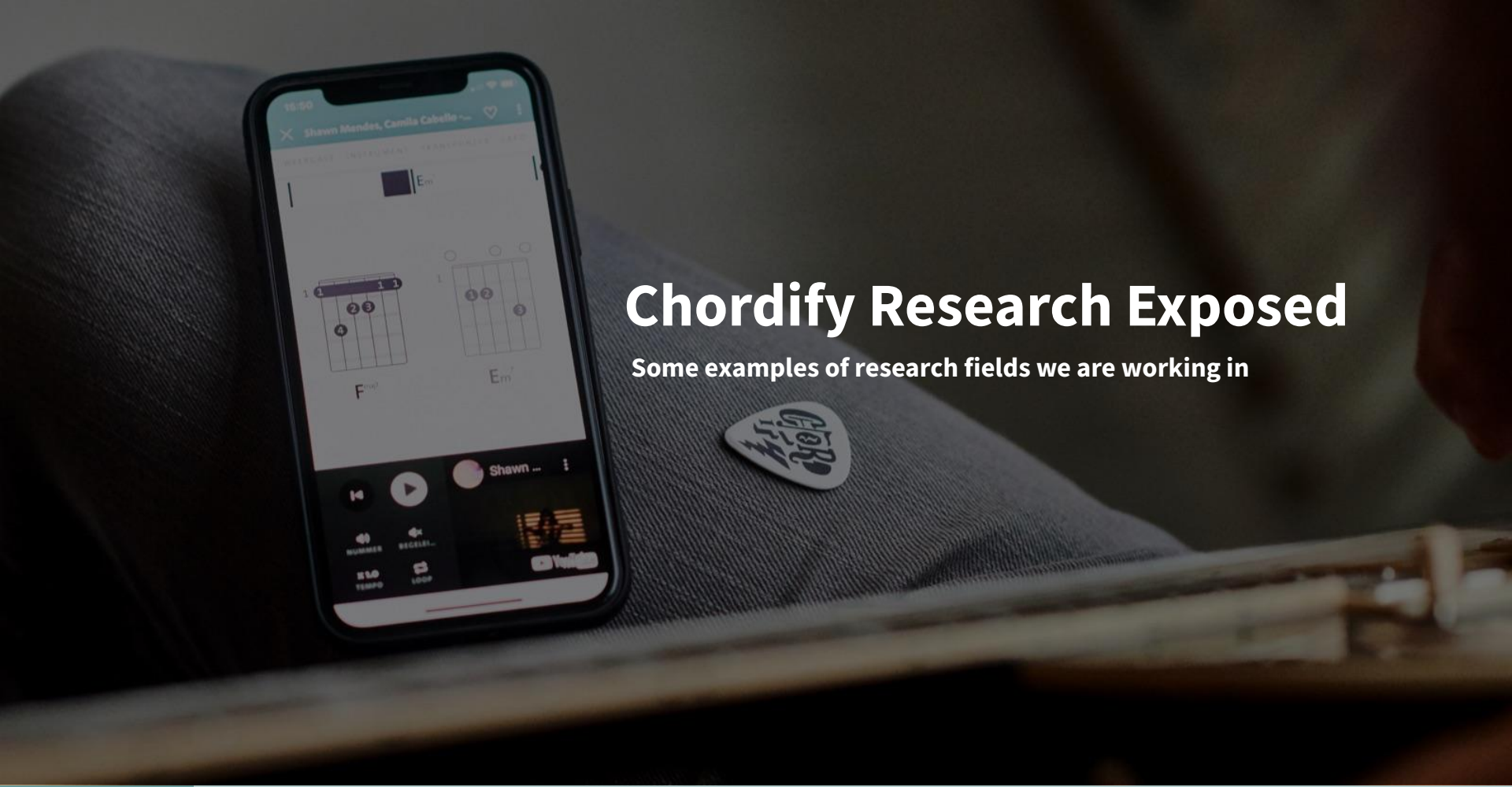
Research at Chordify

chordify : *“We want the world to live its music”*

- International company from the Netherlands, with offices in Utrecht and Groningen.
- Our products: Chordify chords, teacher, and tuner.
- Our research contribution is publicly available:
  - published papers
  - open GitHub repositories
  - published scientific datasets

Get to know us a bit better!!!

Team Chordify 2022

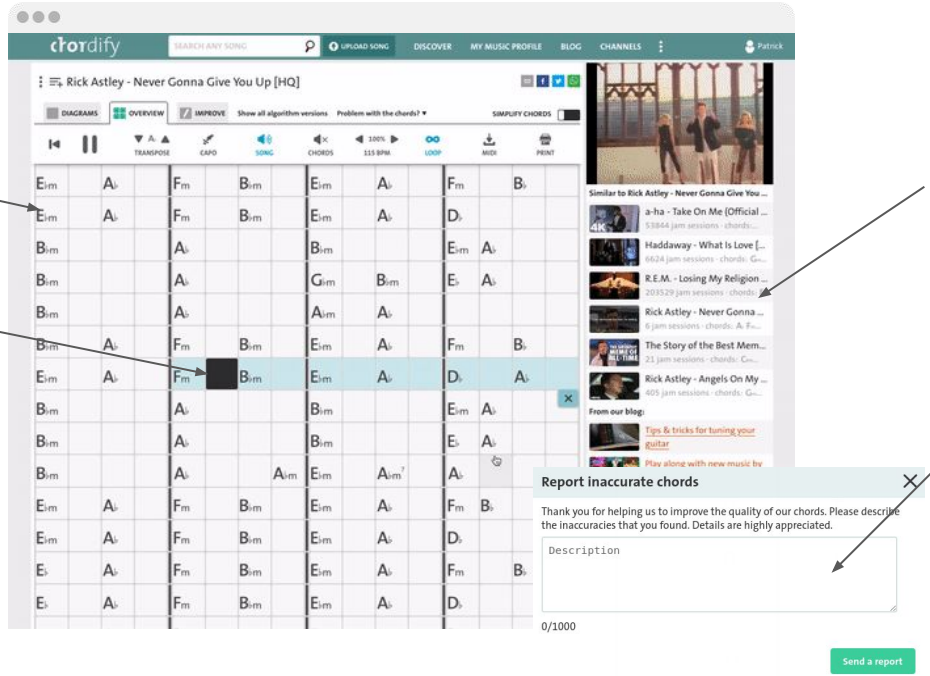

Chordify Research Exposed
Some examples of research fields we are working in

Chordify Research Exposed

chordify chords

Automatic Chord Estimation

Beat-tracking

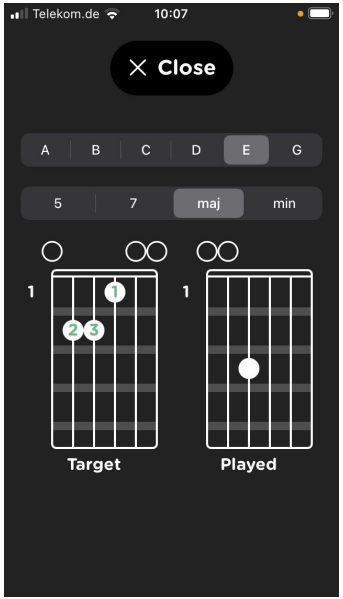


Music Recommendation

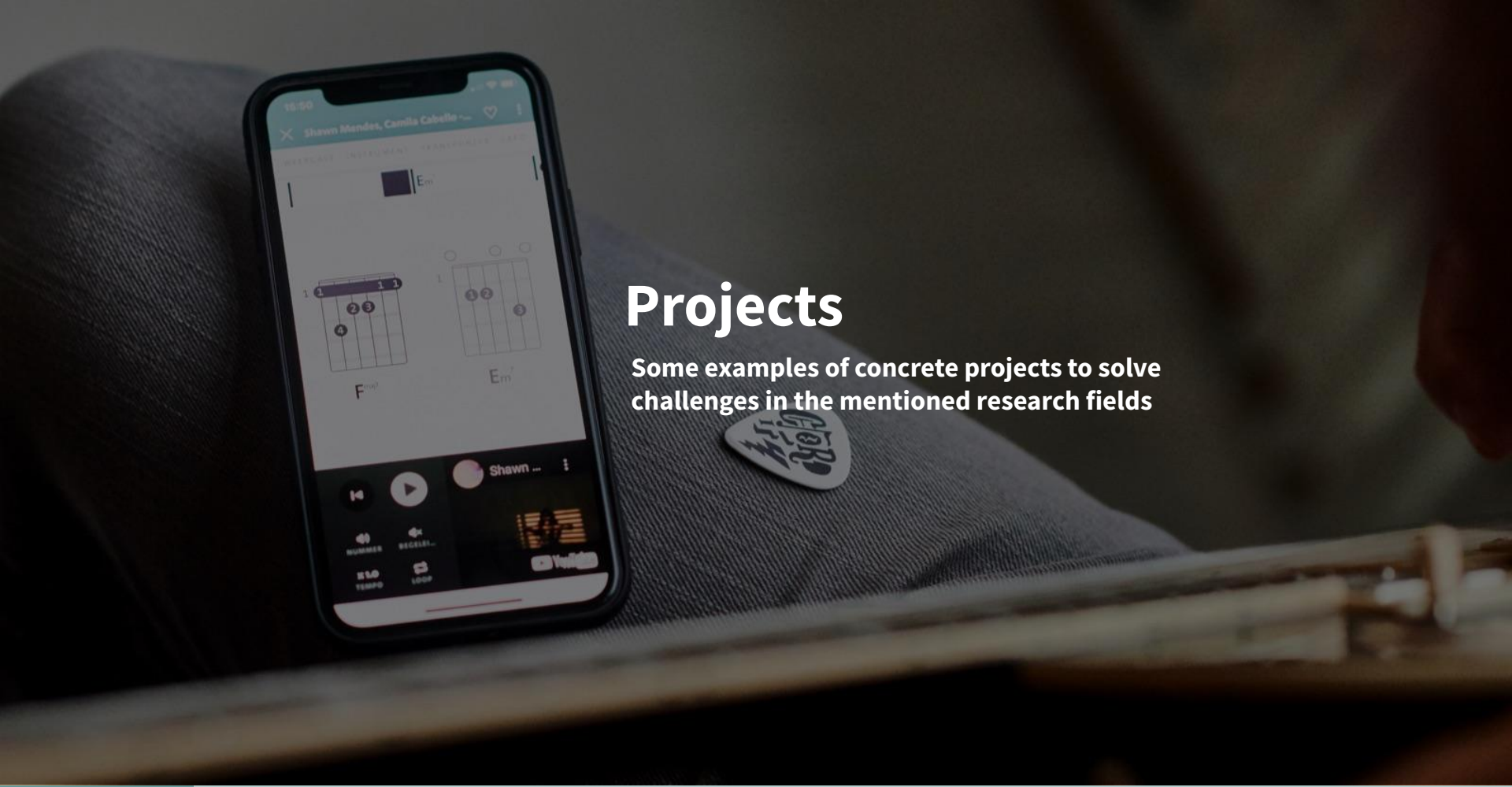
Natural Language Processing

Chordify Research Exposed

chordify teacher



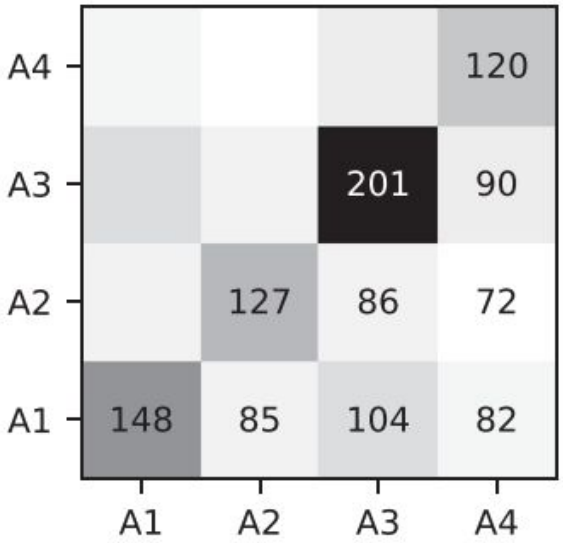
Polyphonic Guitar Transcription



Projects

Some examples of concrete projects to solve challenges in the mentioned research fields

Automatic Chord Estimation



Annotator Subjectivity

Challenges:

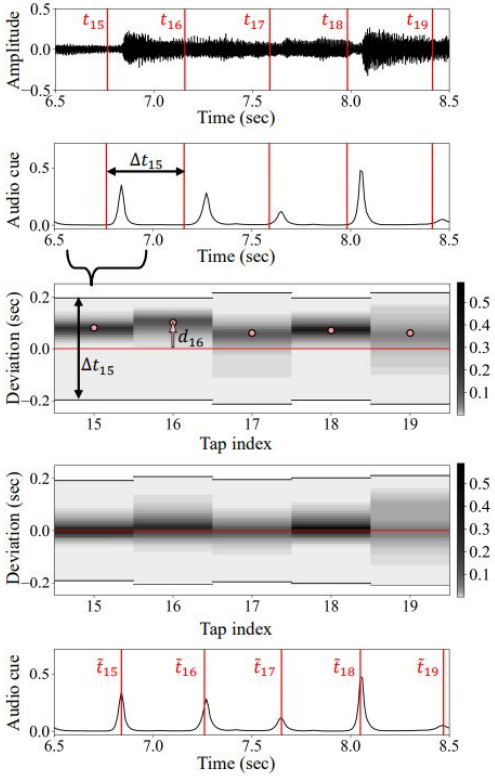
- Even experts often do not agree on what the “correct chord transcription” of a given music recording is
- We usually train our models with a single ground truth annotation per song

Our approach

- Develop a deep understanding of the intrinsic ambiguity of chord transcriptions
- Use chord encodings that allow for using multiple ground truth annotations during training

[our paper]

Beat-Tracking



Ground-truth annotation creation

Challenges:

- Expert annotations of beat- and down-beat positions are extremely cumbersome to create, usually by tapping along the beat of a music recording
- Humans are not very good at tapping precisely tapping over extended amounts of time

Our approach

- Use a semi-automatic procedure to analyze and correct tapped beat annotations

[our paper]

Music Recommendation

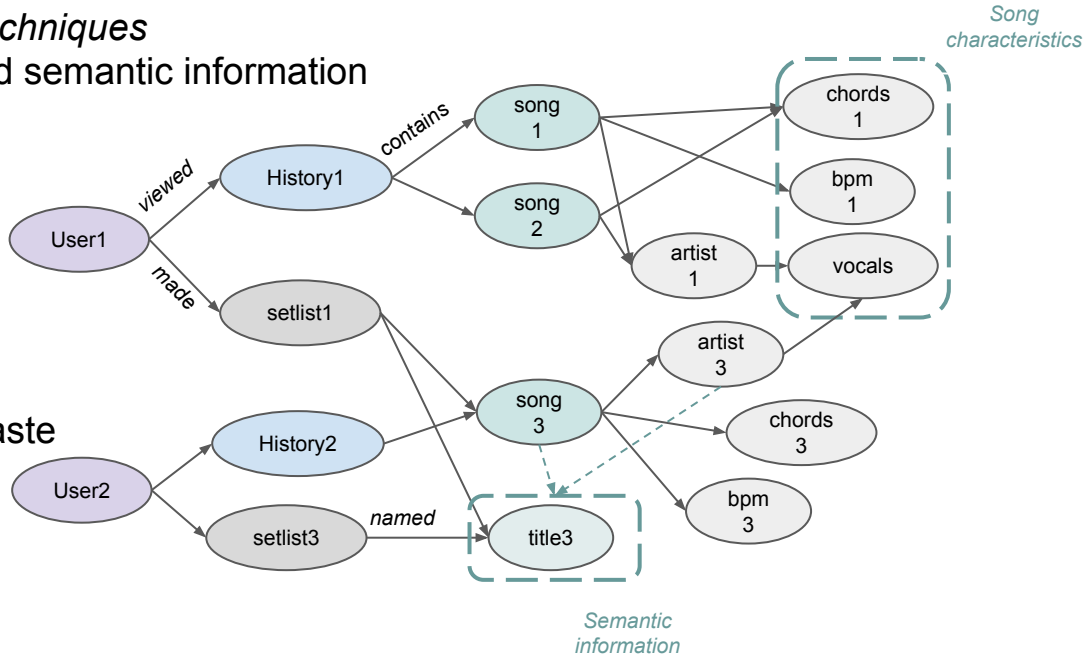
Our approach

Content-driven hybrid recommendation techniques

- Songs' similarity based on audio and semantic information
  - Artist co-occurrences
  - Setlist names
- Users niche preferences
  - Recent actions
    Complete user history

Challenges

- Users listening vs playing musical taste
- Large amount of content data
- Inferred semantic relations



Natural Language Processing

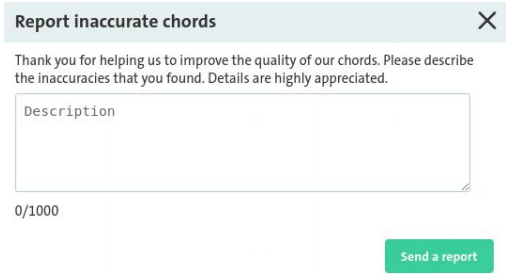
Automatic analysis of user feedback

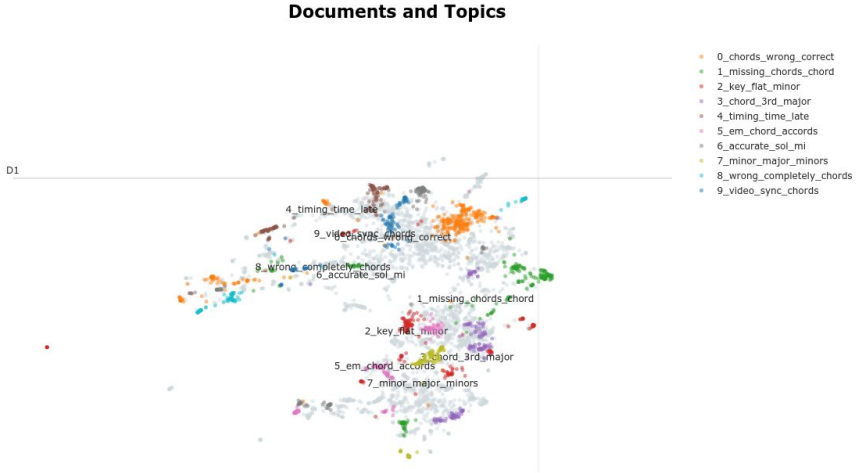
Challenges:

- Limited annotated data
- Various text lengths and languages

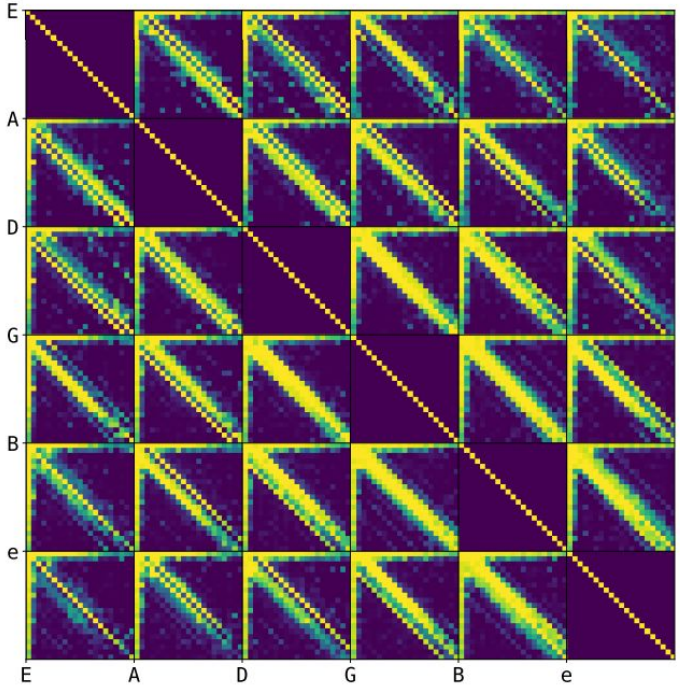
Our approach:

- Use pre-trained transformer-based language models to find clusters of documents that represent distinct topics





Polyphonic Guitar Transcription



Fingering estimation

Challenges:

- Little annotated audio training data
- Ambiguity of fingering: same pitch can be played on multiple string/fret combinations

Our approach:

- Make use of large-scale guitar tablature datasets to inhibit fingerings that are unlikely to occur during training

[our paper]