Data presented in this article was created using a Croatian instrument called sopela — a traditional hand-made wooden aero-phone of piercing sound, characteristic to the Istrian peninsula in western Croatia. The instrument is always played in pair (plural form: sopele), which consists of two voices: a small sopela and a great sopela. The data contains Waveform Audio File format (WAV) files, capturing every possible distinct tone of both sopele, as well as their polyphonic combinations. Additional data encompassed in the provided dataset are music scales and real music pieces, which contain specific traditional melodies. Every melody has a corresponding music sheet, presented in a Portable Document Format (PDF) file, which describes it in a human-readable manner. The specific Istrian scale music notation was applied while creating the music sheets. The data presented here was successfully utilised for developing, training and testing an automatic music transcription (AMT) solution, capable of converting sopele audio recordings into musical scores [1].

© 2019 The Author(s). Published by Elsevier Inc. This is an open access article under the CC BY license (http://creativecommons.org/licenses/by/4.0/).
1. Data

The data consists of both raw and analysed audio recordings of music played on the instrument *sopela*. Both the *small sopela* and the *great sopela* were used for making these recordings. The data submitted alongside this article is structured as follows. Directory `single_tones` contains recordings of individual tones for both *sopela*. Great *sopela* tones are labelled {m0,m1,m2,m3,m4,m5}, whereas small *sopela* tones are labelled {v0,v1,v2,v3,v4,v5} (from a higher to a lower frequency pitch). Directory `combined_tones` contains all possible tone combinations between the great *sopela* and the small *sopela* individual tones. Directory `real_pieces` is divided into three categories: `great_sopela`, `small_sopela`, and `combined_sopela`. First two directories hold monophonic musical pieces for either the great *sopela* or the small *sopela*. The last directory contains stereo recordings containing both the great *sopela* and the small *sopela* melodies, playing simultaneously. All three directories contain multiple music files with a specific melody. Each melody has an accompanying music sheet in Portable Document Format (PDF). Music sheet is a human representation of a melody played. The sheet cannot be considered as ground truth; however, it is closest to it. Silence at the beginning and at the end of a recording is ignored, and is not showed in the sheet.

2. Experimental design, materials, and methods

The experiment took place in a hallway, shaped like a letter L. Only one amateur *sopela*-playing musician was engaged in the process of data acquisition. The musician operated on the same pair of *sopela*. The pair of instruments used for producing audio is depicted in Fig. 1.
Integrated Huawei P9 Lite microphone with sampling rate of 44.1 kHz was used as a recording device. Audio recordings representing single tones of either great or small sopela were acquired using several recording positions. The first set of recordings was gathered by statically positioning the microphone between 1 and 10 m from the audio source. In the second set, the microphone was placed at the source, however the performer was moving in range of 10 m while playing the instrument. These two settings (i.e. recording modalities) are illustrated in Fig. 2. In the end, every tone had 3-4 WAV files whose cumulative duration was between 21 and 38 seconds.

Each sopela can produce only six distinct tones, in line with the corresponding hexatonic Istrian scale (shown in Fig. 3). Hence, there were in total 12 distinct tones. Detailed information concerning the related recordings can be seen in Table 1.

Combined tones (36 non-permutative combinations) of both sopele playing simultaneously were created by using existing single tones audio files. First, all audio files were merged into one, for each individual tone. After that, every tone, for both sopele, was recorded in one audio file. Audio files from the great sopela were merged with files from the small sopela, and saved into a new stereo file. If the recording duration of one file was longer than the other, surplus was discarded.

Real musical pieces, like the traditional wedding song called “Sadila je Mare” (roughly translated to “Mare has been planting”), containing more than one tone, were acquired by recording directly from the
music source. Polyphonic recordings were created by merging great sopela and small sopela music files into one stereo file. For real musical pieces, accompanying musical scores are provided along with the audio data (example shown in Fig. 4).

Fig. 2. Audio recording settings: a musician at a fixed location with the microphone being positioned at different lengths (left); microphone at fixed location with the performer moving while playing the sopela (right).

Fig. 3. A depiction of the hexatonic Istrian scale. Two parallel note sequences, top and bottom, represent small and great sopela tones, respectively.

Table 1
File characteristics of audio recordings and tonal distribution. For each tone, the black dot represents its assignment to either the great, or the small sopela.

| Tone | Great sopela | Small sopela | Total duration [s] | Number of files |
|------|--------------|--------------|--------------------|----------------|
| m0   |              | ●            | 26                 | 4              |
| m1   | ●            |              | 23                 | 3              |
| m2   | ●            |              | 28                 | 3              |
| m3   | ●            |              | 21                 | 3              |
| m4   | ●            |              | 36                 | 4              |
| m5   | ●            |              | 27                 | 3              |
| v0   | ●            |              | 28                 | 3              |
| v1   | ●            |              | 30                 | 3              |
| v2   | ●            |              | 38                 | 3              |
| v3   | ●            |              | 32                 | 3              |
| v4   | ●            |              | 30                 | 3              |
| v5   | ●            |              | 33                 | 3              |
The data presented here was successfully utilised for developing, training and testing an automatic music transcription (AMT) solution, capable of converting sopele audio recordings into musical scores [1].

Acknowledgments

This work has been supported in part by the University of Rijeka under the project number uniri-tehnic-18-15 and the project number uniri-tehnic-18-17. We would like to thank the music school Ivan Matetić Ronjgov, and professor Goran Prša, for lending us the sopele used for data acquisition, and the relevant sheet and audio music.

Conflict of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.dib.2019.104840.

References

[1] A. Skoki, S. Ljubic, J. Lerga, I. Stajduhar, Automatic music transcription for traditional woodwind instruments sopele, Pattern Recognit. Lett. 128 (2019) 340–347. https://doi.org/10.1016/j.patrec.2019.09.024.
[2] UNESCO Representative List of the Intangible Cultural Heritage of Humanity. https://ich.unesco.org/en/RL/two-part-singing-and-playing-in-the-istrian-scale-00231. Accessed November 22nd, 2019.
[3] Ethnographic Museum of Istria. http://www.iti-museum.com/. Accessed November 22nd, 2019.