How a computer program became classical music's hot, new composer

'Emily Howell' is a computer program that composes classical music by following rules of music its programmer taught it.

David Cope, professor of music emeritus at the University of California- Santa Cruz, holds a laptop in his home office with a musical score composed by his computer program, which he calls 'Emily Howell.' Emily has composed around 20 pieces of classical music.

Tony Avelar/The Christian Science Monitor

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By *Matt Rocheleau*, / Contributor / June 17, 2010

Earlier this year, 6-year-old musical prodigy Emily Howell released an 11-track debut album, resembling the work of history's most renowned classical composers. But instead of receiving the praise given to Beethoven, Mozart, or Bach, the California native has become a lightning rod for controversy within the musical community.

Why? Because Emily is not human.

Emily is a computer program, and "her" ability to write original compositions has called into question whether art is as uniquely human as many like to believe.

"Can computers be creative? In the sense that they are creating something that wasn't there before, yes," says David Cope, Emily's programmer and professor emeritus at the University of California, Santa Cruz. "But so can birds and insects and volcanoes. We have reserved this notion of creativity for humans for a long time, and we are enamored of it."

As he sees it, creativity has never been a human-defining trait. This feeling of his stretches back

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three decades, to when Mr. Cope first dabbled in teaching music to computers. After hitting a dead end while trying to write new music on his own, Cope created a program called EMI, which he pronounces as "Emmy."

EMI (Experiments in Musical Intelligence) would analyze the work of human composers, pick up on their musical styles, and generate new work seemingly written by the original musician. EMI created "zillions" of compositions before being scrapped for Cope's latest project, he says.

Created in 2003, Emily has only written around 20 songs. It synthesizes its own compositions according to the rules of music that Cope has taught it. And Emily is only fed music that EMI had composed, which gives the new work its own contemporary-classical style.

Human musicians perform most of Emily's compositions, though one song on the album credits three Disklaviers, pianos played by machines.

Cope says he decided to give the software a human name – which has led some to believe it's a real person – because he did not want people to think of Emily as a novelty. Nor did he want her true identity to prejudice listeners either toward or against the music. Some who praised Emily's work before they knew who "she" was, later played down their reactions after learning the music was written by a computer, Cope says.

Some composers seem threatened by a computer program that can produce original compositions, he says. But Cope points out that Emily is still, on some level, a human creation.

"If people were able to [program a computer to be creative], would it make us more or less creative?" Cope asks. "I'd say more."

Page: 1 | 2

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