

BECOMING HUMAN: THE DARWINIAN EVOLUTION OF AI

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Abstract

Public fear about the rise of artificial intelligence (AI) has created growing interest in understanding the differences from what created humans and machines. This project contrasts the two major models for creating intelligent life, Darwin's Theory of Evolution and the neural mapping use to construct AI. Beginning by defining the particulars of Darwinian evolution, the paper explains how evolution relies upon interaction between populations and environmental factors. Turning to research in computer science by the likes of Alan Turing and John McCarthy, the paper then explains how artificial neural networks are programmed to work locally to accomplish a set of tasks. Whereas evolution works through populations, this model creates intelligence within an individual system. However, by drawing upon research by the likes of Karl Sims and Keith Downing, this paper considers how neural networks might eventually advance through a form of evolution. Given an AI's adaptive capability and what programmers call "deep learning," AI has gained the ability to adjust and learn from data. Bringing biological studies and computer science together, this paper closes by considering the speculative question, 'Will AI evolve in a similar path as humans?' With continuous debates of evolution in classrooms and a rooted fear of AI in the media, further research into the boundary between human and machine remains vital.