

I'm listening -- conversations with computers

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A computer system that can carry on a discussion with a human being by reacting to signals such as tone of voice and facial expression, is being developed by an international team including Queen's University Belfast.

Known as SEMAINE, the project will build a Sensitive Artificial Listener (SAL) system, which will perceive a human user's facial expression, gaze, and voice and then engage with the user. When engaging with a human, the SAL will be able to adapt its own performance and pursue different actions, depending on the non-verbal behaviour of the user.

SEMAINE is led by DFKI, the German centre for research on Artificial Intelligence: the other partners are Imperial College, London, the University of Paris 8, the University of Twente in Holland, and the Technical University of Munich. The European Commission awarded it a grant of €2.75 million after it was ranked first out of 143 bids for medium-sized projects in the area of cognitive systems and robotics.

Professor Roddy Cowie, from the School of Psychology, leads the team at Queen's. He said: "A basic feature of human communication is that it is coloured by emotion. When we talk to another person, the words are carried on an undercurrent of signs that show them what attracts us, what bores us and so on. The fact that computers do not currently do this is one of the main reasons why communicating with them is so unlike interacting with a human. It is also one of the reasons we can find them so frustrating," said Professor Cowie.

“SEMAINE and projects like it will change the way people interact with technology. They mean that you will be talking to your computer in 20 years time. When you do, pause for a minute, and remember that the human sciences at Queen’s helped to lay the groundwork.

“These new developments depend on connecting technology to the relevant understanding of people, and it is recognised worldwide that we have a distinctive strength in bringing psychology, linguistics and ethics to bear on the process of developing the new systems.”

SEMAINE follows on from another project, entitled HUMAINE, which was led by Professor Cowie. The HUMAINE Project (Human-Machine Interaction Network on Emotion) received €4.95 million to develop interfaces that let humans use computers in a more natural way. In 2006 it won the “Grand Prize” for the best Information Society Technology Project website. HUMAINE continues in the form of a world-wide organisation for emotion-oriented computing, the HUMAINE Association (<http://emotion-research.net/>), of which Professor Cowie is president.

Professor Cowie added: “Today when we use technology we adopt a style of communication that suits the machine. Through projects like HUMAINE, SEMAINE, and others linked to them, we will develop technology that will eventually communicate in ways that suit human beings.”

Source: Queen's University Belfast

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