Human-AI Interaction - Fall 2018

Final Project

*Proposal Due: <1 Page by Nov. 28th at 11:59pm (email to Jeff and Joseph)*

*Final Write-Up Due: Dec 12th by 11:59PM*

**Overview**

This project is meant both to get you to explore development and applications of AI in more depth and to allow you some flexibility in demonstrating your knowledge of the content.

You can do this assignment either **by yourself** or **in pairs**. Groups larger than 2 are *not* permitted. The expectations will be higher for pairs than for individuals.

Given the number of units for this class minus the time you’re expected to spend in class and on the readings, we expect you to spend about 7 hours per week on this over ~3.5 weeks for a total of around 25 hours. We’re not going to tell you explicitly “how big” your project should be, but aim for something that takes you about 25 hours (per person) to do.

**Project possibilities**

There are *two* directions you can choose from:

1. Create an interesting and useful tool or classifier using ML/AI techniques
2. Perform user research related to an application of AI

For each direction, you should turn in both what you build/come up with and a write-up as detailed below.

**Create tool/classifier:**

*If you’re looking for something to put in your portfolio for job apps etc, this may be the best option for you.*

Starting with a pre-existing dataset, build a useful tool or classifier and at least a very basic interface through which people can use it. Though you are welcome to use any dataset you can find, we recommend datasets from <https://www.kaggle.com/datasets>.

What you actually create is open-ended, but it should satisfy the following criteria:

1. It is *useful*: there are people in the world that would be happy to know that what you’ve created exists and would like to try it.
2. It is *usable*: real people don’t run Jupyter notebook code on their phones to get wine recommendations. We don’t expect you to build a full, polished UI, but whoever the target audience is for your tool/classifier should be able to use it without you standing behind them telling them what to do. There are many different types of interfaces - you don’t necessarily need to build an app or a website. Chatbots are interfaces too.
3. It is *reasonably good at what it does*: again, we don’t expect a revolutionary new product, but a classifier that makes predictions that are only a tiny bit better than random guesses isn’t good enough here. As has been a theme throughout the course, think about the different kinds of errors your model makes, and how they might affect different people.

**Sample concept for you to think about:** Joseph is standing in the wine section of a grocery store wondering what to buy. He has some memory of things he’s liked in the past, but doesn’t necessarily remember exact names of what he’s tasted. He’s also very poor, and doesn’t want to spend a lot of money. Kaggle’s wine dataset (<https://www.kaggle.com/zynicide/wine-reviews>) is a good start here, but it doesn’t include prices and doesn’t know what wines are for sale where Joseph is. Also, Joseph doesn’t have a laptop with him, and he’s not enthusiastic about his Twitter followers knowing how much wine he drinks. How can you help Joseph out? (You don’t actually have to answer this question; this is just an example to get you thinking about the expected scope of the problem you’re addressing).

*Writeup:*

In 2-3 pages (1” margins, 1.5 spacing, Times New Roman 12 pt font), answer the following:

1. *Briefly,* what does your tool/classifier do?
2. Where does your dataset come from, and what are its biases?
   1. How did you account for these biases in your development process?
3. Who is the tool designed for?
4. Who is the tool *not* designed for?
5. If the tool were widely adopted, how would it change the lives of users?
   1. How might it change the lives of people who don’t use it?

**Do user research**

*This option is probably more appropriate for MHCI or METALS students who’ve learned about user research, or undergraduates who have taken or are taking UCRE.*

As you’ve hopefully figured out this semester, AI impacts people. If you choose this option you’ll do some substantive user research with a group of people who are impacted by AI one way or another. This could be a group of people who use an AI-powered device/tool/software/webpage/platform/etc, but it could also be people who *don’t* use the thing for an interesting reason (or a mix of people who do and don’t use it).

As you (hopefully) know, user research is an open-ended process with many possible methods and approaches. The amount of up-front work that you do should be roughly equivalent to 5(ish) half-hour interviews (contextual or otherwise) if you’re working alone or 8(ish) if working in a pair, but you don’t necessarily need to do interviews; other user research methods may be more appropriate for the situation you’re exploring.

After you’ve done the above work, you’ll also need to analyze the data you’ve gathered. This could come through affinity diagramming, modeling, survey analysis, etc etc, depending on what research method you chose.

*Writeup:*

In 3-4 pages (1” margins, 1.5 spacing, Times New Roman 12 pt font), answer the following:

1. What technology are you investigating, and who are the users (and/or non-users) you’re focusing on?
2. For users (suggested questions, but you can focus on other interesting things that came up in your research too):
   1. How do users use the technology?
   2. Why do users use the technology?
   3. What are the users’ mental models of how the technology works, if applicable?
   4. What did users do before they had access to this technology (i.e., what tool or process does this technology replace?)
   5. In what ways is this technology currently failing to serve users effectively (if any)?
3. For non-users (suggested questions, but you can focus on other interesting things that came up in your research too):
   1. Why don’t these people use this technology?
   2. What is their mental model of how the technology works, if applicable?
   3. What do they do instead of using this technology?
4. Anything else interesting that came up in your interviews?