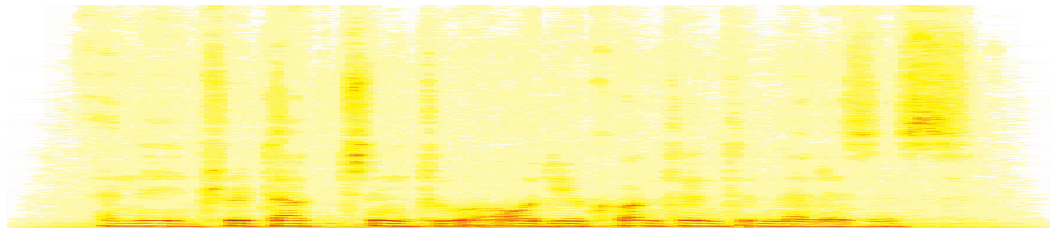


Introduction to Audio Content Analysis

Module 0.0: Introduction to the online course

alexander lerch



introduction

about alexander lerch

● education

- Electrical Engineering (Technical University Berlin)
- Tonmeister (University of Arts Berlin)

● professional

- Assistant Professor at the [Georgia Tech Center for Music Technology](#)
- previous: CEO at [zplane.development](#)

● research focus

- Music Information Retrieval (MIR)
- intelligent music software



introduction

course introduction

- Audio Content Analysis and Music Information Retrieval (MIR):
 - extract and infer descriptors from music signals
 - answers questions and tasks such as
 - “What is the tempo/key/mood of this song?”
 - “Transcribe this signal into a musical score.”
 - ...
- MIR is commercially interesting for, e.g.,
 - music recommendation
 - music identification
 - intelligent music production

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course goals

after successful completion of this course, you will

- 1 have a good **overview of typical tasks** in MIR
- 2 **understand algorithmic approaches** in a large variety of basic MIR systems
- 3 be able to **implement MIR systems** in Matlab
- 4 be able to **formally evaluate** systems with common datasets and metrics



introduction

course overview

the course is structured into 9 different topic areas

- 1 Introduction to ACA and MIR
- 2 Fundamentals of DSP
- 3 Instantaneous (Low-Level) Features
- 4 Analysis of Intensity
- 5 Tonal Analysis
- 6 Temporal Analysis
- 7 Alignment
- 8 Genre, Similarity, & Mood
- 9 Audio Fingerprinting



introduction

prerequisites

- basic knowledge in **DSP**
 - signals & systems, block diagrams, ...
- familiarity with **Matlab**
 - m-files and functions, scripting, file I/O, ...
- helpful: knowledge of **machine learning** concepts
 - classification & regression, training and testing, evaluation metrics



introduction

course materials & resources

- **text book:** “An Introduction to Audio Content Analysis”:

ieeexplore.ieee.org/servlet/opac?bknumber=6266785

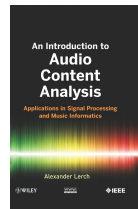
- **optional reading**

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- **online resources** @AudioContentAnalysis.org:

- slides
- datasets
- matlab code

- **software:** Matlab



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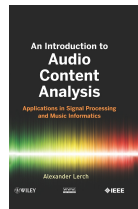
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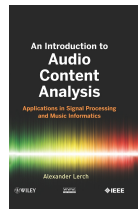
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