TRANSCRIPTION PRELUDE

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ABSTRACT
A short music piece for solo piano, created from the synthesized output of an automatic transcription system developed by the authors, is presented in this paper. The piece was a result of a happy accident when attempting to port the Linux-based automatic transcription system into the Windows OS. As an input, J.S. Bach’s Prelude in C Minor from the The Well-Tempered Clavier Book I was employed, using an existing recording from the MAPS dataset. The transcribed piece, aptly named Transcription Prelude, is surprisingly different from the original input source. A frantic succession of seemingly random chords from the higher register of the piano is contrasted with a sparse melody in the lower register, whose structure challenges the audience to link it with J.S. Bach’s original prelude. The result is a 2-minute atonal piece, demonstrating future uses of music information retrieval tools in contemporary music composition and reminding that often the most important steps in the creative process stem from errors.

1. PIECE
1.1 Motivation
Automatic music transcription is the process of converting an audio recording into a symbolic representation, such as a piano-roll, a MIDI file or a music sheet. Applications for automatic music transcription include automated musicological analysis, music annotation, and interactive music systems, such as score following applications. For a comprehensive overview on transcription approaches the reader is referred to [3].

Using a system for automatic music transcription developed by the authors in [1], an effort was to transcribe contrapuntal works by J.S. Bach for incorporating musicological knowledge into a transcription system. The recordings were taken from the MIDI-aligned piano sounds (MAPS) database [2]. The system was originally developed for Matlab in a Linux environment. An attempt was made to port the system into Windows and the Prelude in C Minor from Bach’s The Well-Tempered Clavier was selected for transcription.

The piano-roll transcription output of the system and the respective synthesized transcription was surprisingly different compared to the one created from the Linux-based system, which could be attributed to incompatibilities stemming from Matlab packages not designed to be used in a Windows environment.

1.2 Description
The piece consists of a rapid succession of demisemiquavers in the upper register, in one- to six-note combinations, giving a noiselike impression. On the other hand, demisemiquavers are also played lower register, albeit more sparsely. The lower notes give the impression of a dissonant melody that however exhibits a form of a tonic center; mainly in the repeated use of the notes D and B. It should be noted that the piece would be difficult to play for a single pianist - two players would be required, one for the upper register and one for the lower. The synthesized performance that is included, was created using the Native Instruments library through Sibelius.

The Sibelius-created score and a synthesized recording of the piece can be downloaded from:
http://www.eecs.qmul.ac.uk/~emmanouilb/prelude.html

A score excerpt for the beginning of the piece can be seen in Figure 1.

2. CONCLUSIONS
A solo piano piece was created by exploiting the output of a transcription system developed by the authors. The incompatibility between different operating systems created a unique piece that is characterized by rapidly changing high-pitched notes - hence the tempo marking Agitato. At the
same time, an illusion of a tonal center is given by the sparse lower-pitched melody. The piece demonstrates how the use of MIR-related tools such as an automatic transcription system could lead to innovations in contemporary music composition and illustrates the powerful combination of error and opportunism in the artistic process.

3. REFERENCES

