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Robo-Fusion: Artificial Intelligence Takes the Stage at SCREAM Fest

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I may be living in the "age of technology" here in 2010, with the smart phones and the talking GPS devices and the iTunes auto-DJ always at my disposal. We've all become pretty accustomed to—and spoiled by—this kind of "smart" technology that's taking over at such a rapid rate. But, to this day, when I hear "robot technology" or "artificial intelligence," I still think of Rosie—the sweet, lovable, wheel-legged

house-bot from *The Jetsons*. And that's just what I was expecting when I attended the [SCREAM Festival at the REDCAT](#) this Wednesday night, where the [KarmetiK Machine Orchestra](#) performed a unique symposium of electronic North Indian music.

The Karmetik Music Orchestra is the creation of music director Ajay Kapur, production director Michael Darling, and a whole team of musicians and designers both within and without the CalArts sphere. Ajay Kapur is the Director of Music Technology at [CalArts](#) and the creator of KarmetiK, a body of artists and engineers working to redraw the line between music and technology. KarmetiK uses artificial intelligence and human-computer interaction technologies to create new digital works of art. This is more than just reinventing the sitar, though. This is a whole new man behind the sitar. I'm talking about robots, here. The researchers and engineers at [KarmetiK](#) have pushed the technological barrier so far as to create custom-built robotic instruments that can improvise with a human musician, fusing musical tradition and modern engineering.

Neat! But are these robot-musicians self-aware? Maybe not, but this was nothing like what I expected. At Wednesday night's performance, five robots shared the stage with a dozen or so musicians. Two strange looking drum sets hovered on each side of the stage, roughly seven feet from the ground, with drums, bells, cymbals, gongs, strings, and shakers splaying from the center. A rain stick spun slowly on an automated pinwheel at stage left. There was a gamelan-bot, like the Reyong used in the Balinese tradition, with upside-down metal pots suspended on a wooden frame. Tammy, a master-bot of sorts, stood high in the center. Tammy was designed by the well-known instrument sculptor Trimpin, Michael Darling, and Ajay Kapur, and built by students in the Robotic Design class at CalArts. Made up of a marimba, a self-plucking drone device, and five bells—all recycled objects found in the electronics junkyard—Tammy stands 14 feet tall and is certainly nothing like my dearly-beloved Rosie.

The program consisted of music in the North Indian style, beginning with a sparse call-and-response piece, Digital Sankirna, demonstrating the performer-robot interaction, in which the robots seemed to learn and play more as the piece progressed. Amazing was the robot's sense of restraint—it seemed to intuitively know just when to release. Accompanied by Ajay Kapur's ESitar and Curtis Bahn's most beautiful EDilruba, it made for an arrestingly haunting opening. A second highlight was the appearance of the Ustad [Aashish Kahn](#), considered one of the greatest living sarodists in the world, for a performance of the an Indian raga Shivranjani. Finally, the dance of the dalem, in the Balinese masked-dance tradition, concluded the program, complete with five gamelan players, the Reyong Bot, and the dancing white-masked king.

So maybe we haven't yet advanced artificial intelligence to the point where robots are self-actualizing, but after watching Karmetik, I feel that we are frighteningly close. This is more than a simple case of *deus ex machina*. Music is one of mankind's most primitive forms of communication, fastening us together on the most gut level. The technology powerful enough to create a robot that can tap into the human psyche on that basic plane may be the great equalizer between man and machine, and that is a loaded possibility. Rosie is with us, certainly more than we might have known.

- By Helen Kearns