

CS4221 Final Project: Use of ChatGPT

How did I use ChatGPT in my project?

Before this assignment I had never used ChatGPT and I knew it wasn't perfect, so I decided to use it as little as possible in my project. I only used ChatGPT for brainstorming, generating different "recursive" functions in order to get an idea of code structure and plan my function. For the most part I used very broad prompts, for example "write a DrRacket function that uses recursion". This was where I discovered that the AI's idea of recursive functions in DrRacket were very different from what we had studied. I ignored these completely and only looked at the ideas generated and the structure of the code.

When I had come up with my idea to make a Celsius-to-Fahrenheit conversion function, I asked ChatGPT for an example of such a function. As expected, it gave an unhelpful recursive method, but it gave me a solid idea of my base case and conversion rate per degree. I made the same request for a Fahrenheit-to-Celsius function and took the base case and conversion rate from this as well.

Once I had written the code for the first draft of my function, I began looking for ways to fine-tune it. The main issue was that the output was in the form of fractional values with up to 8 decimal places. I asked the AI how to round number to 2 decimal places in DrRacket and I tried out the function it provided. However, there were errors when trying to apply it to the recursive function, so in the end I opted not to use the given function. Instead, I used DrRacket's "round" function, which gave a fairly accurate result.

When trying to decide how I would map my function over lists, I asked ChatGPT for a few examples, but I wasn't happy with the answers provided. The AI's method involved creating a new function which eliminated the use of "map" entirely. I found this unnecessary and so didn't use these ideas in my project.

ChatGPT was quite helpful in testing my function by creating lists of test data. However, I had to be very specific in my requests to get satisfactory data. The first time, I asked it to "generate test data in lists to test a DrRacket function which converts Celsius to Fahrenheit and Fahrenheit to Celsius". The data generated consisted solely of integer values, which did not test my function's ability to deal with malformed data. Narrowing down my request, I asked for the AI to "make the test data a mix of different types", which was still not specific enough. It provided me with a variety of numerical types, for example positive and negative whole numbers, and this time fractional numbers. The command "make them a mix of integers, strings, characters, Booleans and fractional values" finally gave the desired result.