Artificial Intelligence Seminar
2001-2002
Schedule

Fall 2001

August 22 Melanie Martin Organizing meeting
August 29 Melanie Martin Identifying Ideological Point of View
September 5 Melanie Martin Identifying Ideological Point of View II
September 12 Nemecio Chavez The Egg Cracking Problem
September 19 Nemecio Chavez The Egg Cracking Problem II
September 26 Discussion Superfly's Last All Summer Long a story by Brian Aldiss
October 3 Dan Tappan Reasoning in Natural Language Processing
October 10 Heather Pfeiffer Wolves and Rabbits
October 17 Don Dearholt The Cumulative Consensus of Cognitive Agents: A Learning Algorithm for Structures in Semantic Memory

Spring 2002

January 14 Melanie Martin Data Models for Conceptual Structures
January 28 Heather Pfeiffer & Roger Hartley Data Models for Conceptual Structures
February 4 Heather Pfeiffer & Roger Hartley Data Models for Conceptual Structures II
February 11 Heather Pfeiffer & Roger Hartley Data Models for Conceptual Structures III
February 18 Tom O'Hara Overview of Cyc (Knowledge Base and Inference Engine)
February 25 Tom O'Hara Thematic roles in Cyc versus Conceptual Structures
March 4 Dan Tappan Intelligent Agents
March 11 Dan Tappan Intelligent Agents II
March 18 Dan Tappan Intelligent Agents III
April 1 Nemecio Chavez Inheritance Theory
April 8 Nemecio Chavez Inheritance Theory II
April 15 Mia Kalish Bleeding Edge Teaching Technologies: Pushing the Envelope of the Language- Graphics Interface
April 22 Nemecio Chavez Inheritance Theory III

The NMSU Computer Science Department AI Seminar was started in the Fall of 2001 with the following goals:
• Provide a forum for interaction between Ph.D. students working in AI and interested faculty.
• Provide an opportunity for graduate students to practice speaking about research topics and to get feedback.
• Build and strengthen the AI group in the department.
• Provide an opportunity for new graduate students interested in AI to see what our department has to offer and get an idea of what is involved in Ph.D. level and post-doctoral research.

The seminar consists of weekly talks, or facilitated discussions, approximately one hour in length. The seminar drew participants and speakers, not only from CS, but from the Physical Science Laboratory, Computing Research Laboratory, Soils, Psychology, Computational Biology, and independent researchers.


For the past several years, I've been exploring the use of visual languages to express rule-based mobile robot programming. Recently, this effort has been directed toward the robot's sensors, and especially managing the uncertainty associated with those sensors. This talk will give an overview of the Isaac project, and show the use of Dempsey-Shafer belief management to handle sensor fusion.

The idea that a system might hold an intelligent conversation with a human has been long an important aspect of research in artificial intelligence. Several programs have been written accomplishing different aspects of these conversational agents. At the same time, linguistic theory has identified several characteristics of dialogue modeling that need to be implemented if any conversational agent is to mimic human dialogues successfully.

In this talk, I will present a conversational agent named MARINA which is being developed at the CRL. I will show how it combines finite state automata (FSA) driven dialogues with a higher level engine that communicates with human users as well as other agents. This higher level engine compensates for some of the rigidity produced by the FSA. I will also present some of the properties in dialogue modeling and how these are being addressed by MARINA.

The Pathfinder paradigm utilizes pairwise estimates or measures of proximity to form a family of networks intended to model aspects of the associations within human semantic memory. This model supports clustering of similar concepts (and thus higher levels of abstraction) and minimum-cost paths, thus providing a well-defined associative structure to the concepts within a domain. Recently, a method of modeling dynamic phenomena by incrementally constructing a Pathfinder network based upon counting co-occurring concepts at each sampling time has been developed, utilizing a canonical scenario. This procedure can be viewed as computing the cumulative consensus over a set of adaptive agents, in which each agent has certain responsibilities for the storage of memories of the co-occurring phenomena. This learning algorithm transforms sequential phenomena into a Pathfinder network representation, and thus provides a candidate model for the transition from episodic to semantic memory in humans.