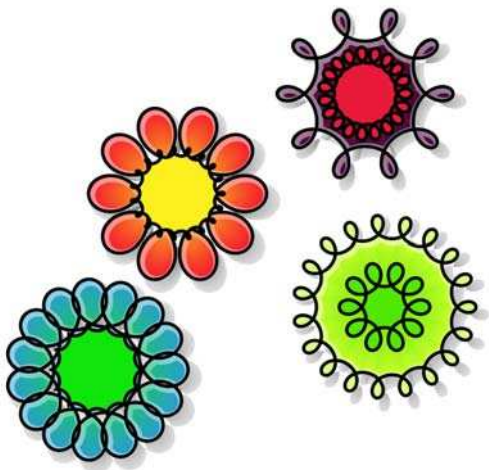


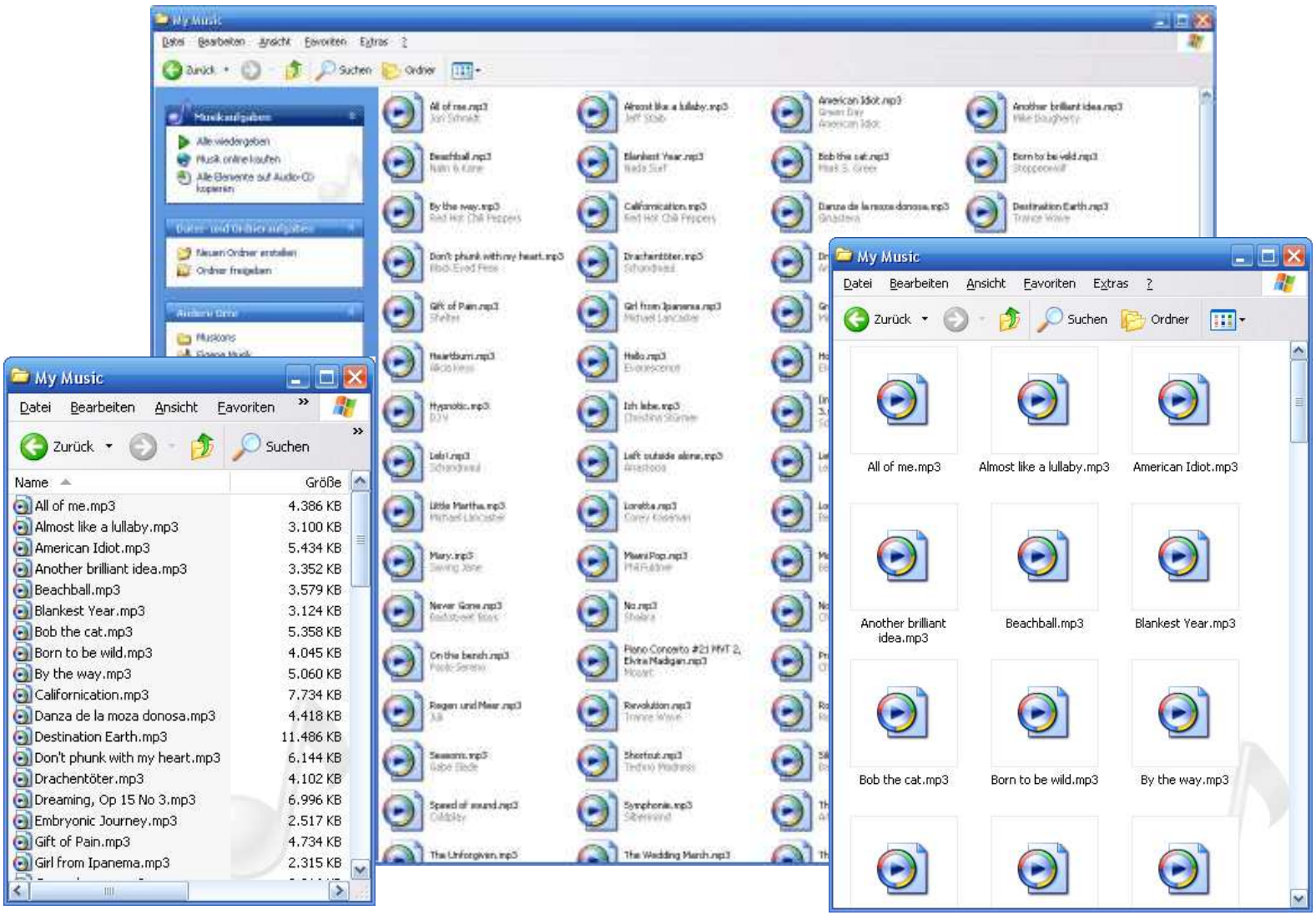
Music Icons

Procedural Glyphs for Audio Files

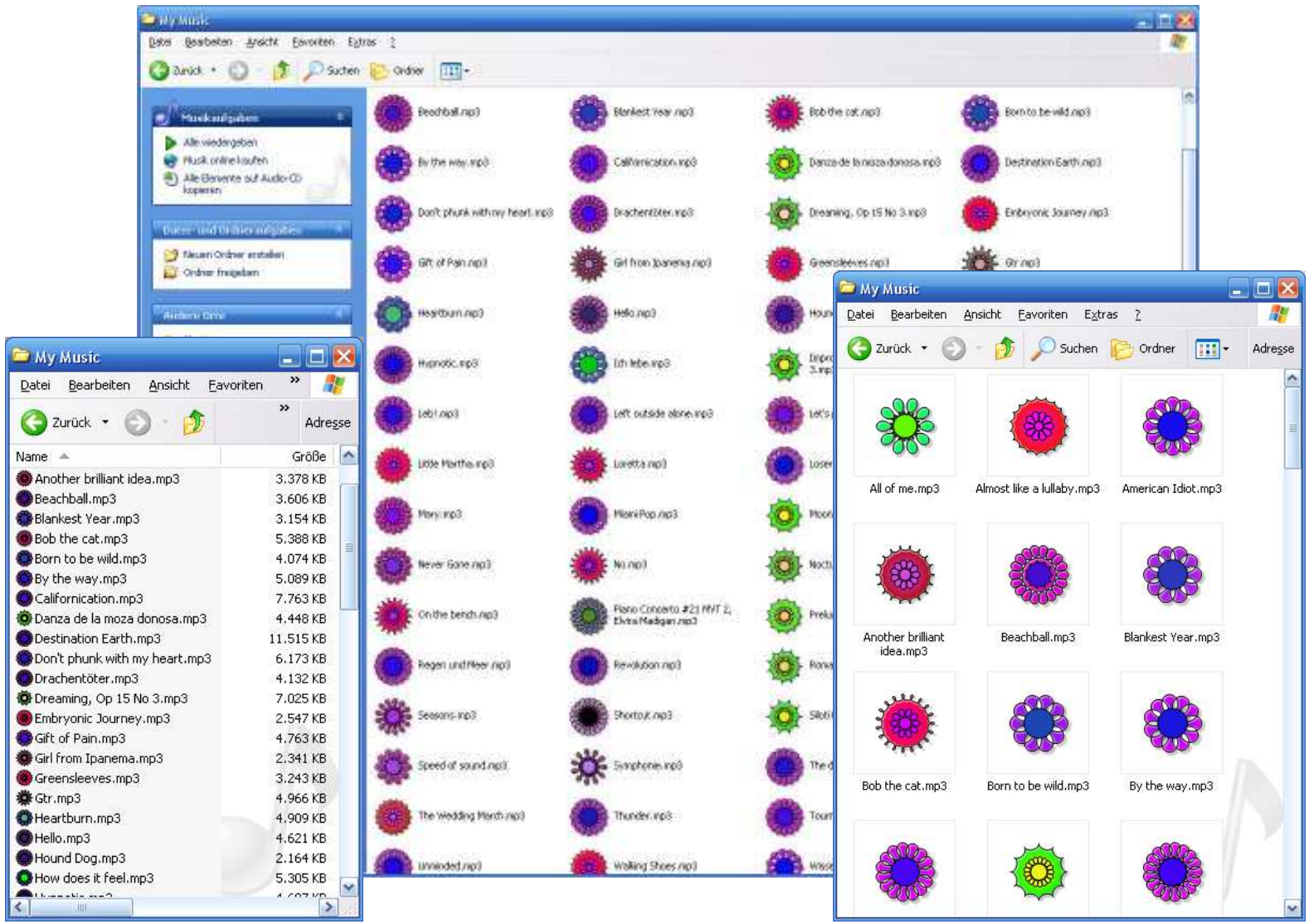
Philipp Kolhoff
Jacqueline Preuß
Jörn Loviscach

Hochschule Bremen, Germany
University of Applied Sciences

Music Files in Windows Explorer



Music Icons


My Music
Datei Bearbeiten Ansicht Favoriten Extras ?
Zurück Suchen Ordner
Adresse
Name Größe
Another brilliant idea.mp3 3.378 KB
Beachball.mp3 3.606 KB
Blankest Year.mp3 3.154 KB
Bob the cat.mp3 5.388 KB
Born to be wild.mp3 4.074 KB
By the way.mp3 5.089 KB
Californication.mp3 7.763 KB
Danza de la moza donosa.mp3 4.448 KB
Destination Earth.mp3 11.515 KB
Don't phunk with my heart.mp3 6.173 KB
Drachentöter.mp3 4.132 KB
Dreaming, Op 15 No 3.mp3 7.025 KB
Embryonic Journey.mp3 2.547 KB
Gift of Pain.mp3 4.763 KB
Girl from Ipanema.mp3 2.341 KB
Greensleeves.mp3 3.243 KB
Gtr.mp3 4.966 KB
Heartburn.mp3 4.909 KB
Hello.mp3 4.621 KB
Hound Dog.mp3 2.164 KB
How does it feel.mp3 5.305 KB
All of me.mp3
Almost like a lullaby.mp3
American Idiot.mp3
Another brilliant idea.mp3
Beachball.mp3
Blankest Year.mp3
Bob the cat.mp3
Born to be wild.mp3
By the way.mp3

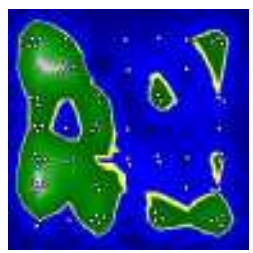
Outline

- Related Work
- Icon Generator
- Audio Features
- Mapping Features to Shapes
- User Studies
- Outlook
- Acknowledgement

Related Work

- File icon generation
  - Lewis et al., VisualIDs
  - Setlur et al., Semanticons

- Visualization of music collections
  - Pampalk, Islands of Music
  - Hilliges et al., Audio Radar

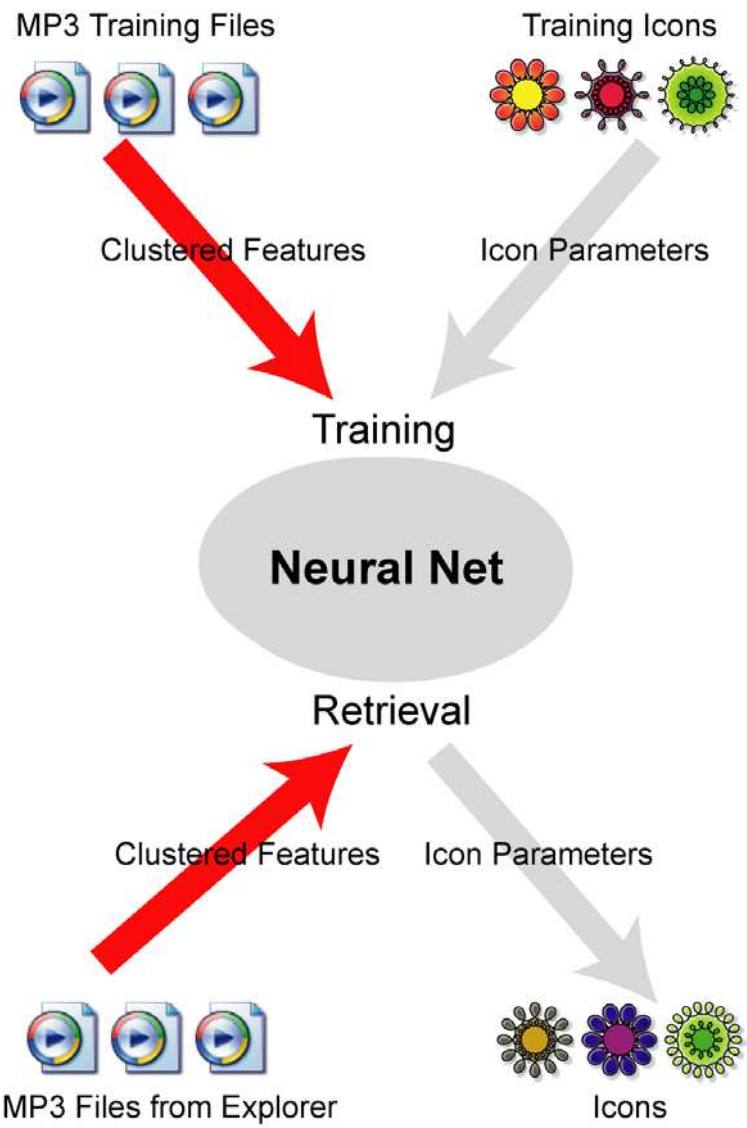


- Visual Data Mining
  - Chernoff Faces, ... , ... , ...

Icon Generator

- Problem
  - Personal taste of music varies from user to user
  - Different genres and subgenres
- Solution
  - Specify guidelines for icon creation
- Demo !

Synesthesia



Audio Features

Decompression

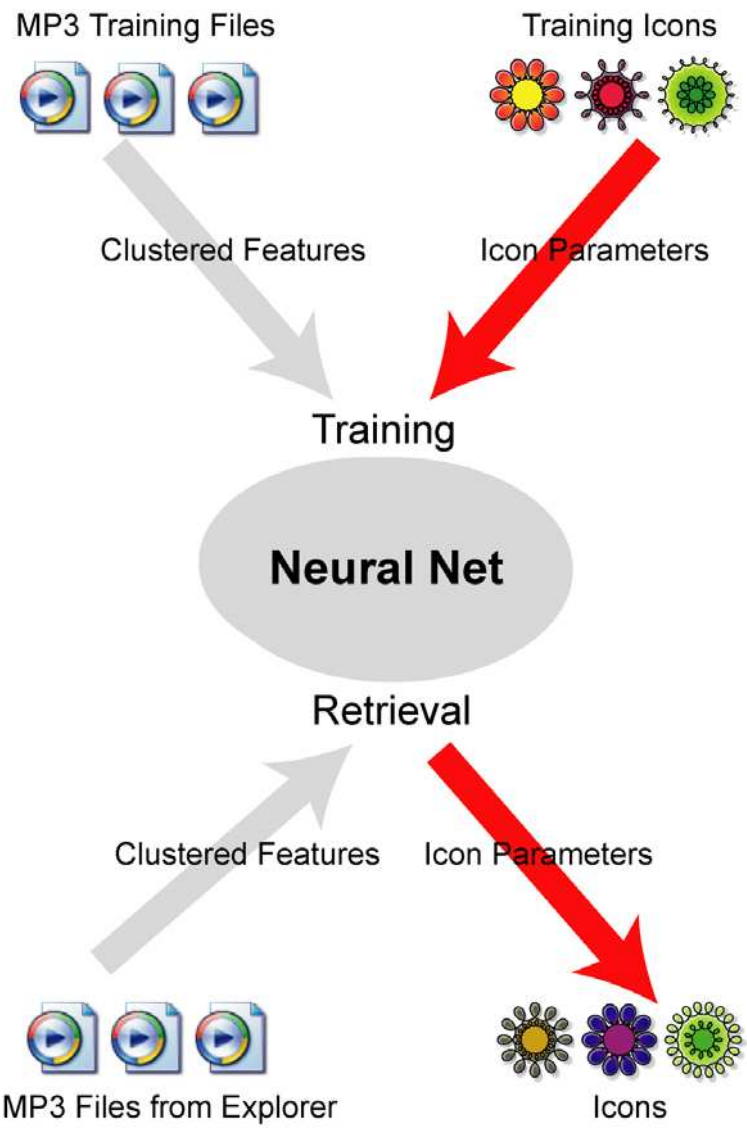
Trimming

MFCC Extraction

Clustering

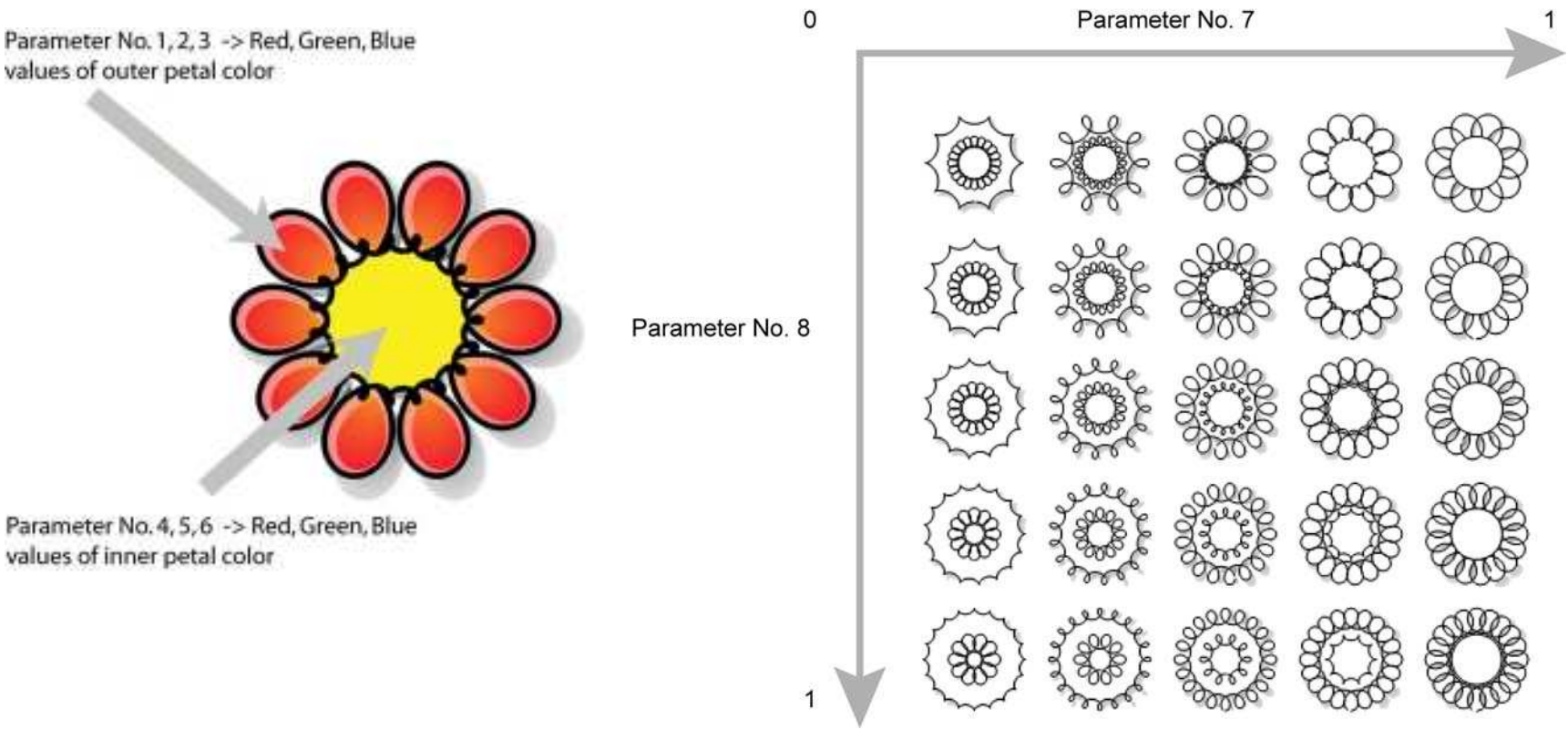
Normalization

Synesthesia



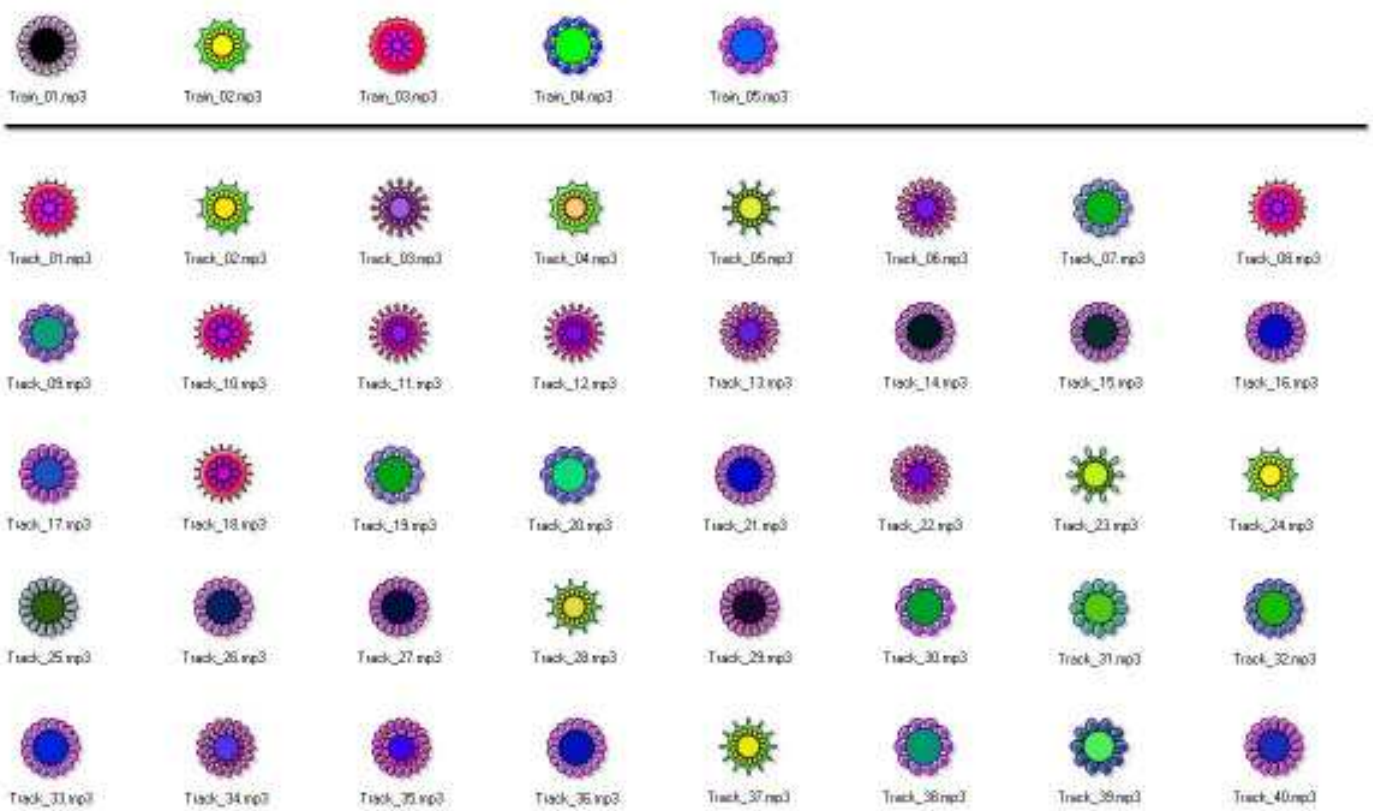
Mapping Features to Shapes

- mapping from parameters to appearance has to be continuous!



User studies

- 64 pre-generated music icons
- based on training set of 5 songs



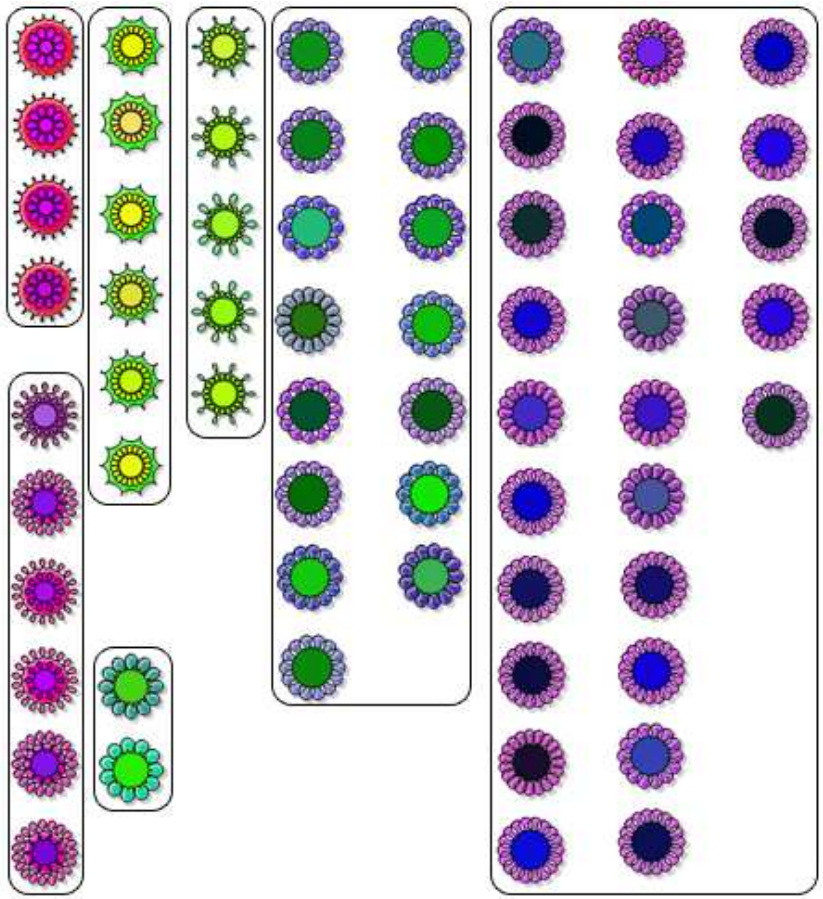
User studies

Part One

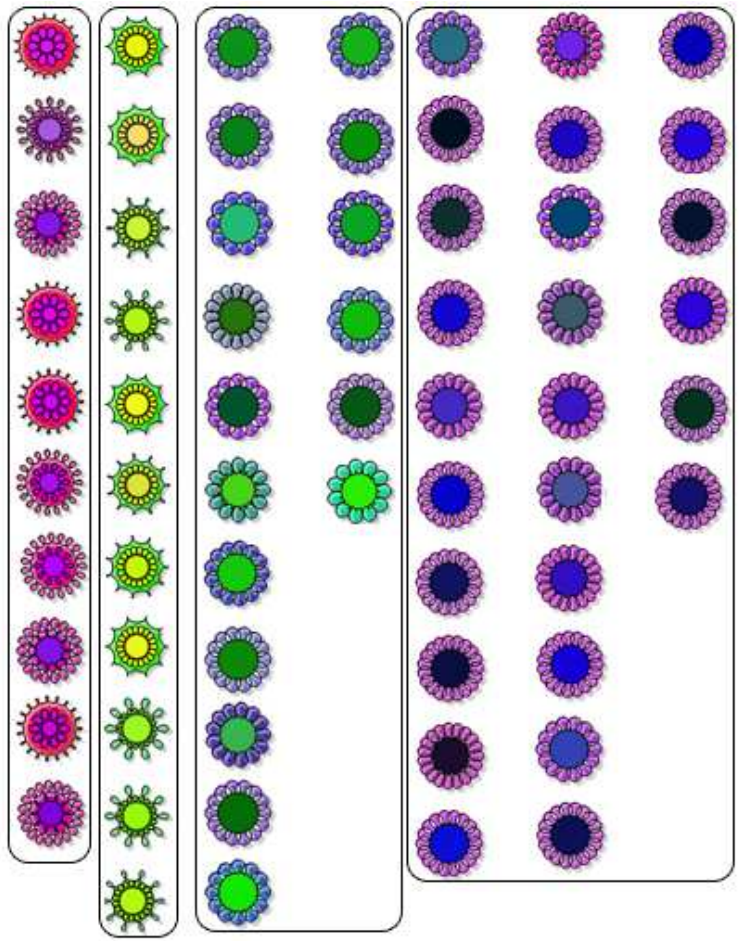
- visually form clusters of the 64 icons
- hiding any information about song

User studies

Part One



Test person 1, male, 27



Test person 2, male, 37

User studies

Part Two

- play 3 to 4 songs from one cluster and one from another cluster
- test person had to pick the most different song from this group

User studies

Results

- Similar clusters were built
- Spotting Rate: 60% - 80%
  (out of four)
- Strong relation between visual clues and actual audio content

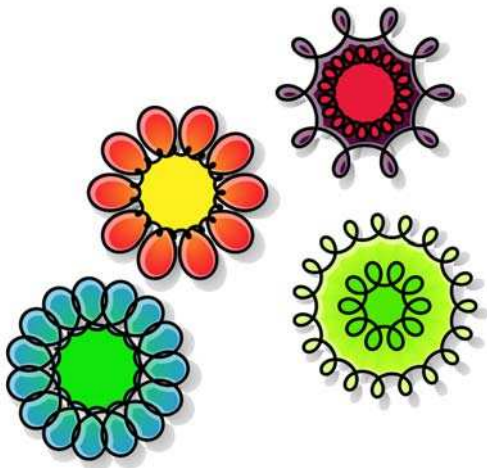
Outlook

- enhance extraction speed (bypassing decompression to WAV)
- extract audio features in a background task for a multi-core processor
- add rhythmic analysis
- write extensions for mobile devices
- support different icon skins

Acknowledgement

- Financial support by Microsoft ® Germany

- MFCC library contributed by Sven Fischer from Fachhochschule Oldenburg, Germany



Thank you!