Sample Projects from Previous Years

Looking over my pile of past term projects, and picking a few, more or less at random, I see the following. The mere existence of a topic in the list does not, incidentally, prevent you from undertaking the same topic. No two people or groups will produce the same contributions, and yours might be much better.

Title	Type	Vision (midlevel)	Step
Human intelligence and chimp language	Area exam	If we are to understand what we can communicate in language, we should understand what can be communicated in the languages of other animals.	Study what is known about chimp communication and language learning ability.
Story understanding through causal reconstruction	Research proposal	If we are to understand how we benefit from precedents, we first need to understand how to represent the knowledge conveyed in stories.	Speculate on how well Borchardt's language would work as a representation for everyday stories of the sort that you would find in a child's reader.
Characterizing motion using transition space	Research proposal	If we are to understand the contribution of vision to describing trajectories, we must develop a representation capable of expressing what a vision system sees in terms of change and motion.	Speculate on how well Borchardt's language would work as a representation for visual events, such as size and position changes, so as to help enable the formation of hypothesis such as *prey running away*, *person approaching*, or *wheel spinning*.
Learning to describe what we see	Research proposal	If we are to understand what sorts of information our vision system conveys to our language	Probe how human vision and language support each other by studying how we humans describe and

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		system, we should develop an understanding of how people describe what they see.	learn to describe scenes consisting of a few geometric figures.
Accounting for developmental phenomena using AI-grounded representations	Area examination	If we are to understand developmental phenomena, such as observed in Spelke's experiments, we must first learn how to describe those phenomena in a precise technical language.	Speculate on how Borchardt's or Jackendoff's language could help describe developmental phenomena, thereby more precisely cataloging what a developing child, at various stages, can know in terms of transition types or path types.
Affective learning	Research proposal	If we are to fully understand human communication, we have to understand not only emotion-expressing body language, but also how we learn to express emotion in body language.	Build on the work on the Kismet robot to understanding how emotional cues are learned.
An architecture for interfaculty communication	Research proposal	If we are to understand how our brains's various faculties work together, we have to understand how they learn to communicate.	Blend the best of K-lines and Kirby's survival-of-the-smallest idea to develop a theory of how our various faculties might learn to communicate.
An implementation of Kirby's language-learning system	Reimplementation + experiments	If we are to understand how language evolves, we need to experiment with systems such as Kirby's.	Build a system that allows us to perform parameter-variation experiments; then, experiment.
Describing	Experiment +	One way to benefit	Show how Borchardt's

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mechanical devices in a Borchardt Representation	research proposal	from understanding human intelligence is to use that understanding in design systems.	representation should be augmented to capture the descriptions offered by a half-dozen subjects in describing various Rube Goldberg devices.
Borchardt meets Soros, Gets Rich	Area examination	One way to benefit from understanding human intelligence is to use that understanding in financial advisory systems.	Attempt to capture what George Soros, famous investor, knows, by restating the ideas in his books in terms of transition space descriptions.

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