



DISCOVERY
RESEARCH
PREK–12

PI Meeting
June 9–11, 2025 Arlington, VA



AI and STEM Education: Opportunities and Impacts

Speaker: Eric Wiebe, North Carolina State University

Moderator: Shuchi Grover, Looking Glass Ventures

Panelists: Kristen DiCerbo, Khan Academy; James Lester, North Carolina State University; JinJun Xiong, University of Buffalo

During this plenary presentation, experts in AI and STEM education explored cutting-edge research and discussed the potential of AI in preK–12 teaching and learning for the future.

View the [session slides](#).

Visit CADRE's [Spotlight on Artificial Intelligence in STEM Education Research](#) to access CADRE briefs and Learning Series recordings focused on aspects of artificial intelligence (AI) in STEM education and the featured seven projects that are leveraging AI to improve teaching, learning, and research. The Spotlight also includes two blogs on the potential for AI to transform game-based learning, AI related publications from DRK-12 products, and a list of additional projects working in this area.

CADRE Briefs on AI in STEM Education

This three-part series of briefs were inspired by the question, “What are the essential considerations for researchers and developers who are designing, studying, and using AI in K–12 STEM classrooms?”

[Toward Ethical and Just AI in Education Research](#)

Authors: Tiffany Barnes, Joshua Danish, Samantha Finkelstein, Ole Molvig, Sarah Burriss, Megan Humburg, Heidi Reichert, and Ally Limke

The first brief of the series offers guidance to researchers and developers for responsible AI research and implementation in educational settings. The brief describes an ethical artificial intelligence in education (AIED) framework and a set of tools to support inclusive and equitable AIED research and development.

[Generative AI in STEM Teaching: Opportunities and Tradeoffs](#)

Authors: Jeremy Price and Shuchi Grover

The second brief of the series examines how GenAI may shape STEM classrooms in the near future and identify promising trajectories for integrating GenAI into STEM teaching, including the potential for personalized teaching approaches. They reaffirm the essential role of teachers and emphasize the need to include teachers in the design, development, and study of GenAI tools that are intended to benefit STEM education.

[The Potential of Using AI to Improve Student Learning in STEM: Now and in the Future](#)

Authors: Namsoo Shin, Kevin Haudek, and Joseph Krajcik

The third brief explores how artificial intelligence (AI) can serve as a transformative learning partner in K–12 STEM education through AI's potential to offer personalized support, scaffold cognitive and metacognitive processes, and enhance student motivation and collaboration. Additionally, the authors consider how AI can promote access to STEM learning, while also addressing the need to identify and mitigate biases in AI system development to ensure broad and effective application.