AEA Faculty Development Grant Proposal, 2016

Project title. The Tactile Experience of Making Hardware: Creating a Hands-On Digital Circuit Lab for CSC 414 Students

Abstract: Students often have trouble connecting the theory of computer organization to the application of its theory. Software simulations are available to bridge this gap, but the tasks that the students do are still abstracted to a computer screen. The literature in the field suggests that students who physically interact with hardware components find the course more engaging, and experience a deeper understanding of hardware theory. This project will develop a digital circuit lab to be used during class sessions, to reinforce course content and allow students to explore the computer science hardware field in a manner more similar to how professionals in the field prototype hardware circuits. For comparative purposes, a standardized final exam will be given to investigate if student understanding of key concepts in the course has increased through the project implementation.

Primary Investigator:

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