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Jazz-singing robot could shed light on consciousness

By Douglas Heaven



ROBOTS and humans will soon be living in harmony. A singing robot is being taught to improvise jazz duets with a human in a project that researchers hope will shed light on the nature of consciousness.

Antonio Chella at the University of Palermo, Italy, is working with a Telenoid robot, developed by the Hiroshi Ishiguro Laboratory in Japan (pictured). To start with, the Telenoid will be trained to mimic the movements and simple sounds made by a human singer, as well as associate parts of music with different emotional states. Chella then plans to see if the robot can use these associations to improvise – choosing movements and vocalisations that complement its human duet partner.

Intelligence is often defined as the ability to find connections between existing entities – understanding that a key goes in a lock, for instance. But Chella suggests that a conscious organism should be able to go a step further and introduce novel connections – between, say, musical phrases – that result in the creation of something new. That, in essence, is the idea behind improvisation.

Jazz musicians interviewed by Chella talked of having a mental library of musical phrases that they were able to combine in new ways when prompted by other musicians

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Networks in Lausanne, Switzerland.

“[This work] raises interesting questions about the link between consciousness and music making,” says musician and computer scientist Philippe Pasquier at Simon Fraser University in Vancouver, Canada. But he is sceptical about whether a robot musician needs a physical body, citing examples of AI composers that exist only in software.

Instead, Pasquier argues that automated musicianship boils down to two challenges: composition and interpretation. Software has already been developed that can imitate Bach, he says. Interpretation, on the other hand, involves the specifically human traits of taste and aesthetic judgement. “What made The Beatles famous was not so much their compositions, but the fact that the interpretations of the compositions were brilliant,” he says.

It is not yet clear how an artificial musician would go about interpreting music in a novel way. But by mimicking humans and then learning to sing, Chella’s robot could provide clues.

What does seem to be important is that human composers often listen to hours of music made by others. “Humans don’t tend to do things in a vacuum,” says Pasquier. Chella’s robot better get listening to those jazz standards.

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