Seminar Sprachtechnologie

Themenvorschläge

Arne Köhn, Wolfgang Menzel

Universität Hamburg, Fachbereich Informatik

Seminar Sprachtechnologie

1. Speech recognition: HMM, training, decoding
2. Speech synthesis: unit selection, HMM
3. Language Modeling: n-gram models,smoothing, backoff, continuous space LM
4. Incremental Speech Processing
   e.g. Schlangen and Skantze (2009) A general, abstract model of incremental dialogue processing

Seminar Sprachtechnologie

5. Dialogue Management
   background in Jokinen and McTear (2010) Spoken Dialogue Systems, chapter 2-4;
   - 5.1 rule-based systems with VoiceXML, StateChartXML
   - 5.2 MPD/POMDP-based (partially observable Markov-Decision Processes)
   - 5.3 hybrid (rule-based/statistical) approaches
     e.g. Lison (2014) A hybrid approach to dialogue management based on probabilistic rules. Computer Speech & Language
   - 5.4 handling errors/miscommunication
     e.g. Skantze (2007) Error Handling in Spoken Dialogue Systems
   - 5.5 Paek and Pierracini (2008): Automating spoken dialogue management design using machine learning: An industry perspective, Speech Communication

Seminar Sprachtechnologie

6. Natural Language Understanding
   basics: Jurafsky and Martin (2009), chapter 17/18 semantic frame-based NLU
   e.g. Tur and Demori (2011) Spoken language understanding: systems for extracting semantic information from speech, Chapter 3
7. Natural Language Generation
   e.g. Reiter and Dale (2000) Building natural language generation systems
   Stent and Bangalore (2014) NLG in interactive Systems
8. Applied systems
   Lewis (2011) Practical Speech User Interface Design, Siri/Google Now