

CSP 581: Applied AI Programming

Texts

- Peter Norvig, *Paradigms of AI Programming: Case Studies in Common Lisp*
- Steven L. Tanimoto, *The Elements of Artificial Intelligence Using Common Lisp*
- Abelson, Sussman, and Sussman, *The Structure and Interpretation of Computer Programs*

Objectives

- To learn AI programming algorithms and techniques in Common Lisp.
- Time is split between Common Lisp topics and discussions of implementation strategies for AI algorithms.

Prerequisites

- CS 440 or equivalent.

Syllabus

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| • Common Lisp basics | 3 hours |
| • First-Class and Higher-Order Functions | 3 hours |
| • Anonymous Functions and Closures | 3 hours |
| • CLOS | 2 hours |
| • Symbolic Mathematics: MACSYMA | 3 hours |
| • Constraint Satisfaction | 3 hours |
| • Natural Language Processing and Parsing | 5 hours |
| • Macros and Microlanguages | 3 hours |
| • Rule-Based Expert Systems and RETE | 5 hours |
| • Memoization | 2 hours |
| • Partial Evaluation | 2 hours |
| • Meta-Circular Evaluation | 4 hours |
| • Compiling LISP Programs | 4 hours |
| Total | 42 hours |