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the space between | You like beautiful music? There's an equation for that

by dan schifrin

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It's a warm January evening, two minutes before the hour, and Perrin Meyer is anxiously watching Cal's iconic Campanile from a nearby library terrace, along with hundreds of Berkeley students, staff and visitors. A sound engineer and increasingly frequent collaborator for artists both local and national, Meyer has been working with U.C. Berkeley professors Ken Goldberg and Greg Niemeyer on a light and sound show called "Natural Frequencies," celebrating the 100th anniversary of the 300-foot clock tower.

Right on cue at 7 p.m., the bells start up, playing an eerie and complicated melody generated by algorithms fed by an in-house seismograph. The jagged beauty of the piece, aided by syncopated spotlights, evokes a combination of awe and anxiety about the fragile beauty of a campus sitting on top of a major earthquake fault.



"It's all about the algorithms," Meyer said quietly, as though he were hearing not just the bells, but the sounds of the formulas themselves.

This might very well be true. In an interview in his Berkeley office, where he is the lead digital engineer for Meyer Sound, he described how his math training at Columbia, NYU and Rockefeller University has helped him see — almost literally — the way numbers and their relationships dance into coherence.

"Artists reason their way into art by visualizing what something might look like, and mathematicians often take a similar approach. What connects them both is a comfort with these visual abstractions," he explained, closing his eyes in concentration. "The structures of algebra and topology [geometry and spatial relationships] are aesthetically beautiful. And this aesthetic quality helps you reason your way to certain kinds of engineering solutions."

As someone who can't even imagine the end of my street, I asked whether visualizing shapes that have no analogue in words or image ever daunted him. "I'm not afraid of six-dimensional space," he said, only slightly tongue-in-cheek.

Meyer is a child of Berkeley, and of the Bay Area music scene. His parents, John and Helen Meyer, founded Meyer Sound in 1979 so people could hear music — initially rock 'n' roll — in all its complex

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glory. Musician Steve Miller asked John Meyer to build him a speaker before he became a household name, and the Grateful Dead was like a living laboratory for product development. Now the gold standard for high-end audio equipment, Meyer Sound — with 350 employees, and its equipment installed on Broadway in New York City, London’s West End, the Warfield in San Francisco and in museums around the world — created a corporate culture in which sound was something sacred.



Perrin Meyer installing "Polartide" at the 2013 Venice Biennale

Perrin Meyer, 44, is helping to lead the company’s move into the digital sphere. But to understand the future of sound, one needs first to understand its past.

“People forget that the main form of human communication is through sound, with writing a much later evolution,” he explained. “Sound is so important that our ears are almost too good, allowing us to tolerate really bad sound.” Like many audiophiles, he rues the quality of much digital sound people hear on their phones or MP3 players, as well as the acoustic quality in museums that increasingly play sound in galleries designed only for the visual.

Part of the future of sound is probably set. “We’ve solved rock ‘n’ roll,” he said, meaning that Meyer Sound, and the audio industry as a whole, is likely only to tweak the audio for rock concerts

moving forward. “What I want to do now is give people a real, multidimensional sound experience in the arena of art.”

One recent project along this trajectory is “Stay Tuned,” a collaboration with artist Jeremiah Moore as part of the current exhibition @Large: Ai Weiwei at Alcatraz. Evoking the Chinese dissident artist’s focus on themes of imprisonment, resistance and community, “Stay Tuned” presents music and voice inside 12 Alcatraz cells, offering “the simple experience of remembering how much emotion, how much primal experience, is contained in people’s voices, their songs, even the sounds of torture.”

“Stay Tuned” succeeds, in part, because the speakers are essentially invisible. In “Polartide,” a 2013 collaboration with Niemeyer, Chris Chafe and Rama Gottfried included in the prestigious Venice Biennale, awareness of technology is central to an artistic experience. The outdoor installation included a series of instruments placed directly in the Venice canals, and which played different pitches depending on the rise and fall of the water level. The idea was to evoke, literally, the sound of rising tides in a changing climate.

When asked about his Jewish background and influences, Meyer noted his frequent childhood trips to Petaluma, where his mother’s parents were part of the famous community of left-wing chicken farmers. “I knew I was missing some crucial Jewish experience, however,” he said, “so I went to college in New York, hoping to meet these mystical East Coast Jews.” It was there he attended his first Passover seder, “something I had only read about in books.”

Like many Jewish scientists for whom God and spirituality exist not in synagogue but in symmetry, Meyer noted that “God is mathematics.” And what might this God sound like? Meyer directed me to “Rhythms of the Universe,” a 2012 project in which he helped Grateful Dead drummer Mickey Hart and U.C. Berkeley Nobel laureate George Smoot present a kind of symphony based on the cosmic microwave noise that emerged directly from the Big Bang.

Meyer explained that experiencing this sound, the original beat from the beginning of time, would be like “seeing the face of God.”

Daniel Schifrin is producer of “Ideas of Late,” a conversation series sponsored by the Jewish Federation of the East Bay.

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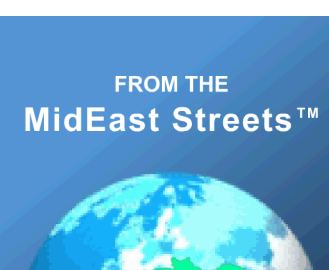
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