

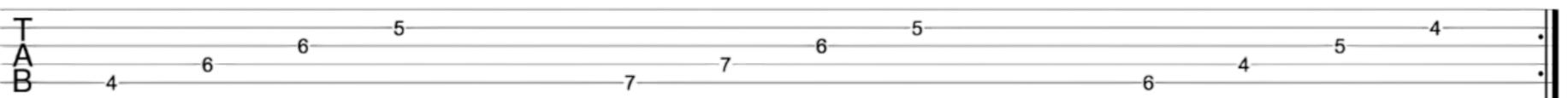
Automatic generation of guitar tabs



Tobiáš Adamčík



Tablature



Guitar tablature, or tabs, is a widely used form of notation designed specifically for fretted string instruments. Unlike standard musical notation, tablature indicates the exact fret and string to play, making it accessible for players without formal training in music theory.

Motivation

The problem

- ▶ Annotation of guitar recordings is a time consuming process
- ▶ Almost all current automatic guitar transcription tools work only with a guitar tuned to E standard

Goals

- ▶ Make the process of guitar annotation faster
- ▶ Create and train a neural network capable of automatically generating annotations for recordings of guitars in alternative tunings

Data

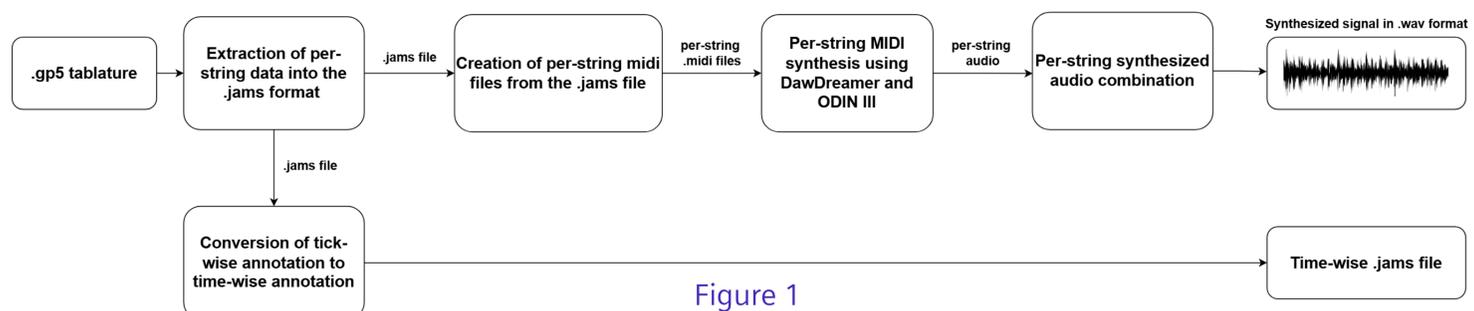


Figure 1

Resulting data: 755 pairs of .jams and .wav files containing more than 45 hours of audio. The data is created using multiple configurations of the virtual instrument to help prevent overfitting.

Tablature generation model

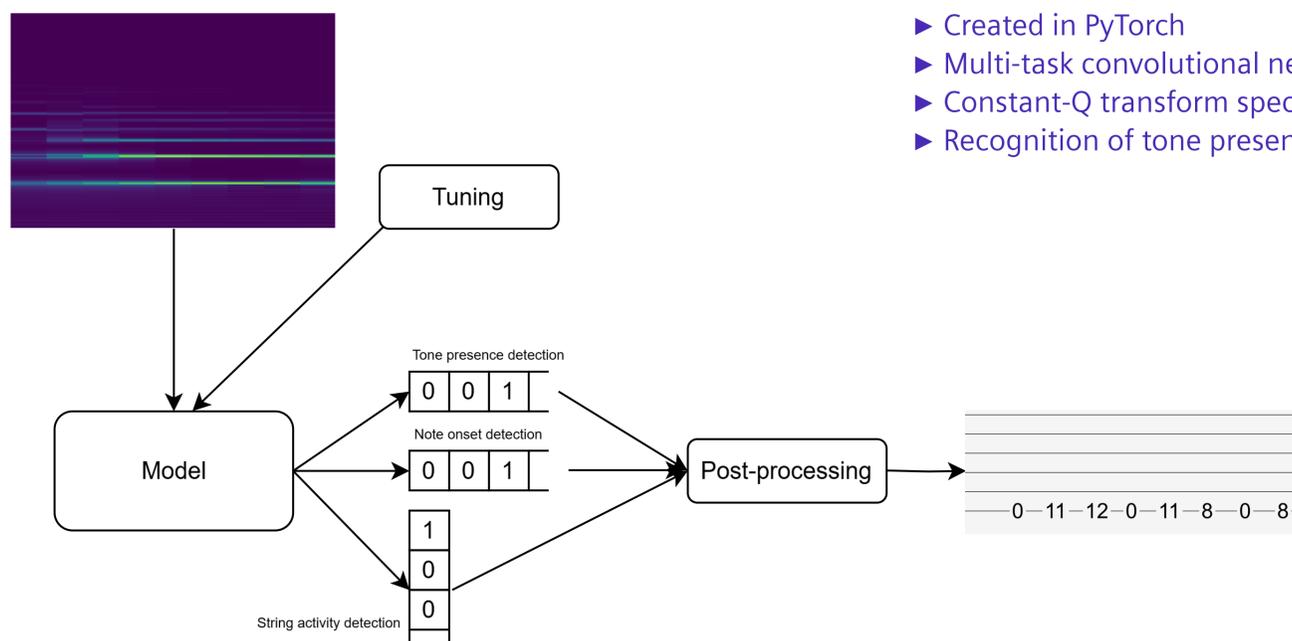


Figure 2

- ▶ Created in PyTorch
- ▶ Multi-task convolutional neural network
- ▶ Constant-Q transform spectrograms and tuning vectors as input
- ▶ Recognition of tone presence, note onset and string activity

Results

- ▶ F-measure ranging from 0.45 for recordings of palm-muted powerchords to 0.93 for non-palm muted non-repeating notes
- ▶ Measured on author's recordings of electric guitar performances