



**ISMIR**  
2017, SUZHOU, CHINA

**Tutorial T3**  
**A Basic Introduction to Audio-Related  
Music Information Retrieval**

## Overview

**Meinard Müller, Christof Weiß**

International Audio Laboratories Erlangen

[meinard.mueller@audiolabs-erlangen.de](mailto:meinard.mueller@audiolabs-erlangen.de), [christof.weiss@audiolabs-erlangen.de](mailto:christof.weiss@audiolabs-erlangen.de)

# Meinard Müller



- Mathematics (Diplom/Master)  
Computer Science (PhD)  
Information Retrieval (Habilitation)

**Bonn University**



- Combinatorics (Postdoc)

**Keio University, Japan**



- Senior Researcher

**Max-Planck Institute, Saarland**



- Professor: Semantic Audio Processing

**Erlangen-Nürnberg University**



# Christof Weiß

- 2006 – 2012 Physics Diploma  
Würzburg University
- 2006 – 2012 Composition Diploma  
Würzburg University of Music
- 2012 – 2015 PhD studies  
Ilmenau, Fraunhofer IDMT
- Since 2015  
AudioLabs Erlangen
- 2017 PhD
- Freelancing composer



# Group Members

- Christof Weiß
- Frank Zalkow
- Stefan Balke
- Christian Dittmar
- Patricio López-Serrano
- Sebastian Rosenzweig

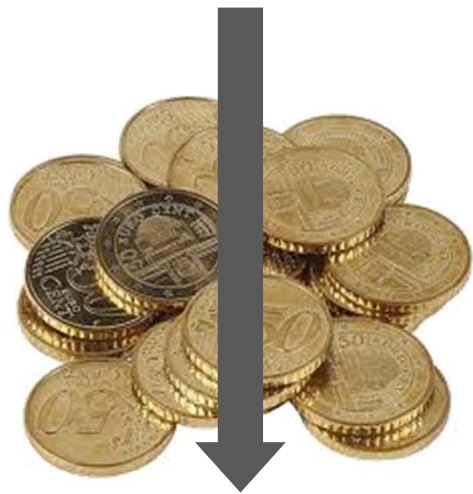


# International Audio Laboratories Erlangen

 **Fraunhofer**  
IIS




**FAU** FRIEDRICH-ALEXANDER  
UNIVERSITÄT  
ERLANGEN-NÜRNBERG



**AUDIO**  
**LABS**

---

# International Audio Laboratories Erlangen



**Audio**

# International Audio Laboratories Erlangen

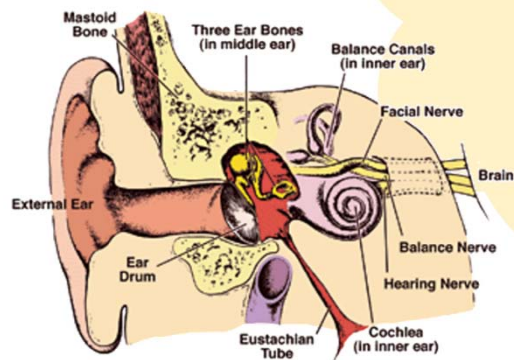
Audio Coding



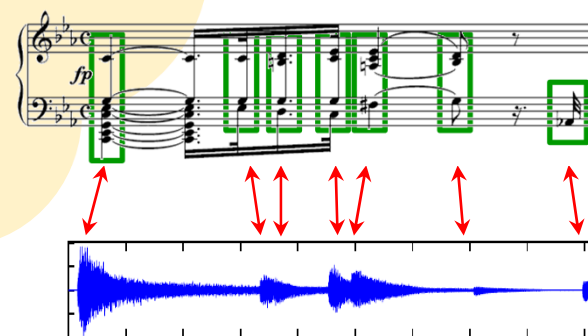
3D Audio



Audio

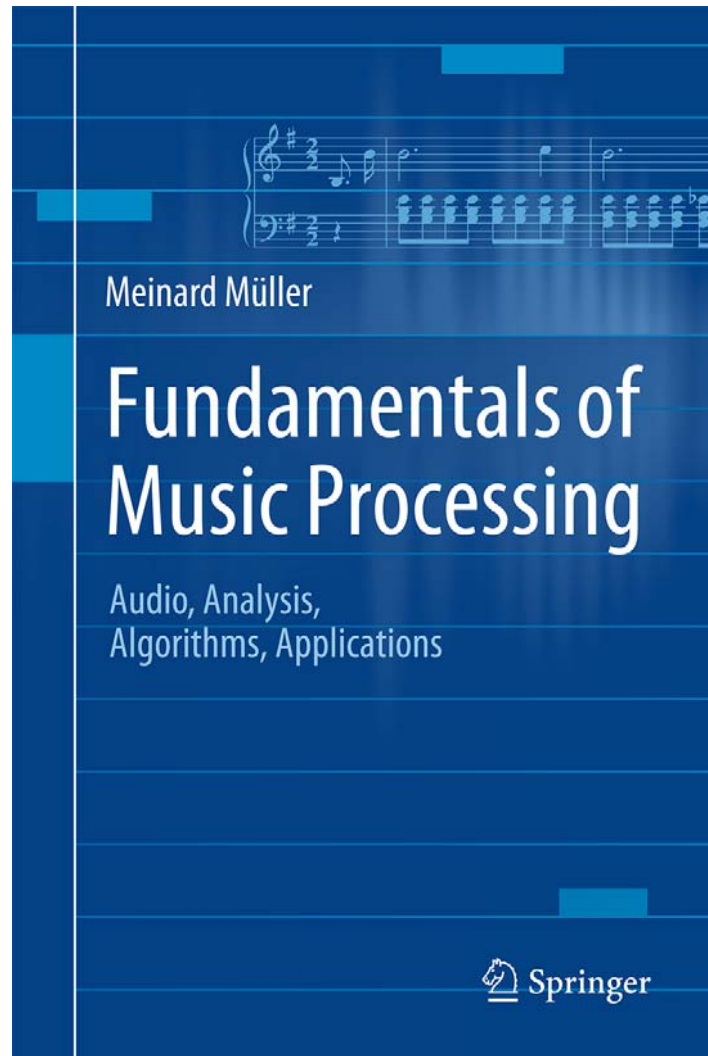


Psychoacoustics



Music Processing

# Book: Fundamentals of Music Processing

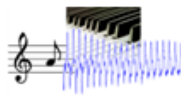

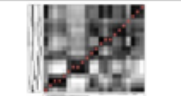
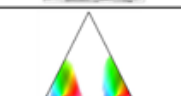

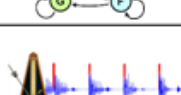




Meinard Müller  
Fundamentals of Music Processing  
Audio, Analysis, Algorithms, Applications  
483 p., 249 illus., hardcover  
ISBN: 978-3-319-21944-8  
Springer, 2015

Accompanying website:  
[www.music-processing.de](http://www.music-processing.de)



# Book: Fundamentals of Music Processing

Chapter		Music Processing Scenario
1		Music Representations
2		Fourier Analysis of Signals
3		Music Synchronization
4		Music Structure Analysis
5		Chord Recognition
6		Tempo and Beat Tracking
7		Content-Based Audio Retrieval
8		Musically Informed Audio Decomposition

Meinard Müller  
Fundamentals of Music Processing  
Audio, Analysis, Algorithms, Applications  
483 p., 249 illus., hardcover  
ISBN: 978-3-319-21944-8  
Springer, 2015

Accompanying website:  
[www.music-processing.de](http://www.music-processing.de)

# Schedule

- 14:00 – 14:10 Overview
- 14:10 – 14:30 Music Representations (Meinard Müller)
- 14:30 – 14:55 Audio Features (Meinard Müller)
- 14:55 – 15:20 Tonal Analysis (Christof Weiß)

**15:20 – 15:40 Coffee Break**

- 15:40 – 16:05 Audio Classification (Christof Weiß)
- 16:05 – 16:30 Audio Structure Analysis (Meinard Müller)
- 16:30 – 16:50 Audio Decomposition (Meinard Müller)
- 16:50 – 17:00 Conclusion

**Slides:**

<https://www.audiolabs-erlangen.de/resources/MIR/2017-ISMIR-Tutorial/>