

Technology for dogs to assist humans in the home

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A team at The Open University is designing dog-friendly technologies which will help animals and people to work together in their homes. They will present the significance of this approach in a paper at the ACM SIGCHI Conference on Human Factors in Computing Systems next week (1 May 2013).

"These technologies will be designed for and with the active participation of the dogs. And the idea is that they will work in a variety of environments where the dogs are required to operate," explains Dr Clara Mancini, head of the Animal-[Computer Interaction](#) team at the OU.

The team is collaborating with the charity Dogs for the Disabled who train assistance dogs. These dogs are trained to help their disabled owners with a wide range of tasks, from operating [light switches](#) and

door handles to loading and unloading washing machines. However, the technology the dogs have to use is designed for humans rather than animals, which can be difficult and frustrating for dogs and owners.

"When the dogs move from the training facility to their new home, instead of being faced with a different set of devices which they have to learn from scratch, they would bring their own 'toolkit' of plug-on appliances with them," said Clara.

The research began two years ago, when a team in the Computing Department of The Open University launched the first systematic research programme in Animal-Computer Interaction (ACI), to create technology designed for and by animals.

The radical new principle behind ACI is to involve the animals as active participants in and contributors to the design process.

This principle is also being applied to other projects; the team has collaborated with Retrieva Ltd, investigating how the use of [tracking technology](#) influences the behaviour of both humans and dogs, and in developing a biosensing harness to monitor the vital signs of [working dogs](#).

"We are collaborating with the charity Medical [Detection Dogs](#), who train dogs to detect traces of [cancer cells](#) by sniffing biological samples," said Clara.

"We aim to develop interactive devices which the dogs could use to help humans better interpret the dog's findings; and dog-friendly alert systems that the dogs could use to summon help for their assisted humans."

ACI is not confined to [dogs](#). The team is also preparing to start a project aiming to develop interactive games for humans and wild animals, for

example allowing resident elephants and human visitors to play together in wildlife parks. They believe ACI has potential in areas ranging from feeding pets to improving the life of farm animals.

The team is using design methodologies adapted from Human-Computer Interaction (HCI) and its user-centred approach.

The challenge is developing user-centred methodologies for someone who doesn't speak the same language we do or who doesn't think the same way we do," says Clara.

The HCI toolbox has several methods which are not based on self-report, – for example naturalistic observation, user-testing in the lab, bio sensing or the use of ergonomic principles. We can begin by adapting these to try and understand how animals see the world and invite them to re-design the future with us to build a more sustainable society for everyone."

More information: oro.open.ac.uk/view/person/cm476.html.

Provided by The Open University

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