ChatGPT in the Engineering Classroom: Challenge, Guide, and Transform

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From the moment I learned about ChatGPT, I was genuinely excited—not fearful. Within weeks of its public debut, I organized a panel on generative AI as a Chinese Faculty and Staff Association (CFSA) Seminar Committee member at Texas Tech. What surprised me most during that event was the collective excitement among many Chinese faculty members. We were not merely curious; we were experimenting, adopting, and sharing our earliest classroom experiences with AI tools.

In my own lab, I began encouraging both my PhD students and undergraduate research assistants to learn how to use ChatGPT strategically, always with a firm understanding that plagiarism is strictly prohibited. As an engineering faculty member, I've found that ChatGPT doesn't replace the core of what we do in a research laboratory. It rarely completes our theoretical derivations or hands-on experiments, which remain the foundation of our discipline. What it does well, however, is help polish technical writing, provide alternative perspectives, and occasionally offer a third-person insight that improves clarity or critical reflection.

To better understand how my undergraduate course students are using generative AI tools, I've asked them to explicitly document how they used ChatGPT on assignments. This transparency not only informs my practice but also helps students reflect on the role AI plays in their learning process. When a few students tell me that they hesitate to use it, claiming it makes too many mistakes, I remind them that, like any tool, it improves with thoughtful use. The better we train our prompts, the more effective its responses become. With that mindset, I felt empowered to introduce slightly more challenging homework and projects. To my surprise, there were no complaints: students embraced the increased difficulty, and ChatGPT helped raise the bar. At the same time, I kept the boundaries clear: exams do not allow AI assistance, and these remain at their traditional difficulty level to ensure academic integrity. I constantly emphasize that ChatGPT is not our replacement but our assistant. We should learn from it, but not be led by it blindly.

We must approach ChatGPT and AI with confidence and responsibility, also with caution. While AI does make mistakes, our job is to recognize them, correct them, and develop a critical eye that distinguishes signal from noise. At the same time, we must acknowledge the broader implications of AI-human competition, especially as we become increasingly dependent on automated reasoning. As faculty, we need to be alert but also be collaborative learners alongside our students.

I believe in Texas Tech's leadership in this evolving space. I'm excited by the Scholarship of Teaching and Learning (SoTL) work happening at TTU and proud to be part of a campus that's embracing AI as a catalyst for pedagogical innovation. Our willingness to adapt and model critical thinking around these tools will help our students, and ourselves, thrive in this rapidly evolving landscape. The SoTL community here is pioneering meaningful discussions, and initiatives like the ChatGPT Working Group and Small Bytes blog provide opportunities for collaborative growth.