Virtual companions making interaction more social

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Most of us interact with computers of one sort or another on a daily basis - but this 'interaction' is generally task-oriented and rather one-sided. Making computer interfaces more 'human' has been a long-standing ambition for researchers. A team of European researchers has developed exciting prototypes that go some way to doing just that.

The virtual-companions-for-conversation system developed by researchers at EU-funded COMPANIONS ('Companions: persistent multi-modal interfaces to the Internet') moves on from traditional task-based interaction to social interaction.

Launched in 2006, COMPANIONS sought to bring to the internet a

tailor-made, conversational interface that recognises its user. A key component of the research was machine learning - developing software with the ability to learn without explicitly programming it to modify the way it behaves.

The technology will be particularly beneficial for those living alone. More than a third those living in advanced societies will live alone by the mid- to late-2020s - of which 50percent will be pensioners. It will be particularly important for this group to have access to a virtual interactive companion, providing conversation and diversion.

This interaction will help reduce depression (loss of companions is considered a key trigger of depression among the elderly), and act as an alternative access point to resources on the internet.

The team's English Companion is able to listen to long statements or remarks in English and respond appropriately to what the user is saying. The Companion can also engage the user by responding, expressing interest and empathy - something the users often need to receive.

This ability to express interest and empathy is new and exciting. The Companion does this by analysing a person's voice and the content of his or her dialogue before responding. It then uses a set of embedded rules to produce the right 'emovoice'. For example, this emovoice can state negative-active, negative-passive, neutral, positive-passive and positive-active expressions.

The team also developed a Czech Companion, which shows key advances in the Czech language: automatic speech recognition; natural language understanding; natural language generation; and text to speech synthesis. The Companion can be combined with current dialogue management techniques so as to deliver natural-sounding dialogue.

The Senior Companion is designed to engage users in dialogue on news, photos and funny stories. It can find tagged photos of users on the internet and create a timeline bringing together life events and special memories.

The Health and Fitness Companion focuses on improved wellbeing, nutrition and exercise - for example by asking its owner whether he or she will go for a run that day, and suggesting taking a packed lunch.

The Companion does not have to be accessed on a traditional computer. It can be used via a mobile phone, a computer shaped like a head or even a handbag, the team suggests.

Coordinated by the University of Sheffield in the United Kingdom, COMPANIONS brought together researchers and industry actors from the Czech Republic, Finland, France, Italy, Spain, Sweden, the United Kingdom and the United States. The project, which ended in 2010, received more than EUR 10 million in funding under the 'Information Society Technologies' thematic area of the Sixth Framework Programme (FP6).

More information: www.companions-project.org/

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