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Planning Project

Research Review

The field of Artificial Intelligence, like anything else, is continuously building on top of previous achievements. For much of history, we've increased our own intelligence through self developed education systems. Around the last 50 years, however, we've started automating our own process of learning by attempting to create machines that start to learn for or with us. Some notable advancements are as follows.

According to Russel and Norvig, Bonet and Geffner's Heuristic Search Planner (HSP) was the first to make state-space search practical for large planning problems (Bonet, Geffner, 2000). HSP was a significant development for classical AI techniques, especially with its ability to automatically extract general purpose heuristics from the problem. Brute force algorithms, such as those used in Chess playing agents, are simply impractical in open ended real world situations. This, in my opinion, is why optimality in large state space searches and general purpose heuristics are the cornerstones of what AI is trying to achieve today.

Several years later, two Stanford researchers (Bernard Widrow and Marcian Hoff) developed the first neural network ("Multiple ADAptive LINear Elements) applied to a real world problem, using an adaptive filter that eliminates echoes on phone line (Neural Networks, n.d.). Despite neural networks being a cornerstone of AI applications today, its' use died out shortly after it was first implemented by Widrow and Hoff to give way to traditional von Neumann architecture (telegraph relays or vacuum tubes). Neural networks only regained popularity much later, but in hindsight it was a significant development that powers virtually all AI research and commercial applications today.

In 1951, Alan Turing developed something called the Turing Test as a machine intelligence test. He proposed a control setup of 3 rooms, each connected with computer terminals, containing a man, woman and human judge, respectively. The others would then both try to convince the judge that both were men and not a woman. Once the baseline accuracy of the judge was determined, the setup would then be changed to a man, a computer and the judge in each room, respectively. In this case, the man and computer would then try to convince the judge that either was human. If the judge couldn't tell the difference, then the computer must have displayed true intelligence. According to (The Turing Test, n.d.), Alan Turing's imitation game has fueled 40 years of controversy with some on one side deeming it an insufficient intelligence test and others claiming it a completely valid one. Regardless, it has fueled people's collective imagination and creativity in media and tech to further establish what actually makes us (or machines) intelligent.

References:

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