



Alabama A&M University
Department of Electrical Engineering & Computer Science

Course: CS 450

Title: Artificial Intelligence

Semester: Spring 2025

Instructor: achile.egbunu@aamu.edu

TextBook: Artificial Intelligence: A Modern Approach, Global Edition 4th Edition

Homework 1: Due 11:59 PM 7th February, 2025
100 Points

1. Every year the Loebner Prize is awarded to the program that comes closest to passing a version of the [Turing Test](#). Research and report on the latest winner of the Loebner prize. What techniques does it use? How does it advance the state of the art in AI?
2. There are well-known classes of problems that are intractably difficult for computers, and other classes that are provably undecidable. Does this mean that AI is impossible?
3. Suppose we extend Evans's *SYSTEM* program so that it can score 200 on a standard IQ test. Would we then have a program more intelligent than a human? Explain.
4. How could introspection—reporting on one's inner thoughts—be inaccurate? Could I be wrong about what I'm thinking? Discuss.
5. To what extent are the following computer systems instances of artificial intelligence:
 - A. Supermarket bar code scanners.
 - B. Voice-activated telephone menus.
 - C. Spelling and grammar correction features in Microsoft Word.
 - D. Internet routing algorithms that respond dynamically to the state of the network.
6. Are reflex actions (such as flinching from a hot stove) rational? Are they intelligent?
7. Read Turing's original paper on AI [Turing:1950](#). In the paper, he discusses several objections to his proposed enterprise and his test for intelligence. Which objections still carry weight? Are his refutations valid? Can you think of new objections arising from developments since he wrote the paper? In the paper, he predicts that, by the year 2000, a computer will have a 30% chance of passing a five-minute Turing Test with an unskilled interrogator. What chance do you think a computer would have today? In another 50 years?



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8. Define in your own words: (a) intelligence, (b) artificial intelligence, (c) agent, (d) rationality, (e) logical reasoning.
9. Why would evolution tend to result in systems that act rationally? What goals are such systems designed to achieve?
10. "Surely computers cannot be intelligent—they can do only what their programmers tell them." Is the latter statement true, and does it imply the former?