Audio Processing Laboratory Summer Term 2017

Introductory Meeting

Bernd Edler, Meinard Müller, Frank Zalkow, Fabian Robert-Stöter

18.10.2017

FRIEDRICH-ALEXANDER
UNIVERSITÄT
ERLANGEN-NÜRNBERG

Fraunhofer

IIS

Introduction
Persons

Responsible for Audio Processing Lab Summer Term 2017:

- **Meinard Müller**
  meinard.mueller@audiolabs-erlangen.de

Contact:

- **Frank Zalkow**
  frank.zalkow@audiolabs-erlangen.de
- **StudOn will be primary platform**

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AUDIO
LABS

Lab 1
Short-Time Fourier Transform and Chroma Features

- Short-time Fourier transform (STFT)
- Log-frequency spectrograms
- Pitch and Chroma representations

Supervisors: Stefan Balke, Christian Dittmar

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Lab 3
Speech Analysis

- Fundamental frequency
- Nature of the excitation signal (HNR)
- Shape of the vocal tract
- Locate formants and recognize voiced phonemes

Supervisor: Johannes Fischer, Esther Fee Feichtner

AUDIO LABS

Lab 4
Statistical Methods for Audio Experiments

- Fundamentals of statistics
- Hypothesis tests
- Regression Models
- Designing, conducting and evaluating Listening Experiments
- Warning: we will use the R Programming language

Supervisor: Alexander Adami, Nils Werner

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Lab 5
Speech Enhancement Using Microphone Arrays

- Basic task is noise and interference suppression using microphone arrays.
- Implementation of two different types of beamformers
- Performance evaluation using objective measures

Supervisor: Soumitro Chakrabarty, María Luis Valero

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Organisation
Dates

- ~~First meeting today~~
- Dates for 5 labs:
  Wednesday 9:00–13:00: 08.11., 15.11., 22.11., 13.12., 17.01.
  Friday 14:15–18:15: 10.11., 17.11., 24.11., 15.12., 19.01.
- All groups have **one lab per week in the same order**
- You can choose to have the lab on Wednesday or on Friday.
- No switching!

AUDIO LABS

Organisation
Lab course material

- Available today on STUDON
- Around 10 pages per lab
- Remember: $2.5ECTS = 75h = \frac{15h}{lab}$ of workload
- Includes excersises that need to be done before the actual lab
- Although you will work in groups we give you points individually

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LABS

Organisation
Assessment criteria

- Each group will have an interview **during** each lab
- If you are not well prepared you have to repeat the lab
- Every group has to pass all 5 labs

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- Homework exercises required!
- Scores (lab experiments + interviews with tutors):
  Points: 0=no pass, 1=minimal pass, 2=pass, 3=excellent
- Passed if:
  - At least 1 point in each of the 5 labs
  - Altogether at least 7 points

Organisation
Groups