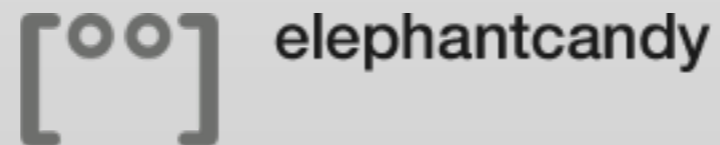


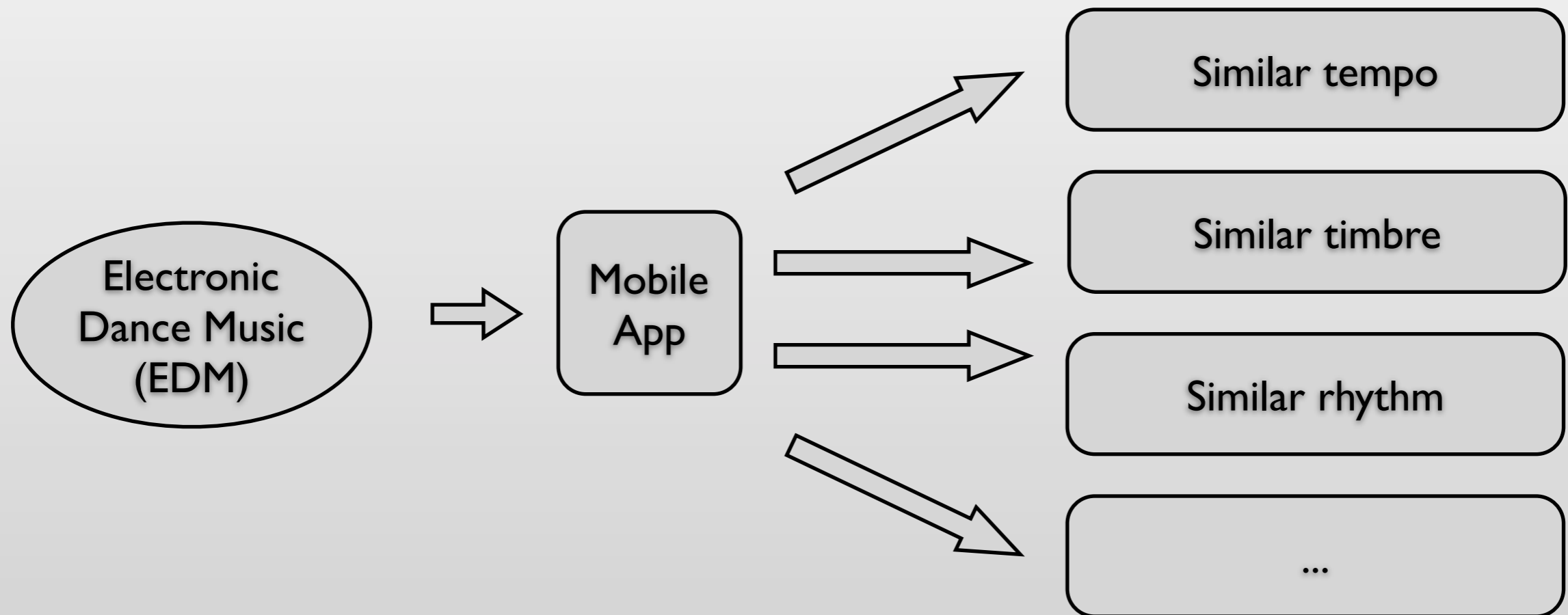
Universiteit van Amsterdam
17 January 2013

Similarity and Segmentation for Electronic Dance Music

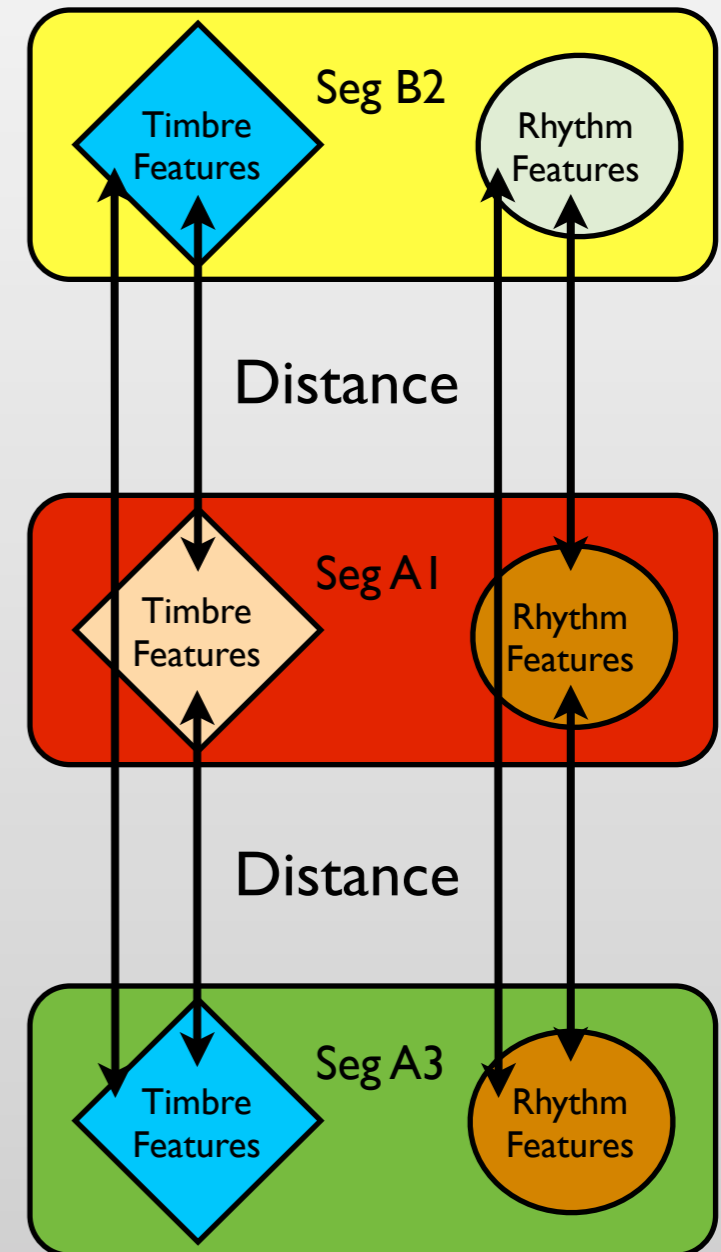
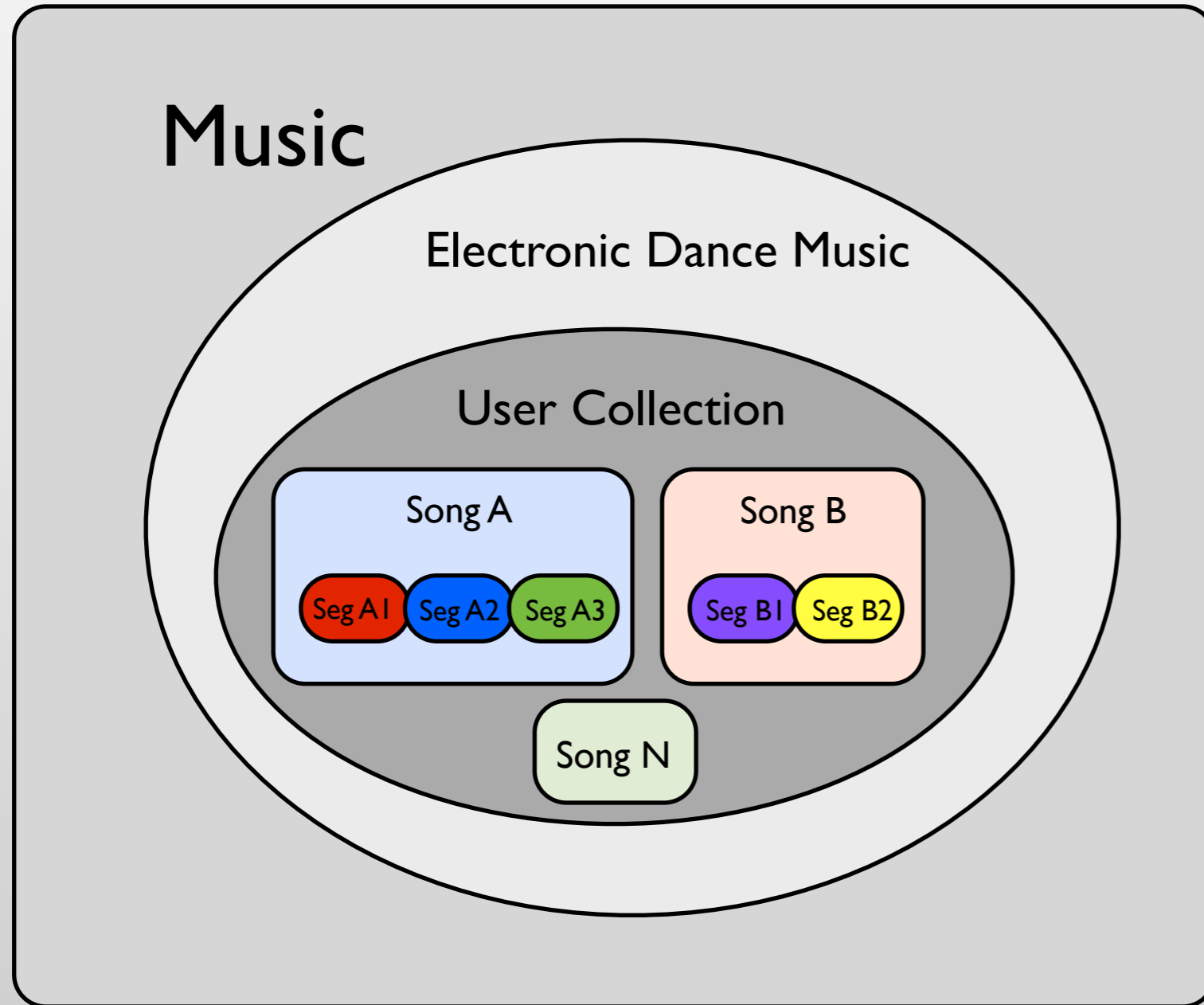


Bruno Rocha
Aline Honingh
Niels Bogaards
Victor Bergen Henegouwen

Goal



Methodology



SimMixer

iPad test app for timbre similarity

- database contains 1295 EDM songs
- segmented into 22745 segments
- each segment is represented by 31 timbre descriptors
- SimMixer is a tool to explore and validate the timbre similarity algorithms

Research Issues

Segmentation

- Detection of first downbeat
 - typical EDM structure starts with bass drum
 - critical step for the detection of the structure

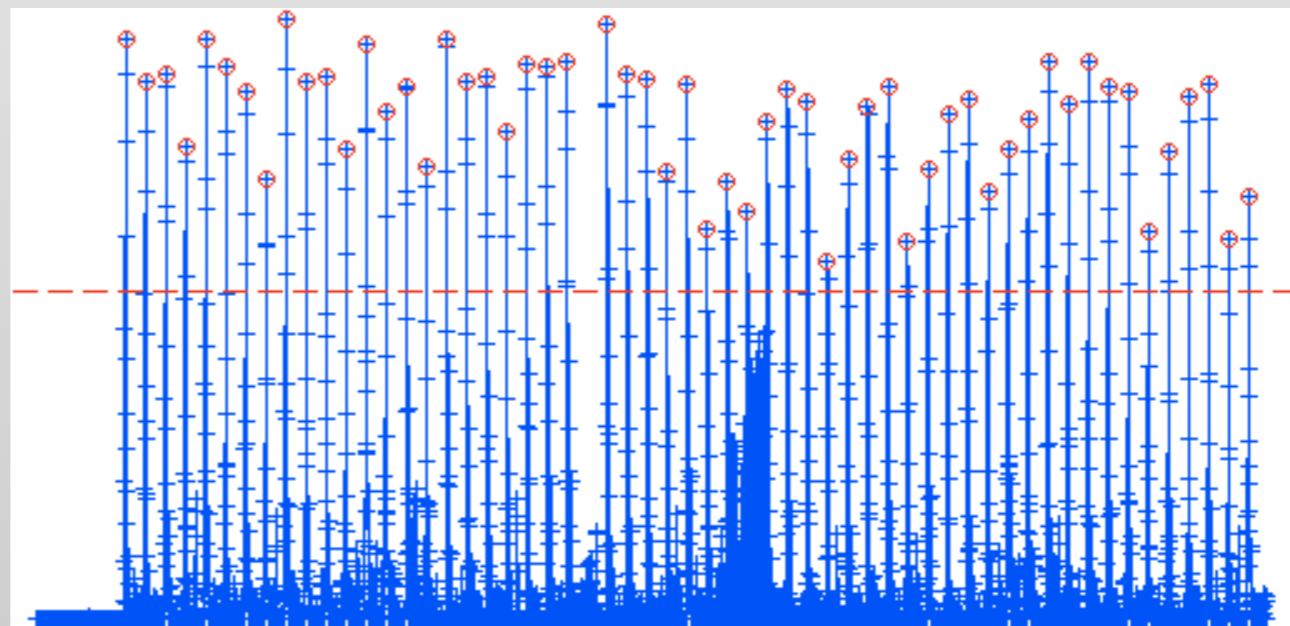


Figure 1: Detection of first downbeat

Research Issues

Segmentation

- Segment boundaries fine-tuning
 - segmentation algorithm detects timbre changes
 - segment boundaries in EDM are known to usually coincide with beats

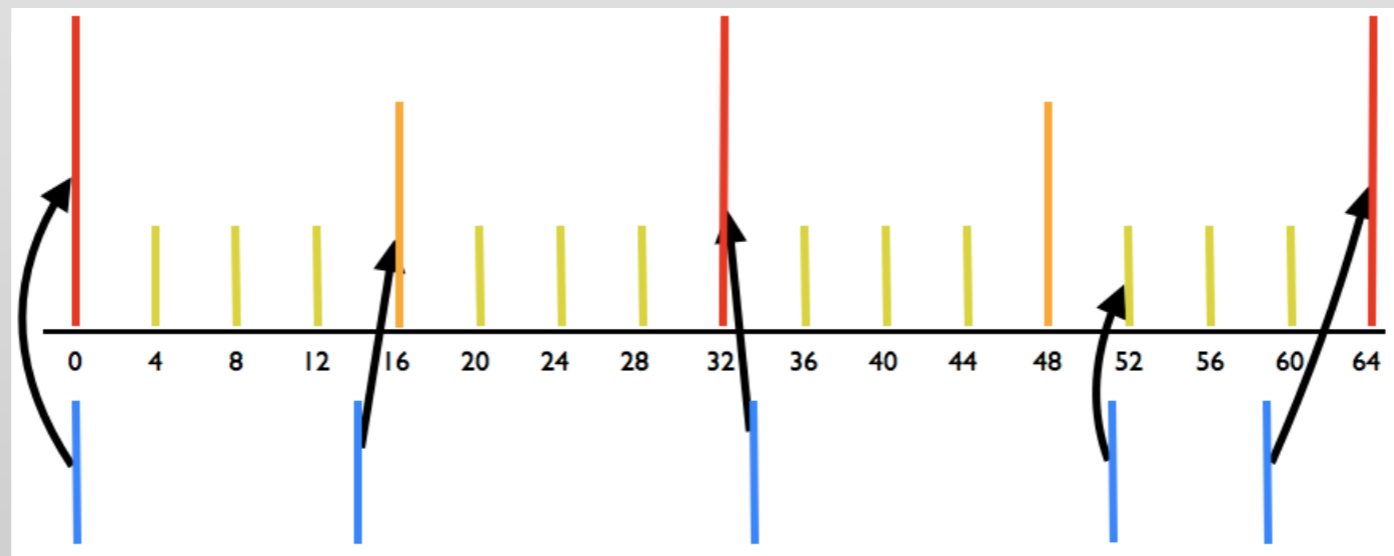


Figure 2: Segment boundaries fine-tuning

Development

- Work method
 - develop a working algorithm
 - test feasibility
 - test usability
 - develop product(s)

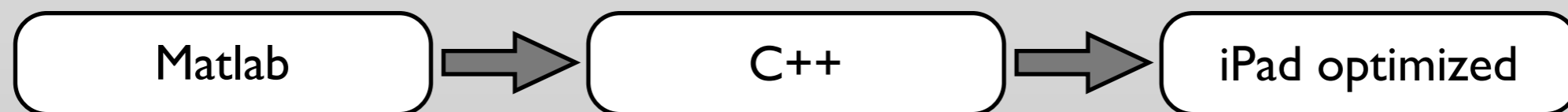


Figure 3: Tool Chain

Lessons Learned

- optimized implementation can only start after the algorithm is done (lost quite some time implementing sub-algorithms that in the end are not used)
- important to establish ground truth / reference early on, but a problem is that it may not be clear what exactly needs to be researched / developed (for instance: problem of segmentation)
- plan research sub-projects carefully, to allow implementation to start asap and increase involvement by industrial partner

Conclusion

- University vs (small) Company
- Science vs Commerce
- Science - Company - Audience

Horizon

- Intelligent mobile music tools