

Learning and Reading by Artificial Intelligence Systems

March 3 2005

Researchers at Rensselaer Polytechnic Institute have been awarded a grant from the Defense Advanced Research Projects Agency (DARPA) to investigate key issues associated with learning and reasoning, including developing algorithms and representations for artificial intelligence. The first year of the grant is for \$400,000, with two more optional years following, for a total award of \$1.2 million.

Selmer Bringsjord, director of the Rensselaer Artificial Intelligence and Reasoning Laboratory and professor and chair of the Department of Cognitive Science, and Konstantine Arkoudas, research assistant professor of cognitive science, are the principal investigators for the project called "Poised-For Learning."

"Humans learn best and most efficiently by reading – and yet the brute fact is that machines, though often touted as learning this and that, can't read. And humans do something very special when they read intelligently: they ponder, almost automatically, how their new knowledge might solve future problems they encounter," said Bringsjord. "Our goal is to take appreciable steps toward implementing machine learning at the genuinely human level – an intelligent machine that can read books, comprehend and reflect on what it's read, answer questions in English, and then explain why it answered the way it did."

The Poised-For Learning intelligent machine is in the design phase and will be based on Multi-Agent Reasoning and Mental Metalogic (MARMML), a machine reasoning system based in turn on Athena, a

system developed by Arkoudas in previous work.

Bringsjord's group has developed other artificial intelligence systems, including PERI (psychometric experimental robotic intelligence) and Brutus.1. PERI, the first-known robot capable of passing part of a standard IQ test, could allow cognitive scientists to accurately measure intelligence. Brutus.1 is an “intelligent” system that can generate short stories based on formal accounts of deception and betrayal.

Source: Rensselaer Polytechnic Institute

Citation: Learning and Reading by Artificial Intelligence Systems (2005, March 3) retrieved 20 September 2024 from <https://phys.org/news/2005-03-artificial-intelligence.html>

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