



Project Overview



- Household robots will have to be able to operate in complex environments, full of many different kinds of objects
- Current learning and efficient planning algorithms cannot represent objects and their properties and relations
- We are developing new learning and planning algorithms that will allow real robots to learn and use important common-sense facts like “If **a** is on **b** and I pick up **b**, then **a** will move too.”



Progress Through December 2000

- Implemented Utree algorithm for learning in partially observable domains
- Applied Benson's algorithm for generating deictic expressions in propositional domains
- Designed architecture for combining Utree with Oates' rule-induction algorithm and automatic generation of deictic expressions
- Wrote paper to be presented at the AAAI Stanford Spring Symposium



Research Plan for the Next Six Months

- Implement combined Utree, rule-learning, and deictic term-generation language
- Use learned world models to plan to solve new tasks more efficiently
- Extend methods to the first-order case
- Study the role of probability, trading off efficiency against robustness
- Design vision algorithms that learn to do object segmentation, via direct object manipulation and optical flow