



Tonality-finding algorithm based on signature of fifths

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The paper presents an algorithm aimed to tonality recognition of a given piece of music. The essence of proposed approach is the parametrization of a signature of the fifths defined as a set of twelve vectors representing normalized total duration time of the particular pitch classes. The directions of the vectors are oriented in order as in a music keys in the circle of fifths. Tonality recognition is determined by main directed axis and major/minor mode axis. Direction of characteristic vector and angle of the signature of fifths are the most important elements of the algorithm, which determines major or minor mode of two relative keys. Paper present description of the proposed algorithm, the theoretical introduction to the subject matter and the results of the experiments performed on J. S. Bach's, F. Chopin's, D. Shostakovich's preludes in every of 24 music keys. The algorithm can easily be implemented into electronic musical instruments, enabling real-time generation of musical notation.