Discussion Lead Paper for TELPhE Session on AI

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AI and Engineering Education

My assignment for this paper is to provide a framework for discussion of the AI topics, themes, and issues raised and addressed by the papers in this specific session. To cite one of the TELPhE Program Co-Chairs, "The idea is to invent a story about the connections or potential connections among the ideas." I cannot write the final version of this paper until I have the final papers for the session in hand, but I can give a general description of the content based on the abstracts and drafts for the papers.

Viewed from a generalized overview perspective, the abstracts and draft papers span a broad range of current thinking and practice regarding AI in engineering education. One of the four papers presents and analyzes data from a survey regarding faculty and student attitudes toward using AI in engineering education, including concerns about its appropriate uses. Two papers present examples of the successful use of AI tools to improve a specific course. The fourth paper gives an overview of a college-wide effort to re-conceptualize and redesign its engineering curricula so that AI tools are integrated throughout and students are prepared for the work they will do as engineers after graduation. In the final version of this commentary paper, I will add specific details from each of the final papers that flesh out the above general descriptions, as well a few highlights from the flurry of recent activity both in ASEE and in other organizations to adjust to the reality of AI (and I will make it available online after it is written).

Changes in technology have frequently led to changes in engineering education, for example, the replacement of the slide rule and pen and paper technical drawings by graphing calculators and CAD software, respectively. The engineering education community often has been reactive regarding such past changes in the sense that a carefully considered integration of new technologies into engineering courses, curricula, and pedagogy has trailed a somewhat haphazard use by early adopters. However, I believe that the engineering education community views AI as so potentially transformative in both positive and negative ways that its response must be proactive. The theme of the 2025 ASEE Annual Conference is sufficient evidence for this.

The four papers in the session discuss responses to AI that are generally proactive in approach, although as noted above they focus on different aspects of integrating AI into engineering education. I believe the audience will be primed to engage the authors in discussion about the details of their papers, as well as the general question of AI in engineering education.

My presentation in the conference session will not dwell on my final commentary paper, but rather it will be brief, pointed, and, I hope, discussion generating, because this is the reason the TELPhE Program Co-Chairs have included it in the session. I will transition directly from my comments to a general discussion by the panelists and the audience based on the presentations.