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Bringing CSE thinking to education

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Perhaps the greatest iterative method of all is education. But imagine a GMRES solver with no structured way to feed back information from one iteration to the next. Imagine an optimization algorithm that keeps attempting to iterate with the same failed step. Without structure and feedback, our methods lack robustness, stability and convergence. Yet this is largely the case in education. This talk will discuss some of our recent and ongoing work to develop the concept of educational maps that relate topics (crosslinks.mit.edu) and learning outcomes (Xoces.mit.edu) across an engineering undergraduate curriculum. The talk will also briefly discuss an ongoing project that applies ideas inspired by feedback control in aerospace engineering to design blended learning technology.