY-AIDE (Do-it-Yourself Adaptable Intelligent Domestic Environments) aims to build a "do-it-yourself" version of a smart-home which connects users with developers by building a person-specific logical knowledge base of user needs, emotions, assistance dynamics, sensors, actuators and care solutions. The knowledge base will also serve as a run-time processor for the provision of assistance in specific tasks: it will act as the equivalent of a 'smart home', but

will be a dynamically evolving variant, customisable in real-time by end users and product developers. Thus, in DIY-AIDE, the smart-home emerges from the specific requirements of a user in a do-it-yourself approach that gives control to the user, while allowing them to access technological solutions. DIY-AIDE will use a participatory design approach to elicit needs from elders and their families and to evaluate performance and acceptability, and a technical approach to build artificially intelligent systems for monitoring and for assistance during activities of daily living. Participatory design and technical work will combine to provide socially and emotionally aligned systems that people can easily and comfortably customize for their needs, and that will assist, reassure and provide safety. DIY-AIDE is a multi-site and multi-lingual project, done in collaboration with researchers from the Université de Sherbrooke (Québec). See [diysmarthome](#) for more details on the research.

DIY-AIDE is funded by the AGE-WELL Networks of Centers of Excellence ([www.age-well.ca](http://www.age-well.ca)), a large Canadian, multi-institution network of researchers working on technological solutions for aging. Postdoctoral fellows on this project will collaborate with other AGE-WELL researchers, attend network events, and help write reports for AGE-WELL.

Within the DIY-AIDE project, technical expertise is sought in hierarchical task modeling, probabilistic-relational models, sensors and effectors, human emotion detection and modeling, user interfaces, partially observable Markov decision processes, and human activity monitoring.

### **COMPUTATIONAL HEALTH INFORMATICS LABORATORY (CHIL)**

The Computational Health Informatics Laboratory is the heart of the health informatics and biomedical engineering effort at the School of Computer Science. Housed in a large, newly constructed research space, it includes a lively student community, a state-of-the art presentation/meeting room, and a living lab equipped with the latest in sensor, camera and interface technology. Members of CHIL engage in weekly meetings and seminars, along with the lively social life on the Waterloo campus and in the city of Waterloo.

### **DAVID R. CHERITON SCHOOL OF COMPUTER SCIENCE**

The David R. Cheriton School of Computer Science brings together over 80 faculty, 40 staff and 2000 students at the undergraduate and graduate levels. The School has its origin in the Department of Applied Analysis and Computer Science, founded in 1967, and has grown to become the largest academic computer science research centre in Canada, ranking 10th in North America and 24th in the world. The School is home to numerous Fellows of the Royal Society of Canada, Fellows of the Association for Computing Machinery, Fellows of the Institute of Electrical and Electronics Engineers, and winners of awards from other international research societies.

### **UNIVERSITY OF WATERLOO**

In just half a century, the University of Waterloo, located at the heart of Canada's technology hub, has become a leading comprehensive university with nearly 36,000 full- and part-time

students in undergraduate and graduate programs. Consistently ranked Canada's most innovative university, Waterloo is home to advanced research and teaching in science and engineering, health, environment, arts and social sciences. From artificial intelligence, quantum computing and nanotechnology to clinical psychology and health sciences research, Waterloo brings ideas and brilliant minds together, inspiring innovations with real impact today and in the future.

As home to the world's largest post-secondary co-operative education program, Waterloo embraces its connections to the world and encourages enterprising partnerships in learning, research, and commercialization. With campuses and education centres on four continents, and academic partnerships spanning the globe, Waterloo is shaping the future of the planet.

### **WATERLOO, ONTARIO**

The City of Waterloo is located in the heart of Canada's Technology Triangle, a dynamic urban municipality in southwestern Ontario with a strong cultural and economic base. Renowned post-secondary institutions, global think tanks, and major employers call Waterloo home. The quality of life at Waterloo is enhanced by arts, culture and heritage scenes, recreation opportunities, parks and trails, facilities, programs, services and more. Waterloo lies within an hour of Toronto's Pearson International Airport, offering excellent connections within Canada and to the USA, and to all major centers worldwide. The city of Toronto, one of the most cosmopolitan and multi-cultural cities in the world, lies just a bit further on. The great lakes, the Niagara region, Muskoka, Algonquin, and the Bruce peninsula offer splendid outdoor recreation opportunities within hours of Waterloo. Waterloo is a great place to live, work, learn and play.

The University of Waterloo respects, appreciates and encourages diversity. We welcome applications from all qualified individuals including women, members of visible minorities, Aboriginal peoples and persons with disabilities. All qualified candidates are encouraged to apply; however, Canadian citizens and permanent residents will be given priority.