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MIT mashup: Robots and humans make beautiful music together

By **Bob Young**

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First there was a troupe of 30 math, physics and engineering student musicians playing the traditional music of faraway Bali.

Then robots played music with humans and millions of volts of electricity.

Now, from an idea that was fine-tuned in the halls and labs of MIT, the students, the robots and humans will share the stage tomorrow at the Museum of Science.

"It was a natural connection," said Evan Ziporyn, an MIT professor, clarinetist and founder of Gamelan Galak Tika, gamelan being a percussion-dominated instrumental ensemble native to parts of Indonesia.

Natural? Robots and people playing music together? For Ziporyn and Christine Southworth, co-founder and director of Ensemble Robot, composer in residence at the museum and a member of the gamelan orchestra, this show makes perfect sense.

"The kind of people who would be interested in playing gamelan are the same kind of people who are interested in doing outsider things as musicians," said Ziporyn. No kidding. Ziporyn's Gamelan Galak Tika has teamed with electronics and Chinese instruments. Ensemble Robot did a performance at the museum's Theater of Electricity last year that featured lightning bolts, a cellist, vocals and a double helix-shaped robotic xylophone.

That same robot makes an encore appearance tomorrow along with two new robots, the Bot(i)Cello and the BlowBot. They'll join, among others, Gamelan Galak Tika, lyricon player Erik Nugent and violinist Todd Reynolds, a member of composer Steve Reich's group.

"We're not talking about 'Lost in Space' robots here," Ziporyn said. "These are really robotic instruments, meaning they're instruments that play, that actually make acoustic sounds, but make them on their own. But they don't look like people. It's not like we're playing with R2D2 or anything like that."

In addition to the challenge of dealing with inflexible machines, Ziporyn is quick to acknowledge their advantages.

"You can always count on them," he said, "and if they make a mistake, it's probably because a wire's loose or the programming is bad. You can fix things with a screwdriver or by typing on a keyboard."

Ziporyn is hoping there'll be no fixes necessary during the world premiere of his composition "Belle Labs," which puts him in a trio that includes the veteran double helix-shaped robot.

"It's the interplay that interests me," he said. "On the one hand we have the robots doing these really impossible things, particularly rhythmically. And then human beings respond to them in ways that a robot just can't. We're trying to do something that's musically satisfying and make it more than just a novelty."

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