WE’RE EXPANDING THE RANGE OF WHAT IS POSSIBLE TO EMPower MORE PEOPLE TO MAKE BETTER MUSIC.

FOR AS LONG AS HE CAN REMEMBER, MUSIC HAS BEEN PART OF BRYAN PARDO’S LIFE.

“I can’t say there has ever been a time I wasn’t interested in music,” he says. “I first started learning piano at the age of four, the clarinet at 12, and the saxophone at 13. I could read music before I could read English.”

Today, as a jazz musician and associate professor of electrical engineering, computer science, and music theory and cognition, he blends his twin passions for music and engineering in his teaching and research at Northwestern. While some may have trouble envisioning the intersection of the two disciplines, for Pardo it’s obvious.

“I’ve always been drawn to the creative disciplines where the output of your effort is a thing in the world—a piece of music, a piece of software, a piece of hardware,” he says. “Some people think of engineering as non-creative, but that’s as far from the truth as it is possible to be. We live in a world invented, created, and designed by engineers, from the cars we drive and the houses we live in, to our laptop computers and the buttons on our clothing.”

This urge to create steered him toward computer science, where Pardo was drawn to the opportunities to invent whole worlds using nothing more than a laptop.

“Building a sound mixing board in the real world requires machine shops, parts, wires, space,” he explains. “Building a mixing board in software requires my laptop, my mind, and some spare time.”

INSPIRED INVENTION

Pardo applies this creative approach to McCormick’s Interactive Audio Lab, which uses machine learning, signal processing, natural language processing and database search techniques to make new auditory tools and interfaces. The goal of the lab’s work is to facilitate creativity by looking for places where current tools don’t support it, and then building new tools that do.

One of the lab’s projects is Tunebot, a music search engine that helps users “name that tune” by singing a melody into the tool, which then returns a list of songs ranked by how similar they are to the one they sang.
The inspiration came from Pardo’s own bad memory. “I can just about always remember the melody of a song, but I rarely remember what it’s called,” he says. “I figured I probably wasn’t the only one with this problem, and I wasn’t.”

Tunebot has been used by hundreds of thousands of people and was Reason #27 on Rolling Stone’s 2010 list of “40 Reasons to Get Excited About Music.”

The Interactive Audio Lab also launched SocialEQ and Social Reverb, online tools that learn the meanings of hundreds of sound adjectives from users. Both have wide applications for hearing aids, music production, and sound design.

“They work by applying changes to sounds and asking the user to rate the changes in terms of some descriptive word, such as, ‘How much warmer is the sound now?’” he explains. “So if someone complains of a ‘brash’ sound, we have a tool that can learn what they mean and understand how we need to change the sound to fix it.”

“If people have trouble finding the song they want, we build a music search engine called Tunebot,” Pardo explains. “If people have trouble working a music synthesizer, we build an easier interface called Synthassist. If people have a recording of their daughter’s flute recital where someone keeps coughing, we write software called REPET that lets them remove just the coughing from the recording.”

WHERE TECHNOLOGY AND CULTURE INTERTWINE

“We’ve just experienced a revolution in how music is disseminated,” says Pardo. “Today, anyone with an Internet connection can access millions of pieces of music from across the globe at a moment’s notice. But how do you find which one you want?”

The need for consumers and music makers to access the songs and tools they need leaves the door wide open for Pardo’s lab.

“The old tools will still be there for those who want them,” he says. “We’re just expanding the range of what is possible to empower more people to make better music.”

For Pardo, that music is jazz. The saxophonist and clarinetist has what Time Out Chicago described as a “pure tone and sweetly melodic approach.” When not exploring new frontiers in sound technology, he participates in Urbana, a Brooklyn-centered composition collective that writes and records original music, combining modern jazz with influences from pointillism and other improvisatory traditions. He also leads the Balkan-influenced group Balkano and is a member of avant-jazz group Spider Trio.

Like his work in the audio lab, Pardo says music allows him to collaborate with others to create new worlds of sound.

“I like music that encourages thinking compositionally, improvisation, and interplay between musicians,” he says. “For me, one of the best parts about playing music is the ‘play’ aspect of interacting with others in the moment. Jazz lets you explore the relationships between the freely improvised and the deeper structure of a piece.”

SARA LANGEN