

# 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<sup>1</sup>.

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

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<sup>1</sup> [www.sibelius.com](http://www.sibelius.com)



**Figure 1.** Excerpt from the beginning of the *Transcription Prelude*.

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

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