



UNIVERSITY COLLEGE GHENT
FACULTY OF MUSIC



HOGESCHOOL GENT
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TARSOS



OUTLINE

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INTRODUCTION

BACKGROUND

I work together with Olmo Cornelis

- Musicology @ Ghent University
- Composition @ University College Ghent
- PhD @ University College Ghent / Ghent University

His previous project: DEKKMMA

“Digitization of the Ethnomusicological
Sound Archive of the Royal Museum for
Central Africa”

INTRODUCTION DATASET

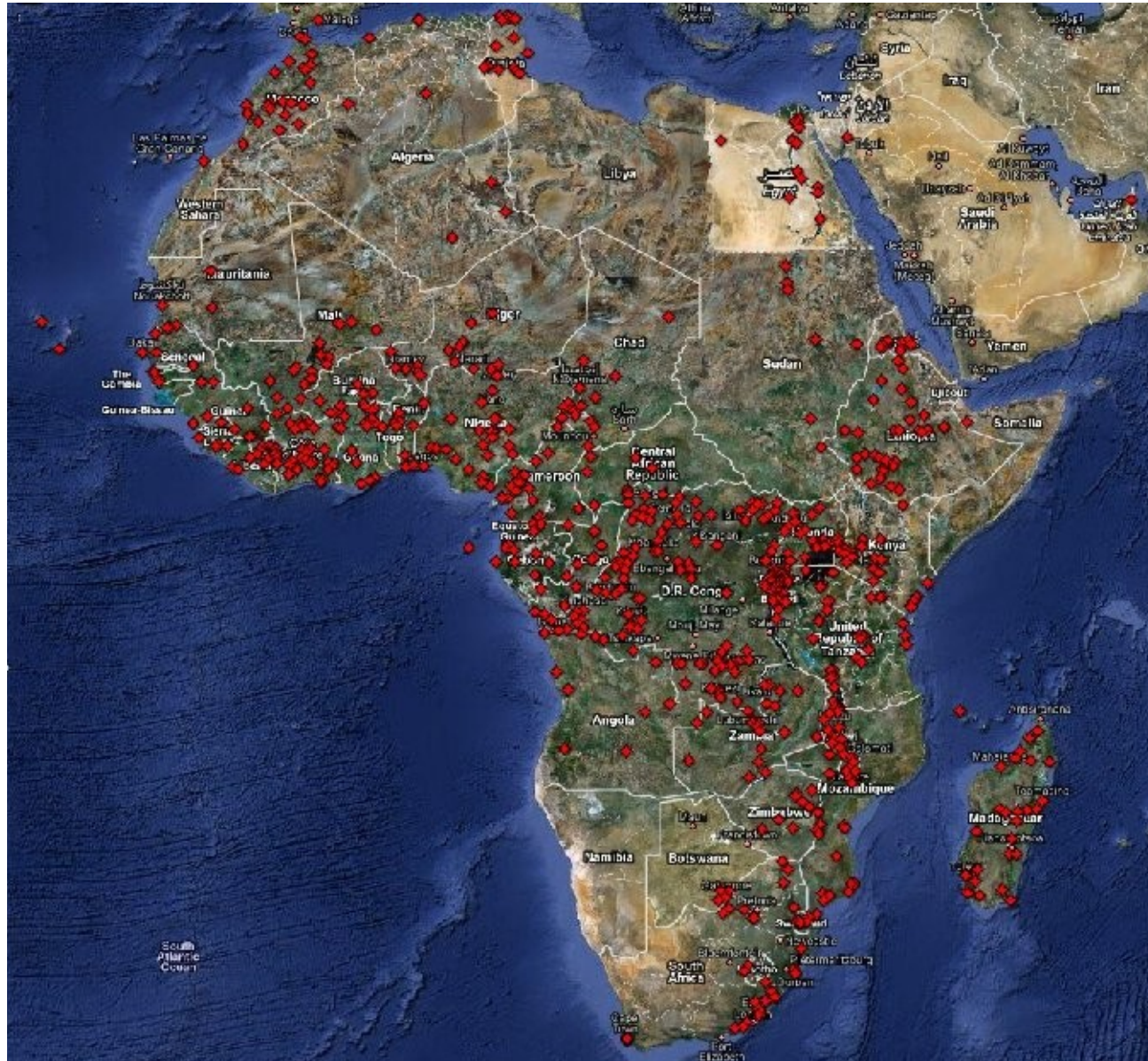
Digitization of the sound archive:

- **Audio**: 50.000 sound recordings – 3.000 hours of music - 33.000 items digitized.
- **Meta-data** : 35.000 items digitized
- Provides **contextual data**

Development of database and website

Exploration of MIR-techniques.

INTRODUCTION DATASET



INTRODUCTION

CONTEXT ANALYSIS

Provide access to archives with ethnic music that deal with a large variability of

- **musical content,**
- **users,**
- **search intentions and expectations.**

METHODOLOGY

Develop a method yielding **culture independent** views on musical parameters by using or adapting existing signal processing MIR-techniques.

A computer scientist was hired (me) to do
Computational Ethnomusicology

Access to ethnic music: Advances and perspectives in content-based music information retrieval - Cornelis, O., Lesaffre, M., Moelants, D. & Leman, M. Apr-2010 In : *Signal Processing*. 90, 4, p. 1008-1031. 24 p.

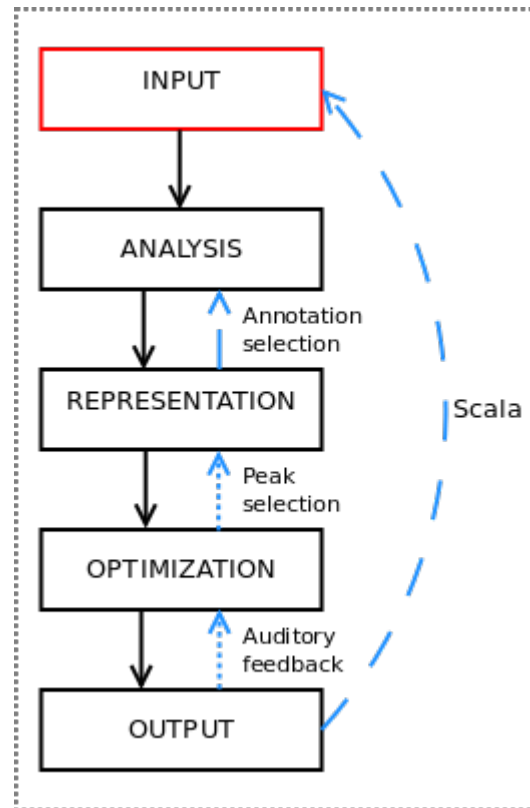
METHODOLOGY

The project is split according to musical parameters:

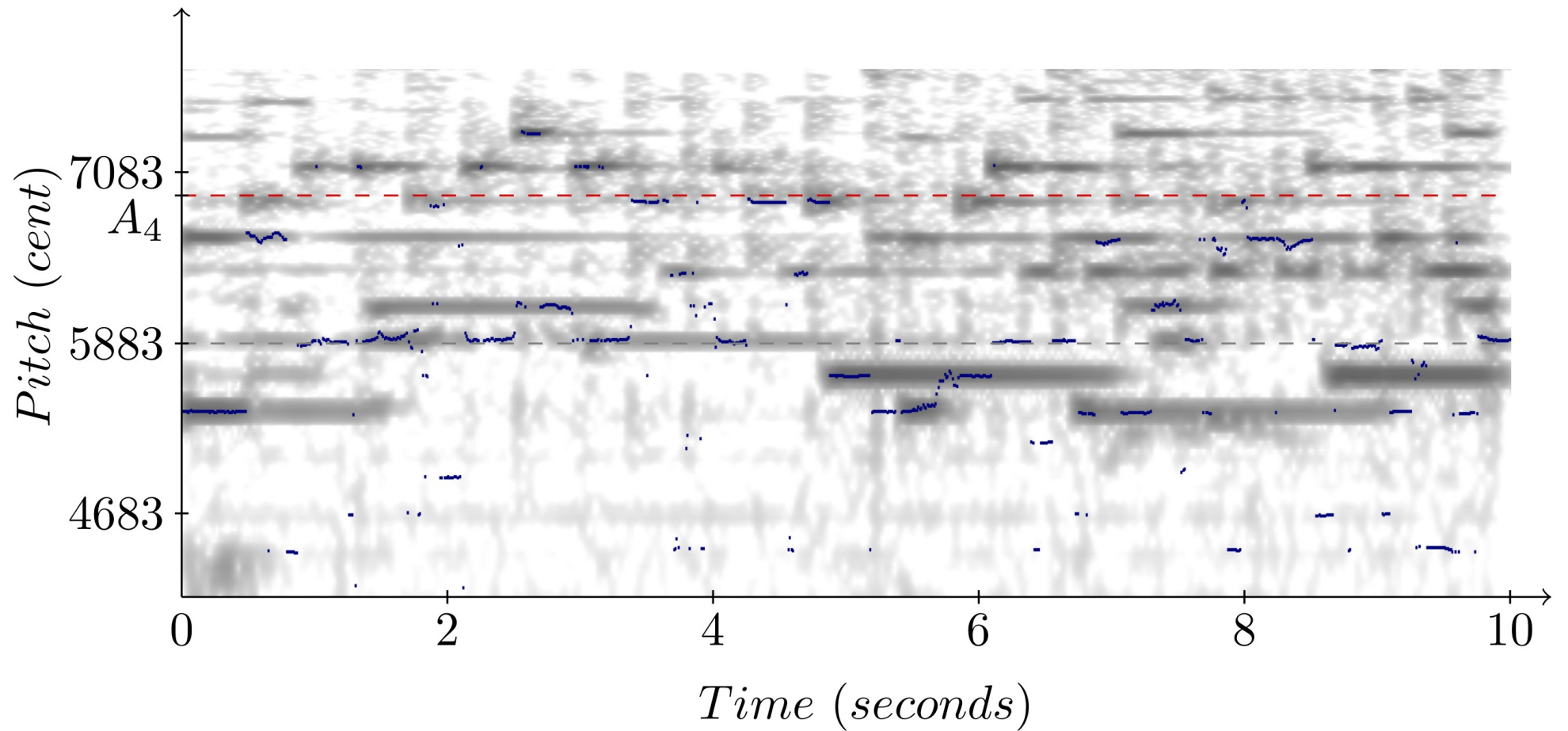
- **Pitch**
- Tempo
- Timbre

TARSOS

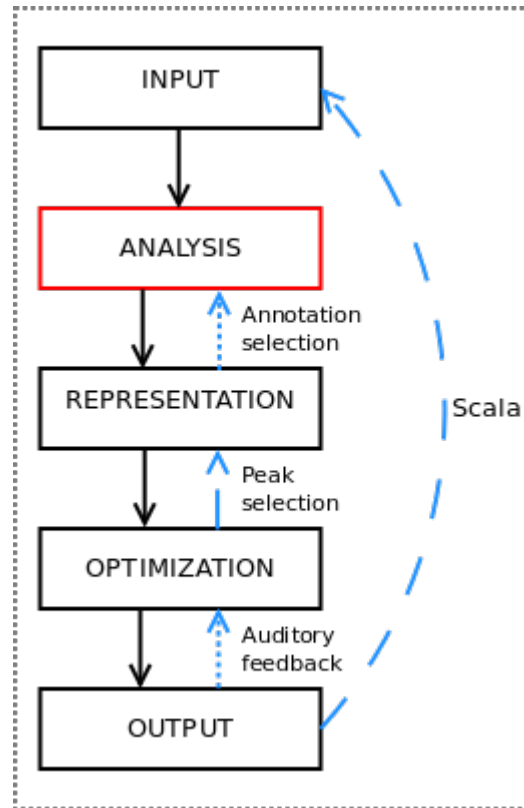
An easy to use, open system to extract and explore **pitch organization** in musical audio for scientific, educational and artistic purposes.



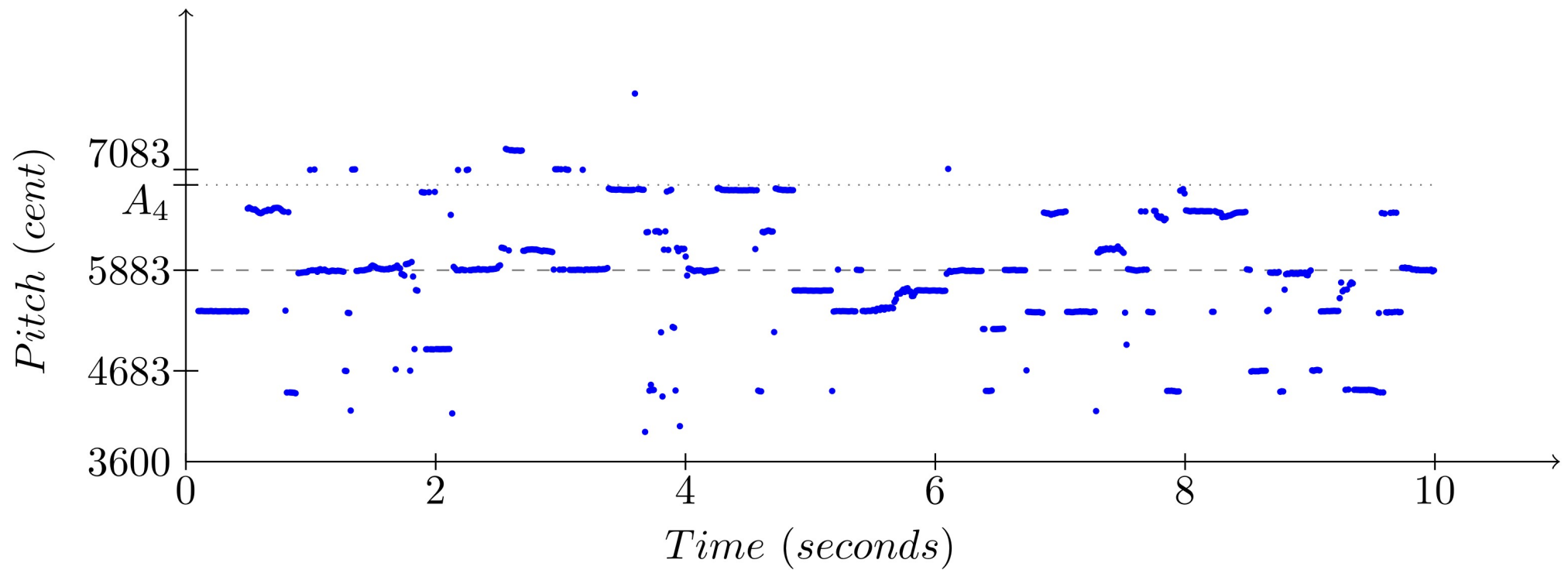
TARSOS_{INNER WORKINGS}



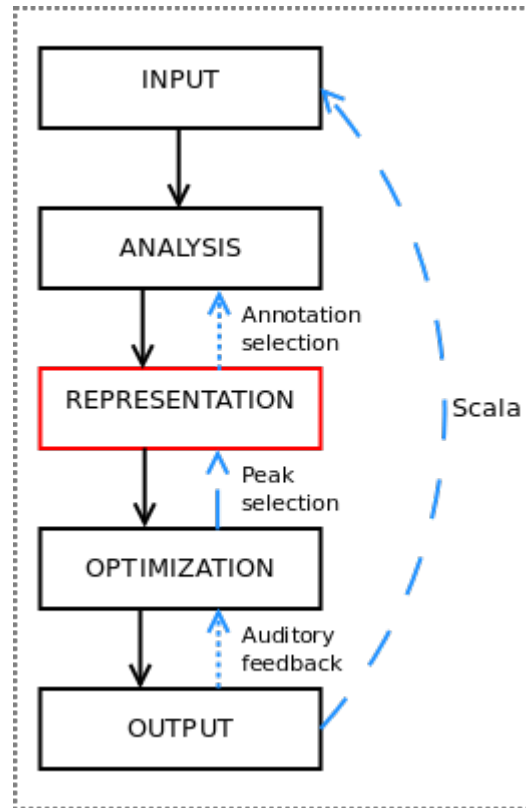
TARSOS INNER WORKINGS



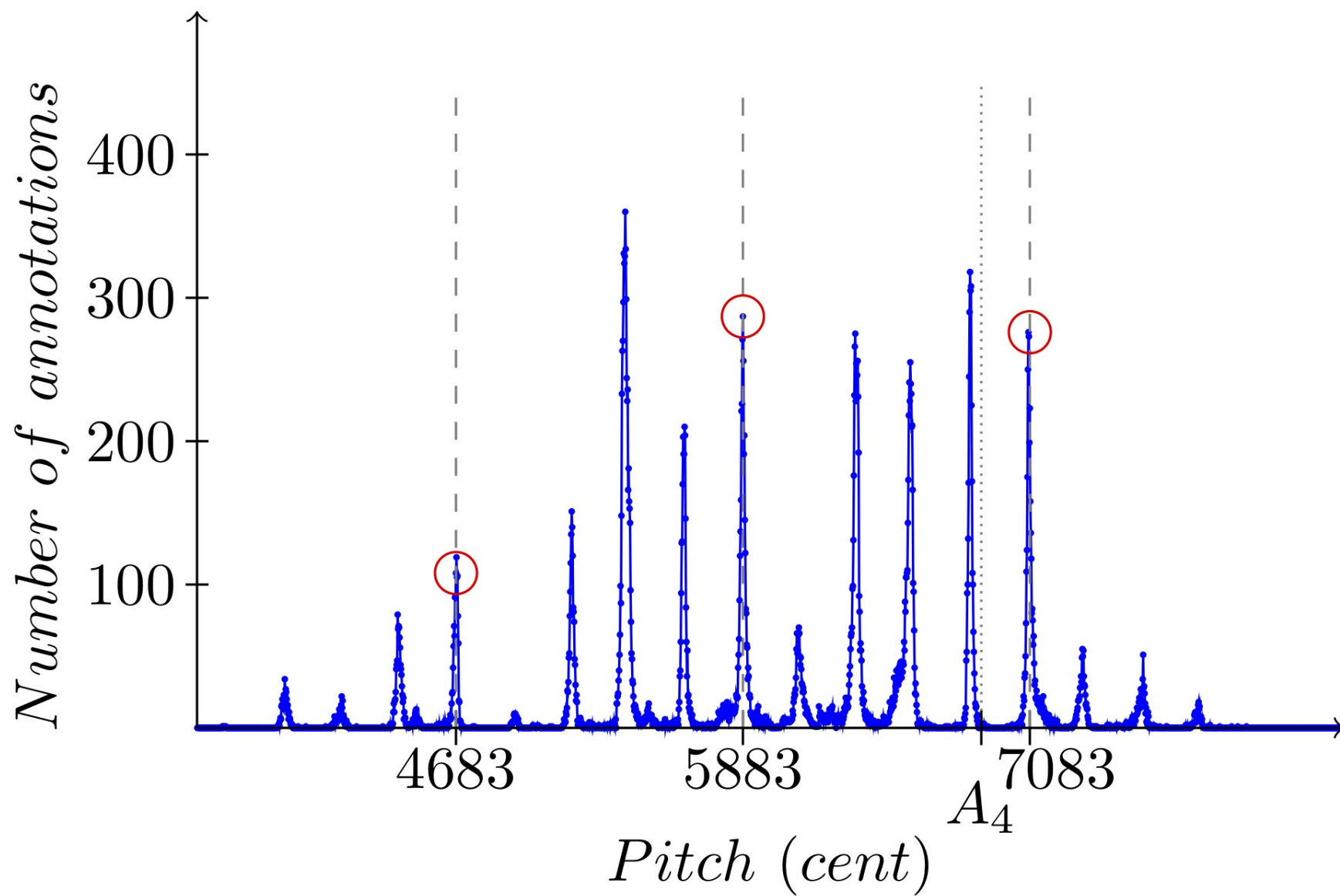
TARSOS INNER WORKINGS



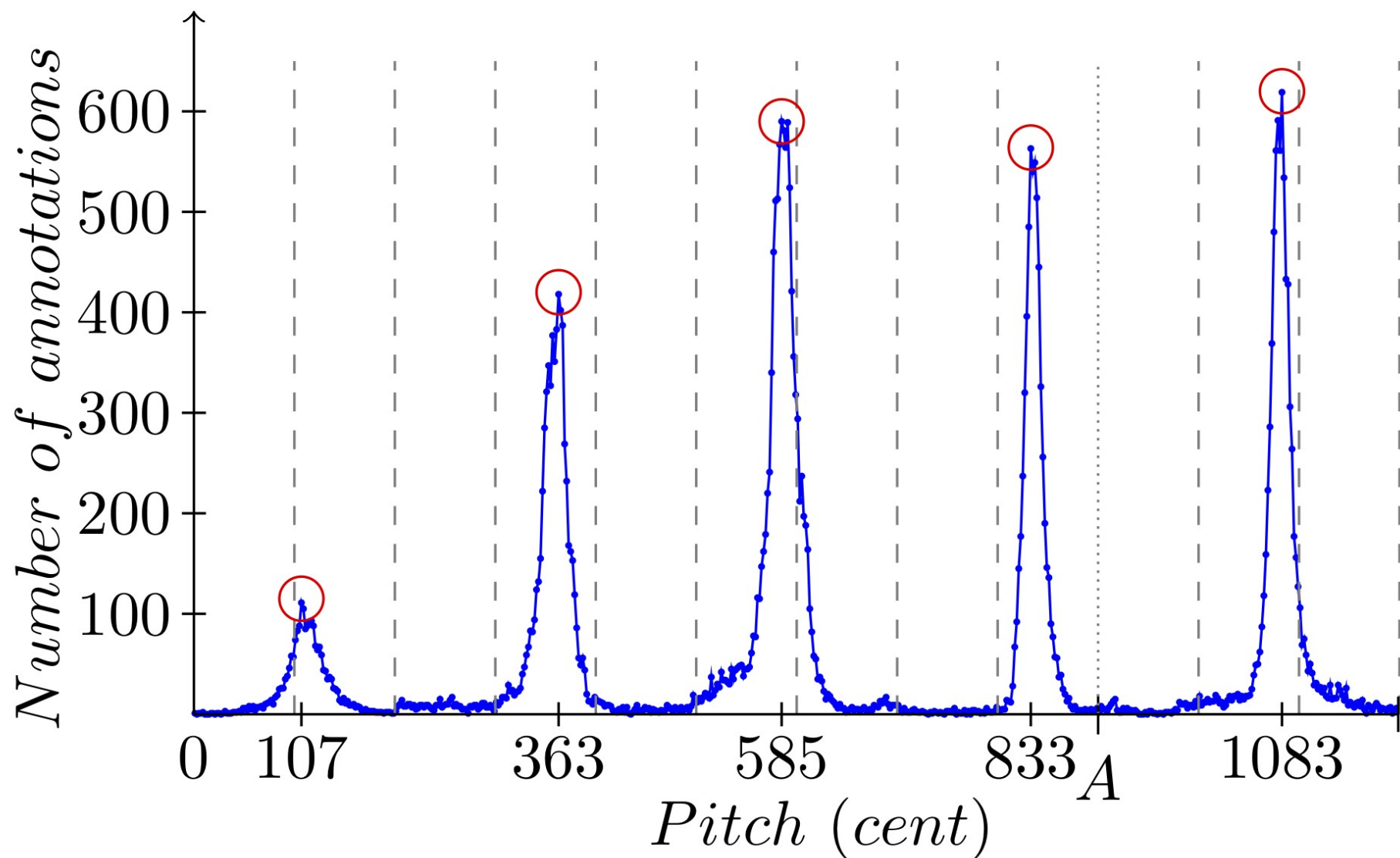
TARSOS INNER WORKINGS



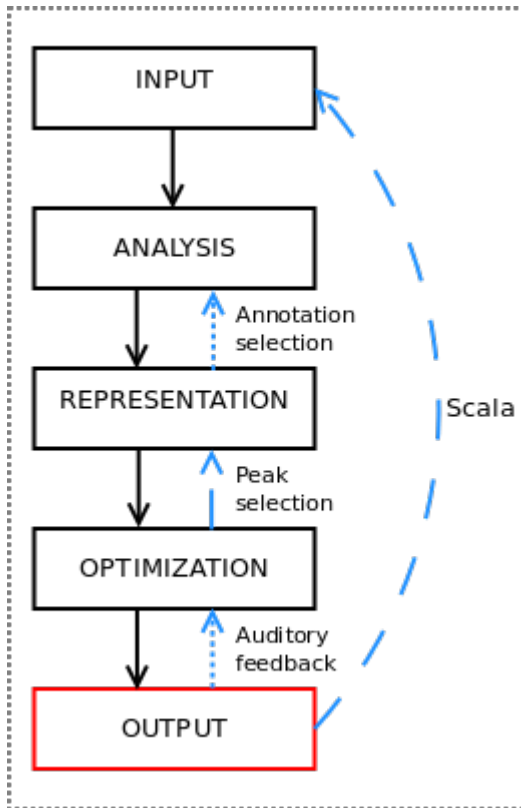
TARSOS_{INNER WORKINGS}



TARSOS_{INNER WORKINGS}



TARSOS INNER WORKINGS



TARSOS_{INNER WORKINGS}

Pitch Class (cent)	Interval (cent)
107	
	255
363	478
	222 725
585	470 976
	248 720
833	498
	251
1083	

TARSOS_{DEMO}



CONCLUSIONS

Tarsos delivers:

- Scientific data
 - Historical temperaments.
 - African tone scales are becoming more western like

Moelants,D.,Cornelis,O.,Leman,M.:Exploring african tone scales. *Proceedings of 9th ISMIR Conference (2009)*

- Artistic input e.g. experimentation with microtonal compositions.
- Educational opportunities: improve intonation.

CONCLUSIONS

FUTURE WORK

- Apply the capabilities on our dataset
- Tone scale correlation
- Start working on tempo and timbre
- Combine tempo, timbre and pitch

DISCLAIMER

Audio alone might not be sufficient to describe and/or retrieve ethnic music:

What does it mean to search and retrieve music from a culture where the word “music” exists only in connection to body movement, smell, taste, colour.

The idea of separating sound from the rest of its physical environment (movement, smell, taste, colour) may well be a weird “invention” of the West.

We cannot understand ethnic music correct without its **social function and context!**

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