The MIDI Code

Summary. MIDI is a language for digital communication between electronic instruments and computers. It is modeled to imitate the movement of the fingers, staying down, going up and so on. It is a low level language which tells you what to do without any deeper understanding. It is very important for electronic and pop music.

12.1 A Short History of MIDI

MIDI (Musical Instrument Digital Interface) was officially introduced in January 1983 at the NAMM (National Association of Music Merchants) conference with its “MIDI 1.0 Specification.”\(^1\) It was created by a pragmatic community of music merchants, and replaced the first sketches of the Universal Synthesizer Interface from 1981 which was created by the academic Audio Engineering Society. No musicians or music theorists were involved in this development, they later complained about the MIDI’s deficiencies. Standardization of music formats had never been a topic of music theory before mathematical and computational music theory started developing universal standards.

In the following sections we describe MIDI communication and the structure of MIDI messages. These messages are exchanged between any two computers and/or synthesizers. The general functionality of MIDI is shown in Figure 12.1. As we have discussed, music-making is a three-step process: We usually have (1) a score whose frozen gestures are being “thawed” to (2) gestures, which act on an instrumental interface and thereby produce (3) sound events. The gestural interaction with an instrument (process from the left top position to the right top position in Figure 12.1) is where MIDI’s main functionality lies. The

\(^1\) MIDI specifications can be looked up on the MIDI association page [https://www.midi.org/](https://www.midi.org/).
movements of the human limbs (hands for keyboard players) are encoded and then communicated to a synthesizer that produces corresponding sound events. Therefore, MIDI is essentially a simplified code for human gestures interfacing with an instrument. A second functionality of MIDI is the transformation of instrumental gestures to a Standard MIDI File such that the performance can be replayed later. Standard MIDI files can also be transformed into a digital score, and vice versa.

MIDI just tells an agent to do simple gestures at a defined time and with a specific key and instrument. It is not a coincidence that machines that understand the MIDI messages are called slaves in MIDI jargon. We can draw a similarity between a conductor and his orchestra. The maestro waves his arms around to encourage action from the performers, and the orchestra returns the sound events.

The development of MIDI code and interfaces was ingenious in that it allowed electronic music to be produced with intuitive gestures, rather than laboriously typing code. The music industry was not interested in abstract symbols but in a gestural communication code that would help musicians play electronic instruments when performing onstage or in a studio. The concept of