

Meisterklasse HfM Karlsruhe
Music Information Retrieval

Introduction

Meinard Müller, Christof Weiss

International Audio Laboratories Erlangen

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Meinard Müller

- 2007 Habilitation
Bonn University
- 2007 – 2012
Senior Researcher
Saarland University & MPI Informatik
- Since 2012
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
Ilmenau, Fraunhofer IDMT
- Since 2015: AudioLabs Erlangen
- Freelancing composer



Group Members

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



Where are we?



Fraunhofer-Gesellschaft

- Europe's largest organization for applied research
- 18,000 employees worldwide, total budget: 1.5 billion €
- 60 institutes covering a broad range of research areas

Fraunhofer Institute for Integrated Circuits IIS

- Largest Fraunhofer institute
- Staff >700 people
- MP3



Where are we?

Friedrich-Alexander Universität Erlangen-Nürnberg (FAU)

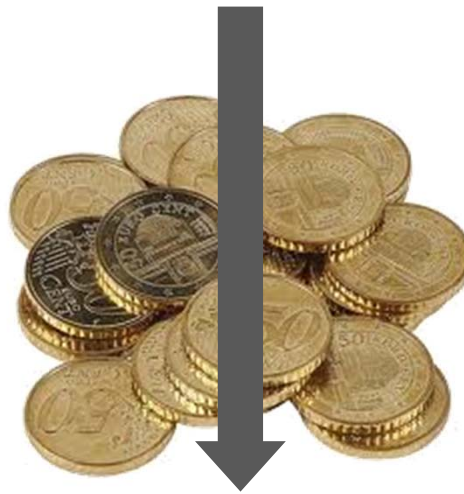
- One of Germany's largest universities
- More than 35,000 students



Collaboration between FAU and Fraunhofer IIS

- Roots of “MP3” audio compression scheme
- Research on audio coding in Erlangen since 1981

International Audio Laboratories Erlangen



AUDIO
LABS

International Audio Laboratories Erlangen



Audio

International Audio Laboratories Erlangen

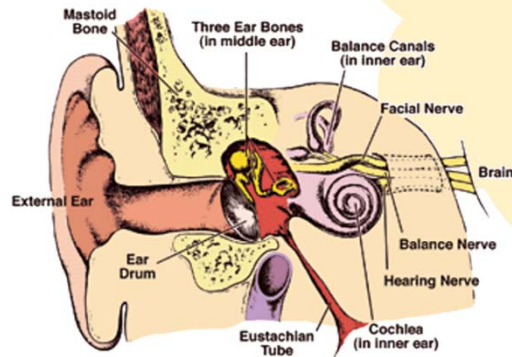
Audio Coding



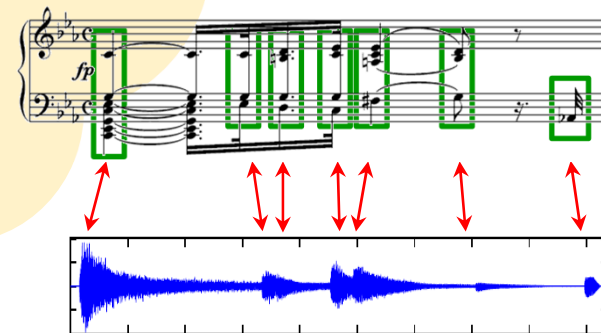
3D Audio



Audio



Psychoacoustics



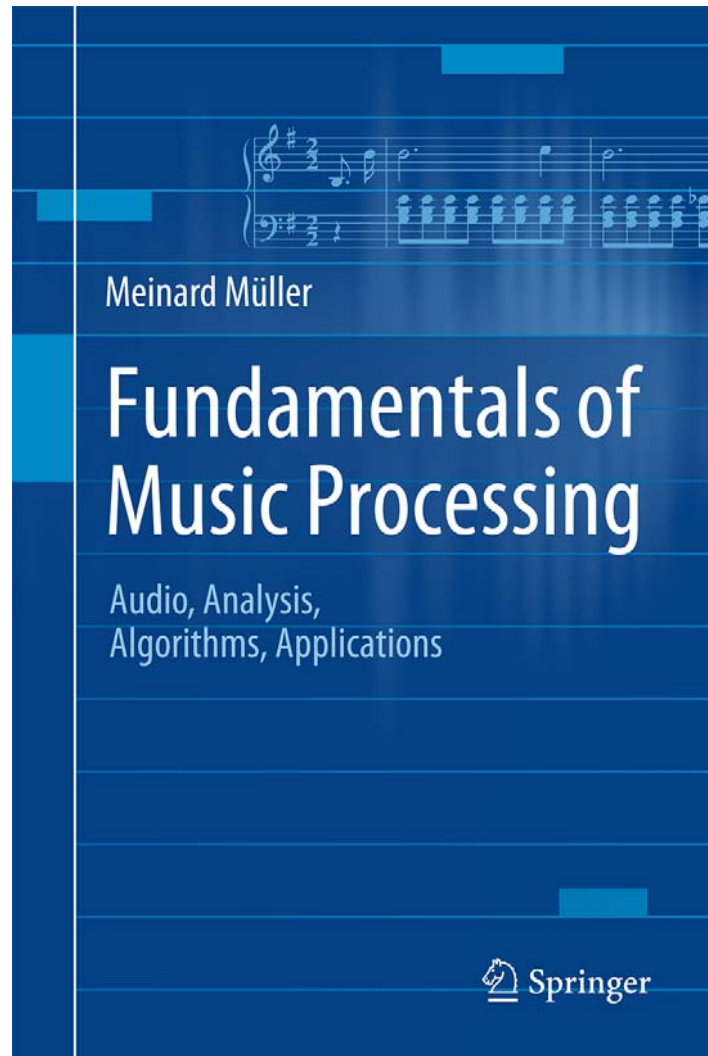
Music Processing

AudioLabs – FAU

- Prof. Dr. Jürgen Herre
Audio Coding
- Prof. Dr. Bernd Edler
Audio Signal Analysis
- Prof. Dr. Meinard Müller
Semantic Audio Processing
- Prof. Dr. Emanuël Habets
Spatial Audio Signal Processing
- Dr. Stefan Turowski
Coordinator AudioLabs-FAU



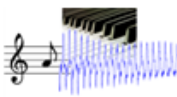
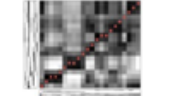
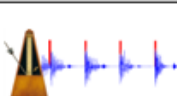
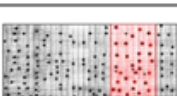
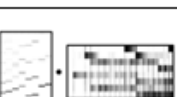
Book: Fundamentals of Music Processing



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

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

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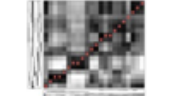
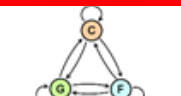
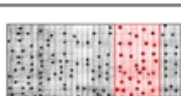
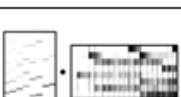
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Meisterklasse MIR

Mittwoch

14:00 - 16:00: Introduction + Music Representations

16:00 - 18:00: Audio Features (1) + Harmony Analysis (1)

Donnerstag

10:00 - 12:00: Audio Features (2) + Harmony Analysis (2)

13:00 - 15:00: Music Synchronization

15:00 - 17:00: Harmony Analysis (3)

Freitag

10:00 - 12:00: Further Topics

Course Material:

https://www.audiolabs-erlangen.de/resources/MIR/2017_CourseMIR_HfM-Karlsruhe

MIR-Related Events in Germany

AES Conference on
Semantic Audio
22 – 24 June 2017
Erlangen



GI Jahrestagung
25 – 29 September 2017
Chemnitz

Gesellschaft
für Informatik



- Workshop: Musik trifft Informatik
26 September 2017
- Tutorial: Musikverarbeitung
25 September 2017