

## CSCI 2300 – Measuring (C)reativity (v1.0)

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*Due: May 3, 2023 (midpoints on April 17 [not a class date], and April 26)*

You had readings the past two weeks about measuring creativity and soliciting ideas. The question we'll research together in this assignment is whether humans can express some form of creativity better than generative AI models. And if so, how can you measure it? During this assignment, you will consider the elements of creativity, and what it means to measure it.

### **1 Step 1, due April 17 (any time that day)**

You will first come up with a creative task that results in text, and a separate creative task that results in an image. These tasks should be about actually producing something creative, so there should be no right or wrong response, or any truth you can check, but rather any response that completes the task should be valid. Then choose a way to measure creativity, which can be from literature (some are in readings from class, but other examples are available online), or be based on a measure of creativity from literature. The idea is to select a creative task that you think humans will be judged as more creative compared to an AI generated response, as rated by your creativity measure. We will be testing this by seeing if your measure can identify the creativity that humans can express better than AI!

Some rules for your task and measure:

- your task should be something that every student in class should be able to do without much difficulty, and take under 30 minutes, so don't ask for a overly-detailed illustration or complex sonnet, but a short poem or arrangement of shapes or photograph/sketch are okay
- your task should be a format that a current AI tool can generate, so a joke or diagram or task based on an example is fine, but an 8K image file or an exact screenshot or description of a recent news topic is not an allowed task
- your tasks should actually be creative!
- your creativity measure should actually measure some aspect of creativity, i.e., it should not be a measure of non-creative aspects of humanness like accidental typos or our ability to look up information

This is due two days before class so Jeff can assign the tasks for each student. Do not share your tasks and measures with other students! Everyone will get to see everyone else's tasks and measures, even the ones they are not assigned, but they won't know which tasks correspond to which measures.

## **2 Step 2, due April 26 (any time that day)**

Every student will then be randomly assigned 7 tasks that produce a text response, and 7 tasks that produce an image response; each image should be between standard 720p and 1080p resolution. Of those, 7 will be made using a generative AI model, and 7 will be done by themselves (a human). The goal is to produce the most creative result you can; you won't know the exact measure of creativity that will be used, so just aim to express creativity as best as you can; don't spend more than 30 minutes per task.

For the tasks that you are doing yourself (as a human), you are free to use standard tools that are deterministic (produce the same result each time) and “non-intelligent”, basically non-generative AI tools. So you can use drawing or diagramming programs, photo filters, word processors.

For tasks that you are doing with generative AI, you can use any publicly available AI service, such as ChatGPT, Bing (GPT-4), Bard for text, or MidJourney, DALL-E, Stable Diffusion for images. But do not use any paid versions of them, only whatever you can do with free credits. You will provide some input to the service to make it generate something in response to the task, and that input should be a reasonable phrasing of the task itself, so it's okay to write it more concisely or add that you're looking for an output that is similar to what a human would do, but it should not be describing a different task than the one you are assigned. You can generate as many candidate responses as you can for free, and you can take just a subset of the AI output (a continuous subset of the text, or a crop of the image) to submit in response to the task, including removing any watermark.

## **3 Step 3, due May 3 by 4:30pm**

Now you will receive other students' responses to your two tasks; you should be getting 7 text responses and 7 image responses. Apply your creativity measure to each of the 14 responses, judging them as fairly as you can, to produce an ordered ranking of the responses from “most creative” to “least creative”.

Submit separate orderings of the 7 text responses, and 7 image responses, along with up to 1,000 words with 1) your thoughts about whether your creativity measure accurately distinguished human-generated responses from AI-generated responses, 2) whether knowing the actual measure would have made a difference, 3) whether AI's limitations in creativity are fundamental, or may change in a year or two as they improve (perhaps we will test this again in the future).

## 4 Submissions and Grading

Since there will be three submission dates throughout the assignment, and the submissions depend on what other students submit previously, the forms will be posted on Slack instead of linked from this handout. Please keep an eye on the class Slack channel!

Grading will be based on your responses to the 3 questions, whether you followed the rules in this handout, as well as based on how well your AI-generated and human-generated responses do in the associated measures of creativity for those tasks, and how well your own measure captures a form of creativity best expressed by humans rather than AI.