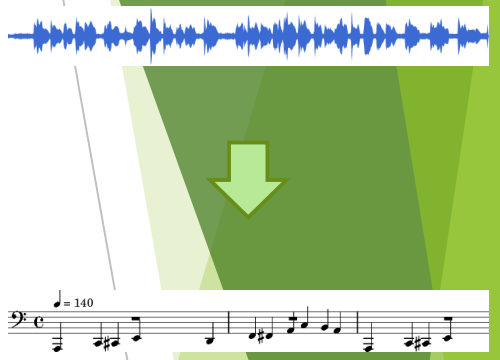
Sieve: An Automatic Music Transcription Service

Jeffrey Cheng, Tanmay Chordia, Akhil Ganti, Ben Judd

Automated Music Transcription

1. Convert audio to sheet music
2. Split one track into component instrument tracks



Primary Target Markets

- Artists
- Music Educators
- DJs

Existing software:

- Not fully automatic
- Expensive ($300 - $500/yr)

Our Team

Ben Judd

M&T

SEAS: Computer Science

WH: Operations, Information, and Decisions

Project management

Data visualization

5 years of musical training

Akhil Ganti

M&T

SEAS: Computer Science

WH: Finance

Marketing analysis

Algorithmic design

9 years of musical training

Jeffrey Cheng

M&T

SEAS: Computer Science

WH: Statistics

Sound/music theory

Composition & arranging

13 years of musical training

Tanmay Chordia

M&T

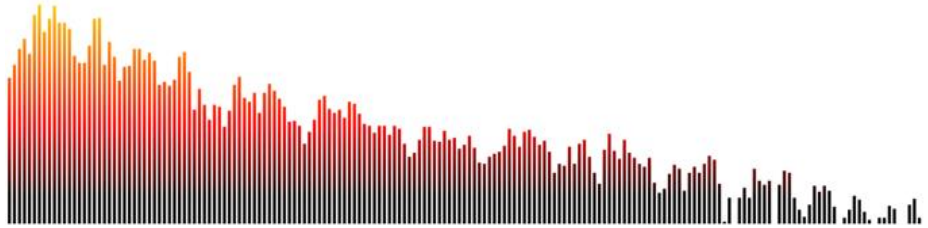
SEAS: Computer Science

WH: Management

Machine learning

Data analysis

Our Technology



1

- Separates music into instrumental components based on timbre with Fast Fourier Transform and Machine Learning

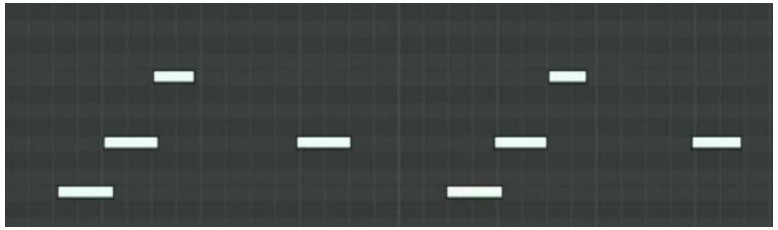
2

- Maps each instrument's signal onto notes
- Extracts time signature and accent information

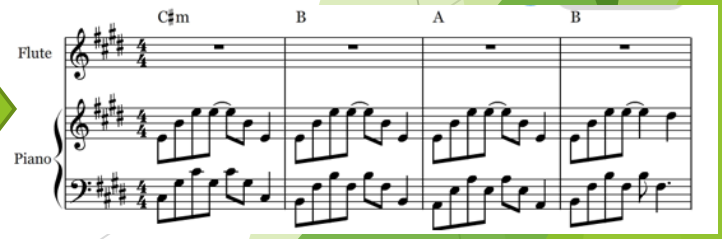
3

- Converts notes into scores[1]
- Lets user play each instrument track separately

2



3



[1]M. Mauch, C. Cannam, R. Bittner, G. Fazekas, J. Salamon, J. Dai, J. Bello and S. Dixon, "Computer-aided Melody Note Transcription Using the Tony Software: Accuracy and Efficiency", in Proceedings of the First International Conference on Technologies for Music Notation and Representation, 2015.

Competitors in the Market

Name	What They Do	Issues Our Product Addresses
Noteflight	• Edits, displays, and plays back music notation in a standard web browser • Integrated in an online library of musical scores	• Limited to manual input
ScoreCloud	• Transcribes audio/MIDI files into sheet music	• Unable to differentiate multiple instrument (solely monophonic)
Melodyne	• Studio tool used to edit specific parts of an audio file	• Does not transcribe • Unable to access supplementary data
AnthemScore	• Creates sheet music automatically from audio files	• Limited to monophonic tunes and generally inaccurate

Timeline

Feb.
- Preliminary Research
- Investigate the potential of training algorithms on community data

Mar.
- Work on machine learning algorithm for timbre identification
- Begin market analysis on demand from educational institutions

Apr.
- Work on algorithm for time signature identification
- Continue market analysis on individual music enthusiasts

May
- Minimum Viable Product established
- Begin sensitivity analyses and fine-tuning the algorithm's precision

Jun.
- Evaluate effectiveness of machine learning upon the consumer data
- Continue refining algorithm and implement user-editing features

Jul.
- Conclude market analysis and algorithm design
- Release project alpha version