

INFO 102 Lab 7: AI, Machine Learning, and Chatbots

Partner #1: Name: _____ Net ID: _____

Partner #2: Name: _____ Net ID: _____

Partner 1: What is the difference between **Classical AI** and **Machine Learning**?

Discuss your answer with your partner. Did they think of any differences you didn't?

For the following types of machine learning, label each as either **supervised** or **unsupervised**, and as either **categorical**, **continuous**, or **both**. Discuss your answers and the meaning of those terms with your partner.

Partner 2: Classification:

Partner 1: Clustering:

Partner 2: Generative:

Partner 1: Regression:

Partner 2: What is **training data**?

Partner 1: What does it mean for a model to have **many parameters**?

Partner 2: What is **overfitting**?

Both partners: How is overfitting related to training data and parameters?

A ChatBot is an AI system that interacts with a user by changing human-language text messages with them in a chat-like interface. The first successful ChatBot was created using a few pages of classical AI code in 1966 and was called ELIZA. You can find a web-base copy of ELIZA at <https://anthay.github.io/eliza.html>

In this part of the lab you'll interact with ELIZA to try to figure out how it works under the hood. You might want to refresh the ELIZA page between tests to clear its memory of past conversations.

Carry on a conversation with ELIZA, responding to its prompts as if you were trying to learn how to do better in school. After how many responses do you first notice ELIZA saying something that seems strange or mechanical?

What was that unexpected response from ELIZA?

Refresh ELIZA and try putting the phrase "I feel sleepy" in after every one of ELIZA's prompts. Discuss any patterns you see in ELIZA's responses with your partner. What does what you see tell you about how ELIZA is programmed?

Keeping the last ELIZA open, open another ELIZA in a fresh browser tab and put in the phrase "I feel x" over and over again with a different x each time (one or more words is fine: "I feel sleepy", "I feel happy", "I feel my toenails tingle when I sneeze", etc).

Compare the "I feel sleepy" responses to the "I feel x" responses. When do they differ?

The original paper on ELIZA explains that it is based on "reassembly rules" like
(0 YOU 0 ME) → (WHAT MAKES YOU THINK I 3 YOU)

Refresh ELIZA and type something you think might trigger that rule, then refresh and try another, and so on.

Partner 1: What do the 0s in (0 YOU 0 ME) mean?

Partner 2: What does the 3 in (WHAT MAKES YOU THINK I 3 YOU) mean?

Both partners: explore ELIZA until you come up with another rule it has. What's that rule?

When you're done, check out with a TA or CA, and hand over this completed worksheet.

Bye!