

Human-Computer Interaction

RESEARCH
THEME



One of UVATT's major research themes is the development of human-computer interfaces that are specifically designed to be used by those with disabilities.

It is estimated that in North America those with disabilities are less than half as likely to own a computer as their non-disabled counterparts, and are only about one-quarter as likely to use the internet. Our goal is to help overcome this "digital divide" by developing a multi-platform dynamic computer interface system that will allow those with disabilities (particularly those who lack the dexterity to use a regular keyboard or any other multi-input device) to not only type, but also to access and use a range of critical software (for example; email, word processors, web browsers) and peripheral devices (printers, telephones, house and environmental controls etc.). A primary goal is to reduce or eliminate the dependence of users on caregivers.

Our system will be a radical advance over conventional systems that

are, for the most part, based on "QWERTY" or "DVORAK" formats that assume multi-digit inputs. A key design goal is to ensure that the system will work seamlessly with a variety of input devices-these include single-finger switches, brainwave control interfaces, head movement detectors, eye movement detectors, programmable touch pads and touch screens. We are extremely fortunate through our collaborations with agencies such as Special Education Technology BC (SET BC) and the Vancouver Island Health Authority (VIHA), to have access to a very large and diverse group of potential users of

our interface system. A major strength of our research is that we work actively with groups such as these to determine which technologies and approaches will address their challenges.

Although our efforts are directed at the special needs community with the overall goal of bringing about a major advance in disability-related human-computer interfaces, our research will have significant applications beyond the disability arena (for example, the use of our interfaces by the elderly and computer novices).

