Examining the Impact of Curricular and Robotic Interventions

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Developing interactive and engaging educational experiences and measuring their effectiveness in both learning gains and student retention and engagement is a common goal in Computing Education Research (CER). In this thesis, an initial study looking at the pre-and post-test data from first-semester undergraduate participants is presented. The participants took the surveys about their experience in an introductory Engineering course that acquainted them with Computer Science and specifically Cyber-Physical Systems (quad-copter drones). Students self-reported their programming background, demographics, opinions of the concepts covered, and expectations for the class. Overall, the data demonstrated that the participants were either more interested or had the same level of interest in Computer Science and programming after the experience. This study served as preliminary exploratory research into the knowledge gains and retention of students in Computer Science after experiencing Computer Science through the lens of Cyber-Physical Systems.

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