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Abstract for an Invited Paper for the MAR15 Meeting of the American Physical Society

The Evolutionary Path Towards Sentient Robots

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For over fifty years, engineers have attempted to achieve machine intelligence that rivals human performance, but with only limited success in some specialized arenas such as chess. I will discuss what I believe is the central reason behind this failure, and how using the biological process of evolution can overcome that problem. I show that evolved brains that can learn can be transplanted onto physical robots, who then learn about our world by interacting with it. Such robots do not present a threat to humans, as their brains develop at the same speed as people's, and begin their life as naive as an infant.