github.com/alexanderlerch/2024-MIG

music informatics group

overview

alexander lerch

Georgia Tech Center for Music Technology
College of Design

introduction
music informatics group

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College of Design

- **mission**
  - create new technologies transforming and improving how we *make*, *produce*, *perform*, *discover*, *and consume music*
  - advance the field of AI for audio through *knowledge-driven machine learning*

- **objectives**
  - enable/improve *machine understanding of music* and musical language
  - create *interpretable and controllable systems*
  - design algorithms with *low data requirements*

musicinformatics.gatech.edu

tasks

selected tasks of interest

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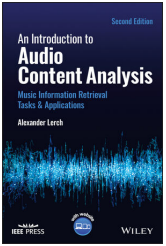
- **audio content analysis** [1]
  - music/audio *classification*
    - genre/events [2], [3]
    - instruments [4]–[6]
    - tagging [6]–[8]
    - pedestrians [9], [10]
  - music *transcription*
    - drum transcription [11]
    - chord detection [12]
  - music *performance analysis* [13]
- **audio processing**
  - source *separation* [14]–[16]
- **sound and music generation**
  - controllability [17]
  - evaluation [18], [19]



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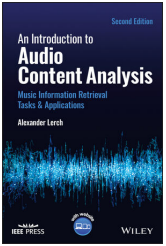

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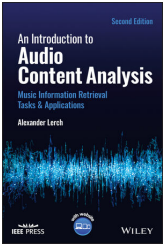

methods

methods of interest

- **representation learning**
  - improved structure of embedded representations [20], [21]
  - enforcing the meaning of specific embedding dimensions [17], [18]
  - ...
- **low-resource machine learning**
  - semi- and self-supervised learning [4], [22]
  - reprogramming [3], [5]
  - knowledge transfer [6], [7], [23]
- **objective evaluation of generative systems**
  - evaluation of controllable systems with correlated attributes [19], [24]
  - statistical models for comparison of properties [25]
  - metrics for sound generation [26]

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links

links

music informatics group: musicinformatics.gatech.edu

book: www.AudioContentAnalysis.org

alexander lerch (alexander.lerch@gatech.edu):

- www.linkedin.com/in/lerch
- scholar.google.com/citations?user=29dF3UIAAAAJ
- github.com/alexanderlerch

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