Making Braille music universally accessible

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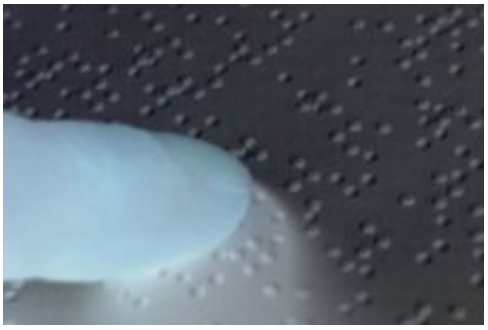

(PhysOrg.com) -- Blind musicians have had restricted access to scores due to the scarcity and limitations of Braille transcriptions. A new European system makes music for the blind more available and far easier to use.

The iconic image of the blind musician dates back at least to the time of Homer. It's a fitting image, since music is an art form to which blindness does not raise any intrinsic barriers.

Until the first quarter of the 19th century, however, blind musicians could learn music only by ear. Louis Braille changed that when he invented a system for transcribing musical scores into a tactile code.

Unfortunately, both transcribing - which had to be done by a sighted musician - and reading Braille music proved difficult. Braille's linear

format makes it hard to decipher the many aspects of music that occur simultaneously, such as chords or multiple voices.

It's estimated that less than 15 percent of printed music has ever been transcribed into Braille, and much of that is only locally available.

CONTRAPUNCTUS aimed to use digital technology to create an enriched and standardised digital format that would make it easier to transcribe music into Braille and make musical scores for the blind universally available and more useful.

Blind and visually impaired musicians worldwide can now enjoy the benefits of the CONTRAPUNCTUS system. They can download enriched, multimedia scores from a growing digital library, study them with greatly enhanced flexibility, and add new scores to the library as well.

"The music page in Braille has been like a city with lots of blank walls and very few signs," says Antonio Quatraro, the CONTRAPUNCTUS project coordinator. "CONTRAPUNCTUS has enriched this page with all kinds of information concerning every musical element - a note, a rest, a tie, fingering, etc. It used to be a labyrinth where you could go in but might never come out. Now, with our system, you can always find your way around."

Well-tempered software and standards

A core feature of CONTRAPUNCTUS is a new digital format for encoding all aspects of a musical score in a standardised and easily accessible way using a software package called RESONARE. The resulting Braille Music Markup Language, BMML, reorganises written music into a highly structured, easily searchable database.

Blind musicians can read any BMML score by using another program, the Braille Music Reader (BMR). As opposed to painstakingly deciphering a traditional Braille score, a musician using BMR can dissect it like a skilled surgeon and study it in any number of ways.

First, Quatraro explains, BMR can describe musical elements from individual notes to changes in tempo or dynamics in spoken form.

Next, BMR can play the music using a MIDI interface. “As you read through the music on your computer, the notes are played to you as written,” says Quatraro. “That’s important, since a commercial recording cannot be as accurate as the printed score, just as a spoken story cannot convey its spelling and punctuation.”

Crucially, BMR lets a blind musician add notations such as fingerings, breath marks or interpretive comments to the score, just as sighted musicians do.

In addition, the musician can analyse the score selectively, for example singling out only the left hand, or one measure, or one chord.

Users with access to a computerised Braille display can read any part of the enriched score by touch. Of course, the enriched Braille score can also be printed.

Combine all these features, Quatraro says, and you get a system that makes a blind musician’s life a lot easier. “It’s as if you had driven all your life on a bicycle, and now you have a car,” he says.

Beyond the tower of Babel

In addition to creating a new way for musicians to read and learn music, the CONTRAPUNCTUS team also wanted to make Braille music

universally accessible.

Before CONTRAPUNCTUS, musicians faced a Babel of languages because each transcription centre had its own production standards, suggests Quatraro. “Whatever transcriptions that were produced were difficult to access and readable only by a few experts.”

The group attacked those problems by creating a standardised format for Braille music based on XML, a widely used set of rules for digitising documents of all kinds and making them easily accessible on the internet.

They hope that, as more musicians, transcribers and libraries use CONTRAPUNCTUS, the Braille music XML format they developed will become the de facto standard.

The suite of software they have produced and made available is already breaking down long-standing barriers.

CONTRAPUNCTUS has created an online portal as an access point to a Braille score library, compiling contributions from the most important European libraries for the blind. Musicians anywhere in the world can now download software for free from the CONTRAPUNCTUS website and start to explore enriched, multimodal, and easily navigable musical scores.

“It’s as if we had a hidden treasure which nobody could access,” says Quatraro. “But we found the key that unlocks the treasure created by generations of transcribers.”

James Risdon, Music Officer at the UK’s Royal National Institute of Blind People, agrees. He has gathered feedback about CONTRAPUNCTUS from blind musicians throughout England.

According to him, they are thrilled to be able to download music instantly, find that they benefit greatly from the system's multimodal features, and very much like being able to annotate scores as they work on them.

"These three features make it a very exciting development," he says.

More information: www.punctus.org/

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