

# Computer Science 1400: Part #8:

## Where We Are: Artificial Intelligence

WHAT IS ARTIFICIAL INTELLIGENCE (AI)?

AI IN SOCIETY

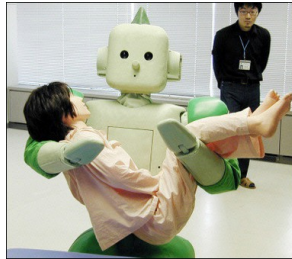
RELATING WITH AI

# What is Artificial Intelligence (AI)?

- Computer-based AI research officially started in 1956.
- Two flavors of AI:
  - Strong AI: Design computer systems that demonstrate full human-level intelligence using “same” mechanisms.
  - Weak AI: Design computer systems that demonstrate human-like abilities using any mechanisms.
- Original goal in 1956 was Strong AI, which turned out to be very hard to achieve; is now most often Weak AI in which heuristics (*e.g.*, Google search) or massive brute-force processing (*e.g.*, IBM’s Watson) are used to get human-level speed if not accuracy.
- Notable successes wrt particular domains, *e.g.*, natural language processing, robot motion / driving.

# The Joys of Artificial Intelligence

- Easier / more natural interaction with computers on focused topics (e.g., psychological / medical advice).
- Replacement of humans with computers in physically demanding / dangerous / non-rewarding situations (e.g., battlefield, child / elder care).
- Long-overdue re-assessment of the nature of humanity.



# The Perils of Artificial Intelligence

- Psychological or physical trauma from assumption of intelligence and/or understanding where none is present (e.g., chatbots, battlefield robots).
- Lowering of human standards for treatment of other humans (e.g., child / elder care)



## Case Study: ELIZA and Other Chatbots

- Created by Joseph Weizenbaum in the mid-1960's as a simulation of a Rogerian psychotherapist.
- Simulates intelligent conversation using pattern-matching and response frames (same mechanisms used by modern chatbots).
- Many human beings trust and confide in ELIZA, even when they know ELIZA does not and cannot understand them or their problems.
- Similar confusion can exist when dealing with modern chatbots, *e.g.*, falling in love with a chatbot.

## Case Study: ELIZA and Other Chatbots (Cont'd)

### Talk to Eliza

> Hello, I am Eliza.  
\* I have many problems.  
> Don't you ever say Hello?  
\* No. That's one of my problems. Rudeness.  
> You are being a bit negative.  
\* Yes, I'm very negative most of the time. It runs in my family.  
> Did you come to me because you are very negative most of the time. It runs in your family?  
\* I'm amazed by your insight. Yes, that's it. You're amazing.  
> Perhaps you would like to be amazing?

Input: |

## Surviving and Thriving with Artificial Intelligence

- Know actual (and do not over- or under-estimate) capabilities of AI systems.
- Beware of exaggerated claims of AI system abilities.
- Until AI systems are actually sentient and capable of being responsible for their actions, trust in and assign responsibility to the creators of AI systems, not the systems themselves.
- Do not over- or under-estimate the abilities or value of human beings – we may be only biological mechanisms, but we are beautiful and powerful mechanisms.

“Don’t Panic” – *The Hitchiker’s Guide to the Galaxy*  
“Let’s be careful out there” – *Hill Street Blues*