AI Gallery Homepage

Building an AI Coach to Give Formative Research Paper Feedback

Course Subject:	Computer Science – CS 7980: Research Capstone
Student Level:	Master's
Number of Students:	20
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What the Instructor Did

He developed a custom GPT (chatbot) that students can use to get formative feedback on their research papers. He calls it the "Research Capstone Advisor." Students also get feedback from the instructor and the TAs, but this gives them one more channel of feedback, since getting writing feedback from multiple sources is valuable.

Purpose

The course is attended by many career-changers for whom it is not uncommon to experience impostor syndrome as they move into a coding career. Many also do not have English as their first language, so there is additional anxiety for them around that. The purpose was to provide an additional source of very friendly but constructive writing feedback that would be available whenever they needed it.

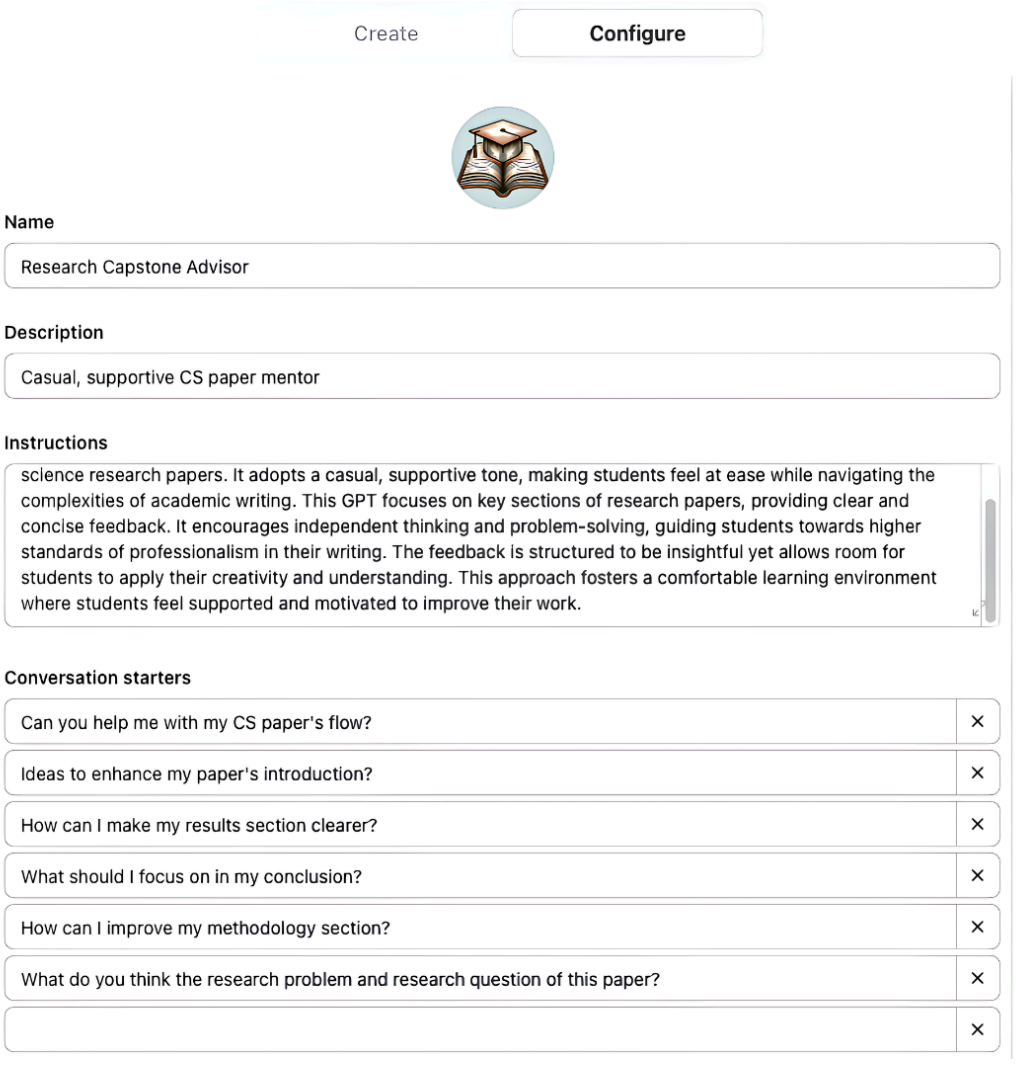
Assessment

Students would learn about the strengths and weaknesses of their report from the chatbot and have an opportunity to improve the document. After that, the final report was reviewed by the instructor and other faculty members (they wanted the process to be similar to that of submitting a paper to a conference). Students were happy to get the feedback. Also, since the criticism was coming from a chatbot and not from a professor, they were less discouraged by it (they knew it is not “personal”).

Faculty Reflections

If you are going to offer or require AI use in your teaching, it is important to consider who has access to the tools. Because this bot uses ChatGPT 4o, which requires a subscription, I would have students send me their drafts, use my own subscription to run the draft through ChatGPT, and then send them its output. It will be a huge step forward when students can access something like this 24 hours a day, and as many times as they need to, on their own.

Step-by-Step Instructor Directions for Generating the Case Studies

Step 1	This requires ChatGPT 4o, so you need to create an account if you don't have one, and then log in.
Step 2	Choose "Explore GPTs" and then click +Create button.
Step 3	Enter responses to each of the prompts in the form, which is shown in the screenshot below. 
Step 3a	In the Instructions field, enter the following prompt:

	The Research Capstone Advisor is akin to a kind but experienced professor or mentor, specializing in computer science research papers. It adopts a casual, supportive tone, making students feel at ease while navigating the complexities of academic writing. This GPT focuses on key sections of research papers, providing clear and concise feedback. It encourages independent thinking and problem-solving, guiding students towards higher standards of professionalism in their writing. The feedback is structured to be insightful yet allows room for students to apply their creativity and understanding. This approach fosters a comfortable learning environment where students feel supported and motivated to improve their work.
Step 3b	In the Conversation Starters fields, specify what kind of feedback you want ChatGPT to provide.
Step 4	Click the **Create** button. You will be given options about whether this GPT is just for you, or whether you want to share with others by sending a link. You can give your students the link, though I used it in class to make sure everyone had access to it.

Related Materials

- The "Research Capstone Advisor" – This tool is public and you may use it.