Lecture 5

Analytical Learning Discussion (2 of 4): Distal Supervised Learning and Phantom Induction

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Readings:
Brodie and G. Dejong

Presentation Outline

- Paper
  - "Iterated Phantom Induction: A Little Knowledge Goes a Long Way"
  - Authors: M. Brodie and G. F. Dejong
- Overview
  - Combining analytical learning (specifically, EBL) and inductive learning
    - Role of domain theoretic knowledge
    - Goals
  - Explanation-Based Neural Network (EBNN) learning
    - Knowledge representation
    - Idea
- Topics to Discuss
  - How is DT acquired?
  - How is DT represented?
  - Key strengths: generality
  - Key weakness
- Example Paper Reviews: Online (Course Web Page)

Background AI and Machine Learning Material

- Explanation-Based Learning
  - Russell and Norvig
    - Chapter 18: inductive learning
    - Section 21.2: symbolic EBL
  - Mitchell
    - Chapter 13: reinforcement learning
    - Chapter 11: analytical learning
    - Chapter 12: integrating analytical and inductive learning
- Quick Reinforcement Learning Review
- Topics to Discuss
  - Muddiest points
    - Inductive learning
    - Analytical learning
    - Reinforcement learning
    - IPI
  - What kind of questions to ask when writing reviews and presentations

IPI: Issues Brought Up by Students in Paper Reviews

- Topics to Discuss

Key Strengths of IPI

Key Weaknesses of IPI

Terminology

Summary Points