

Questions on “Bio-inspired AI”

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1. There have been two different approaches to machine intelligence in early days of AI. One was the symbolic and the other the bio-inspired one. What are the examples of bio-inspired AI approaches in 1950's and 1960's? What are the basic ideas of neural networks or perceptrons? How does a neural network recognize characters? How does it learn from examples? How are neural networks different from template matching, feature matching, and other statistical methods for pattern recognition?
2. How does human mind differ from the computer? Do we need new physics to understand the human mind and brain? What about intentionality? How about “global processes”, “being there”, and “embodiment”? Give also other critiques against AI. How are brains different from computers?
3. What is strong AI? What is weak AI? Explain their difference. Give example arguments from both camps.
4. What are the shortcomings of (symbolic) AI? What is GOFAI? What is the role of logic in AI? How can we deal with uncertainty in human knowledge? What is fuzzy logic? What are Bayesian probabilistic networks? How do the probabilistic approaches deal with uncertainty?
5. Give examples of bio-inspired AI approaches. What is brain-style computation? What are dynamical approaches to cognitive science? What is a genetic algorithm? How does genetic programming work? Can we build AI systems by simulating evolution? How? What did Turing say about evolution in his 1950 paper?
6. AI has been predominantly developing specialized systems. Give examples of them. Recent approaches attempt to develop broadly applicable systems. What are their examples? How can we achieve human-level AI? What kinds of strategies have been proposed?