

## Homework 2, I546: Symbolic Music Informatics

1. Among the midi files in the “Classical” directory are a number of Haydn piano sonata movements all prefixed with “hy.” Similarly the movements from the Tchaikovsky *Seasons* all begin with “ty.” Finally, the Chopin preludes all begin with “chpn.” Create a scatter plot in which each of these pieces appears as a point. Be sure to color the points to indicate the composer. See if you can find two features that make the three composers as distinguishable as possible. Do not expect that it will be possible to generate non-overlapping “point clouds,” but see how well you can do.
2. There are two very short new readings that are on the web page in the “materials” section. Read these papers.
3. Assuming a representation of music similar as the .dat files we have been using in class, construct an “algorithm” for key-estimation on a given piece of music or musical excerpt. Your algorithm should, *in all cases*, label a piece with a tonic (c, c#, . . . , b) and designate the piece as in either major or minor mode. For instance, one possible algorithm for finding the tonic would be to choose the most likely pitch class, though I hope you can improve on this.

It is not necessary to code your algorithm in R or any other computer language, at present. Rather, explain your algorithm in text. You will be required to explain your algorithm in class.