

Tuneln: A Web-Based Interface for Practicing Choral Parts

Sebastian Rosenzweig¹, Lukas Dietz¹, Johannes Graulich², and Meinard Müller¹

¹International Audio Laboratories Erlangen, ²Carus-Verlag GmbH & Co KG
{sebastian.rosenzweig, meinard.mueller}@audiolabs-erlangen.de, jgraulich@carus-verlag.com

Abstract

Choir singers typically practice their choral parts individually in preparation for joint rehearsals. Over the last years, applications have become popular that support individual rehearsals, e.g., with sing-along and score-following functionalities. In this work, we present a web-based interface with real-time intonation feedback for choir rehearsal preparation. The interface combines several open-source tools that have been developed by the MIR community.

Demo



Web-based Interface (<https://www.audiolabs-erlangen.de/resources/MIR/Tuneln/>)

The screenshot shows the Tuneln web interface. At the top, there are navigation links for 'Tuneln' and 'Home', and logos for AUDIO LABS, Carus, and Technische Hochschule Nürnberg Georg Simon Ohm. Below this is a 'Configure the training session' section with a dropdown menu set to 'Come on, sing with me now', a dropdown for 'Tenor', and a 'Load session' button. The 'Player controls' section includes buttons for 'To the start', 'Previous measure', 'Play', and 'Next measure', along with a progress bar. The 'Score follower' section displays a musical score for Soprano I, Soprano II, Alto, and Tenor (Instrument ad lib.), with lyrics and a red highlight on the current measure. The 'Piano roll with interactive feedback' section shows a piano roll with a color-coded deviation scale from -50 to 50 cents, and buttons for 'Download summary', 'Clear user trace', and 'Download F0 values'.

Features

- Singer selects piece and part
- Audio playback
- Score following player from [1] highlights current measure
- Piano roll representation with real-time feedback
 - F0-estimation of the singer's voice using CREPE [2] and *Tensorflow.js*
 - Deviations from MIDI pitch in cents color-coded (red: positive deviation, blue: negative deviation)
 - ➔ Suitable for choir recordings with piano accompaniment, which prevents choir from drifting in intonation
- Download the performance as image or CSV file

References & Acknowledgements

- [1] F. Zalkow, A. V. Corrales, T. Tsai, V. Arifi-Müller, and M. Müller: **Tools for semi-automatic bounding box annotation of musical measures in sheet music.** In Demos and Late Breaking News of ISMIR, 2019.
- [2] J. W. Kim, J. Salamon, P. Li, and J. P. Bello: **CREPE: A convolutional representation for pitch estimation.** In Proceedings of ICASSP, 2018, pp. 161–165.

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