tuneR – Analysis of Music

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Abstract. In this paper, we introduce the R package **tuneR** for the analysis of musical time series.
Having done research on musical time series like "Automatic transcription of singing performances" (Weihs and Ligges, 2003) or "Classification and clustering of vocal performances" (Weihs et al., 2003), we feel there is need for a toolset in order to simplify further research. Since R is the statistical software of our choice, we are going to collect the tools (functions) we need in an R package starting with a set of functions that already have been implemented during our research mentioned above. These tools include, for example, functions for the estimation of fundamental frequencies of a given sound, classification of notes, calculations and plotting of so-called voice prints. Moreover, the package includes functions that implement an interface (Preusser et al., 2002) to the notation software *LilyPond*, as well as functions to read, write, and modify wave files.
We are planning to make the package, based on S4 classes, available to the public, and collect methods of other researchers, in order to finally provide a unique interface for the analysis of music in R.

References

Preusser, A., Ligges, U., and Weihs, C. (2002): Ein R Exportfilter für das Notations- und Midi-Programm LilyPond. *Arbeitsbericht 35, Fachbereich Statistik, Universität Dortmund.*

Weihs, C., and Ligges, U. (2003): Automatic Transcription of Singing Performances. *Bulletin of the International Statistical Institute, 54th Session, Proceedings, Volume LX, Book 2, 507–510.*

Weihs, C., Ligges, U., Güttner, J., Hasse-Becker, P., and Berghoff, S. (2003): Classification and Clustering of Vocal Performances. In: M. Schader, W. Gaul and M. Vichi (Eds.): *Between Data Science and Applied Data Analysis.* Springer, Berlin, 118–127.

Keywords

Music, R, Time Series