

# Laboratory Course for Main Studies

## “Speech- and Image Processing“

### WS 2009/10

<b>Type</b> Ü2	<b>Schedule / Room</b> by arrangement / terminal room Lehrstuhl Informatik 6	<b>Start</b> 1st meeting: follow announcem.	<b>Instructor</b> Prof. Dr.-Ing. H. Ney, J. Löff
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#### Content:

Construction of system parts for automatic recognition of handwritten digits as well as an automatic speech recognizer.

The laboratory course covers the implementation of basic methods of speech and image recognition using the programming language C++. Currently the following topics are planned:

- image object recognition
  - Gaussian single and mixture distributions
  - simple image classifiers
  - application of the image object recognition software of the Lehrstuhl
- automatic speech recognition
  - Introduction to the speech recognition software of the Lehrstuhl
  - acoustic: cepstrum-analysis
  - search: tree search, usage of language model, analysis of the search space
  - language modelling: extraction of vocabulary, construction of a language model

#### Assignment:

Applied Computer Science or Specialization

#### Requirements:

- Vordiplom/Bachelor
- Participation in at least one of the lectures “Pattern Recognition and Neural Networks”, “Speech Recognition”, or “Statistical Methods in Natural Language Processing”, or “Digital Processing of Speech and Image Signals” is compulsory.
- If a “Leistungsnachweis” was done in one of the above lectures, the participation in the seminar is guaranteed.
- Practical experience with the programming language C/C++ are helpful.

#### References:

Lecture notes und References from lecture “Speech Recognition”

#### Recurrence:

Each winter term.

#### Others:

The **first meeting** will take place at the beginning of the term in the seminar room of the Lehrstuhl für Informatik 6.

In agreement with the participants the lab course will take place during the term or as a block at the end of the term. Among others its goal is to introduce candidates of hiwi-jobs and diploma works to the methods used at the Lehrstuhl für Informatik 6.

Enquiries to:

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