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Learning from disruptions: an integrative approach to enhance classrooms

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Abstract:

Motivated by the on-demand feature of an e-learning platform, together with the increasing importance of automation technology, this project proposes to employ an integrative approach to enhance traditional STEM classrooms in two avenues. First, we seek to pioneer and develop a framework for digitizing offline lectures, making the lessons readily available for online access at later dates. This brings the benefit of an online class to traditional classrooms, complementing the student learning experience. Second, to facilitate the teaching of computational subjects, we strive to introduce a novel use of class materials and interactive lessons structured around coding activities. Unlike lecture notes or slides, the use of multi-format notebooks will be piloted, allowing seamless in-line integration of texts, figures, videos, codes, and other attachments in a single place. This, combined with tutorial-inspired lectures and in-class contest, will simultaneously strengthen students' grasp on the theoretical and practical aspects of the course. We believe that such development and adoption of pedagogical technology will prepare engineering students for the growing challenges associated with the advent of machine intelligence.