DEED Practitioner-Educator Essay Competition

Exploring the Potential and Risks for AI in Design Education

Sponsored by: ASEE Design in Engineering Education Division

Provocative. Visionary. Aspirational. Innovative.

You have countless hours of experience. You've mentored colleagues, peers, and students. As someone who walks between practice and education, we look to you to imagine …

What role should artificial intelligence play in engineering design education?

In both industry and research, design has leveraged artificial intelligence (AI) to perform a variety of roles. For this essay, we define AI broadly as *computer systems performing some task or exhibiting capacities, typically thought to require human intelligence, toward a specified goal*. Some examples of how AI has been used in design include 1) **algorithmically generating a large number of unique design alternatives**, sometimes called generative design, to provide new ideas and inspiration for conceptual or creative design; 2) **systems of AI-powered design agents creating and testing design alternatives** for a well-defined set of design variables to search for more optimal configurations; 3) **intelligent design agents simulating human designers** for the purposes of running virtual design experiments or generating data under conditions difficult to emulate in the real-world.

While some of these uses of AI in design have been brought into the classroom, most are reserved for industry or research. *From your experience as a practitioner or professor of practice*, consider the benefits and risks of incorporating design AI into engineering design education. For example, on the one hand, these approaches can assist novice designers by opening new ways to design, expand their exploration of design spaces and assist in rote tasks. On the other hand, these approaches may lead a novice designer to underestimate the full depth of the design space, lead to fixation based on AI-generated results and limit exposure to the full scope of the design process and the novel creative potential of the human mind.

Two winning practitioner-educator essay submissions will get to present their work as part of part of the ASEE DEED Postcard Poster Session. At the session, the winners will be honored, including the official awarding of $500 (to offset part of the cost of attending ASEE) and a certificate to each winning submission.

Evaluation and Selection of Winners:

A panel of judges from the Design in Engineering Education Division will review applications and select two practitioners or professors of practice essays. Criteria used in evaluating the submissions will assess the degree to which the submission is:

- Aspirational - it sets a high bar for what might be,
- Innovative - it breaks beyond traditional assumptions about AI in EDE in envisioning what might be,
- Grounded - it provides a strong basis and rationale for what might be, and
- Well Communicated - it paints a clear picture of what might be.

Submissions are due April 7, 2019

Winners will be informed no later than May 1, 2019

Submissions:

- Maximum of two 8.5x11 pages of text and one page of images, drawings, and/or figures as appropriate.
- On the first page:
  - Start with a title for your submission
  - Include prominently a one-sentence takeaway for your entire submission: If you only had one sentence to convey the role you believe AI should play in design education, what would that sentence be?
- Submissions can be from individuals.
- Submit a single PDF file to asee.deed.officers@gmail.com by 23:59:59 on 04/07/19 **with your status, practitioner or professor of practice in the subject-line**.
- Do not include any identifying information in the submitted PDF. Instead, in the email accompanying your submission indicate your institution or organization. Note: this email address is not checked regularly, so do not send questions to this address. We only use it to collect submissions.
- Winning authors must attend the ASEE Conference.