Stanford researcher taps power of cell phones to make music (Video)

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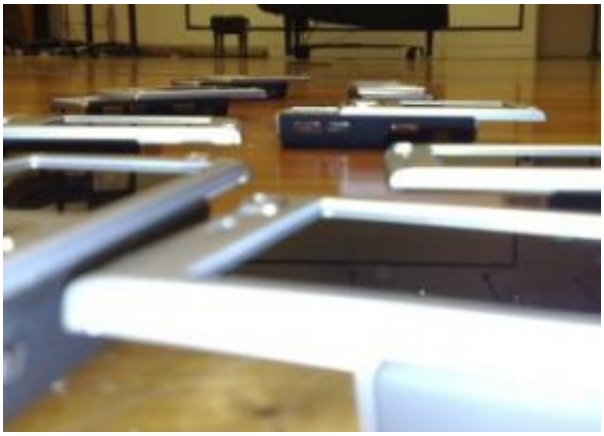

The Mobile Phone Orchestra (MoPhO) is a new repertoire-based ensemble using mobile phones as the primary musical instrument. Far beyond ring-tones, MoPhO's interactive musical works take advantage of the unique technological capabilities of today's hardware, transforming phone keypads, built-in accelerometers, GPS, and built-in microphones into powerful and yet mobile chamber meta-instruments.

(PhysOrg.com) -- The sound is unearthly—the sort of hypnotic drone you might hear from the chanting of state-of-the-art Tibetan monks. Or a vibration picked up via radio signals from another galaxy.

In fact, it's not a human sound at all. It's a half-dozen mobile phones. The eerie music is part of a "mobile renaissance," said Ge Wang, creator of the Stanford Mobile Phone Orchestra, known as MoPhO. Wang is

also the founder of the Stanford Laptop Orchestra and an assistant professor of music at Stanford's Center for Computer Research in Music and Acoustics (CCRMA), one of the foremost computer music research centers in the world.

MoPhO performers wear black. In the cushioned third-floor quarters of the Knoll, the old presidential mansion where CCRMA (the acronym is pronounced "karma") is housed, they are mostly shoeless in outré socks. All this could pass as routine on any college campus. But the alien cylinders that are sewn onto their fingerless gloves are the giveaway of something outlandish in the making. The objects are "wearable speakers," Wang explained.

Wang is tapping into a large potential audience, and a larger pool of potential performers, with an estimated 4 billion cell phones in the world (including about 25 million iPhones). Cell phones have penetrated the remotest parts of the globe.

"Mobile phones are becoming so powerful that we cannot ignore them anymore as platforms for creativity," said Wang, 31, who sees us on the brink of a "mobile renaissance, maybe a new mobile revolution."

"We're having a blast exploring what that means for us, but I think that could have a different meaning for everyone."

Said Michael Berger, a MoPhO performer and doctoral student in musical arts and composition, the concept is "postmodern, in a sense, because it's using a device that was not designed to make music and using it as a musical interface."

A native of Beijing, Wang was reared in Atlanta and "a yuppie part of Kansas." He learned the accordion at a young age and later the acoustic guitar. But he found that writing code was a turn-on, as well as making

music out of what others saw as merely tools. "I always liked music and I always liked building things," Wang said. "Writing code is both."

He received a PhD in computer science from Princeton last year, with a dissertation about ChucK, the general purpose programming language tailored for computer music. He founded the laptop orchestra last year, making portable speakers out of salad bowls and car speaker drivers, pairing each with a laptop in an ensemble of 20. Then he discovered the cell phone as instrument.

"It levels the playing ground in some ways, because everyone has a cell phone. Further, they are communication devices. So inherently, they connect people," Wang said.

By transforming multi-touch screens, built-in accelerometers, built-in microphones, GPS, data networks and computation into powerful and yet mobile chamber meta-instruments—"all these technologies packed into this single device"—the cell phone is "perhaps one of the most intimate and personal devices man has ever known, but also one of the most ubiquitous," Wang said.

But the cell phone isn't only an ensemble instrument. Thanks to the company Wang co-founded in July 2008, Sonic Mule (SMULE), a startup exploring interactive sonic media, Wang has converted his iPhone into a 12,000-year-old clay wind instrument, the ocarina.

Wang held his iPhone as if he were holding a sandwich, then blew into the microphone at the bottom of the device. He controlled the vibrato by tilting the phone as he played "the Zelda tune" from a popular fantasy-action video game called The Legend of Zelda.

New York Times writer David Pogue called the ocarina application "one of the most magical programs I've ever seen for the iPhone, and

probably for any computer." It's also one of the most popular.

"The ocarina app we developed at SMULE has, since it was launched last November, been downloaded more than 600,000 times," Wang said.

"Most of these half-a-million users, we don't think they are professional musicians or performers or people who would think of themselves as artists or musicians; they are simply people who like music.

"They can pull out the ocarina and play it while they are waiting to get milk at the supermarket. They can play while they are waiting for the bus. They can play during family gatherings.

"You can actually hear the world learn music through this," Wang added. He was not being metaphorical. He held up his iPhone to show another part of the ocarina app: On the screen was a globe of the world, with points of light that made it almost glow; each point represented someone, somewhere, who had recently used the ocarina app. Some parts of the globe—parts of North America, in particular—seemed to be a continuous field of light. He tapped part of the screen representing Southeast Asia, and a thin, wavering rendition of "Happy Birthday" could be heard.

"What we are hearing is a real person who has played this recently," Wang said. "We are actually hearing the notes that they played. Let's go on to the next tune." He tapped again.

"The next person I'm listening to is coming from Norway, or maybe Denmark." Next Ohio, then Japan. "I don't know who any of these people are, but I know that was a real person blowing into their phone and playing this instrument.

"This is connecting people musically that was not possible with formal

performance," he said. "This is the first instrument that I know that can allow other users of the same instrument to actually hear each other play."

Wang becomes almost messianic when talking about "types of music and music-making that the world has never heard."

"We're literally at the beginning of this," he said. He envisions "hundreds, thousands more people participating" in making music together.

"A new type of global, social music-making is not that far from becoming a reality," he said.

"One vision for the future is that more people would use phones to make music—to perform it, to compose it, but also to share it and to play together," he said. "It's definitely a lot of fun."

It's portable, too. "A mobile marching band isn't far off," he said, and chuckled.

Provided by Stanford University (news : web)

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