

CS 585: Natural Language Processing

Texts

- James Allen, *Natural Language Understanding*, Second Edition. Benjamin/Cummings, Menlo Park, CA, 1995.
- Judith Markowitz, *Using Speech Recognition* Prentice Hall, Upper Saddle River, NJ, 1996.

Objectives

- Define a sublanguage and collect statistics.
- Construct a sublanguage lexicon.
- Design a sublanguage grammar.
- Build a simple parser given a grammar.
- Construct a simple generator.
- Locate and evaluate available parsers and generators.
- Build a natural language interface.
- Locate corpora and other natural language resources.
- Choose a speech recognition system for a given application.

Prerequisites

- CS 480, Linear algebra, Probability theory.

Syllabus

• Course goals, projects and assessment. Overview of field	1.5 hours
• Grammars and parsing	6.0 hours
• Semantic representation - logic forms, relations and cases	3.0 hours
• Features and augmented grammars	4.0 hours
• Unification grammars. Lexical functional grammar	2.0 hours
• Discourse structure	3.0 hours
• Discourse context and reference	3.0 hours
• Text generation	4.5 hours
• Discourse markup and analysis	3.0 hours
• Building a lexical database	3.0 hours
• Resolving ambiguity	1.5 hours
• Efficient parsing	2.5 hours
• Statistical approaches and machine learning	2.0 hours
• Natural language interfaces to operating systems	1.5 hours
• Understanding input and generating responses in intelligent tutoring systems	1.5 hours
• Student project reports	3.0 hours
Total	45 hours

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