INTERNATIONAL AUDIO LABORATORIES ERLANGEN

AUDIO LABS

Lecture

Music Processing Analysis (MPA)

Introduction

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FAU FRIEDRICH-ALEXANDER UNIVERSITÄT ERLANGEN-NÜRNBERG

Fraunhofer IIS

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

universitätbonn

慶應義塾 Keio University

mpi max planck institut informatik

FAU FRIEDRICH-ALEXANDER UNIVERSITÄT ERLANGEN-NÜRNBERG

Group Members

- Christof Weiß
- Frank Zalkow
- Michael Krause
- Sebastian Rosenzweig
- Yigit Özer





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Where are we?

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Fraunhofer IIS

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 then 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

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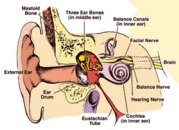
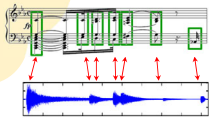
3D Audio

Audio Coding

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
- Prof. Dr. Frank Wefers
  Virtual Reality
- Prof. Dr. Nils Peters
  Audio Signal Processing
- Dr. Stefan Turowski
  Coordinator AudioLabs-FAU

Related Courses

Audio Processing **Laboratory**

The objective of this lab course is to give students a hands on experience in audio processing.

- Offered every semester
- Short-Time Fourier Transform
- Speech Enhancement
- Statistical Methods
- Speech Analysis
- …

Registration via StudOn is mandatory!

Audio Processing **Seminar**

Various applications within audio and acoustic signal processing.

- Offered every semester
- Advanced topics
- Require lecture on DSP, audio, …
- Also music-related topics
- …

Registration via StudOn is mandatory!

—STUDON— Registration on studOn is mandatory!

Related Courses

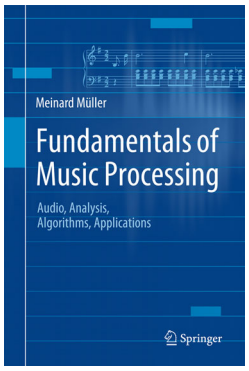
- Speech Enhancement
  Prof. Dr. Emanuël Habets
  AudioLabs
- Advanced Topics in Perceptual Audio Coding
  Prof. Dr. Jürgen Herre
  AudioLabs
- Music Processing – Synthesis
  Maximilian Schäfer (Prof. Dr.-Ing. Rudolf Rabenstein)
  Lehrstuhl für Digitale Übertragung (LMS)

Lecture: Music Processing Analysis (MPA)

https://www.audiolabs-erlangen.de/fau/professor/mueller/teaching/2020w_mpa

- Dates, Material, Information … → See website!
- Time: Mo 16-18
- Mandatory elective course for CME, I&K, EEI, and ASC
  Credits: 2,5 ECTS
- Vertiefungsmodul Informatik (Master of Science)
  Medieninformatik, Mustererkennung
  Credits: 5 ECTS (Lecture & Exercise, MPA-LE)
  Time (Exercise): Mo 14-16
- Oral exam

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 Represenations
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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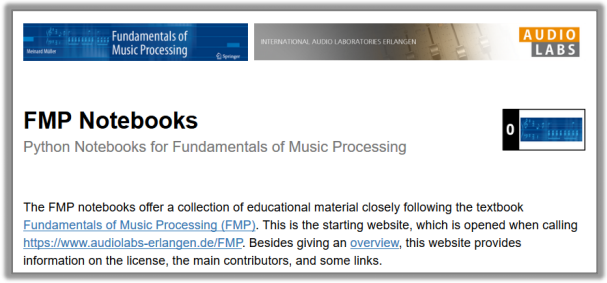
Software & Audio: FMP Notebooks



https://www.audiolabs-erlangen.de/FMP