RBE MS Thesis Presentation

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A mixed reality framework for surgical navigation: approach and preliminary results

Abstract: The overarching purpose of this research is to understand whether Mixed Reality can enhance a surgeon's manipulations skills during minimally invasive procedures. Minimally-invasive surgery (MIS) utilizes small cuts in the skin - or sometimes natural orifices - to deploy instruments inside a patient's body, while a live video feed of the surgical site is provided by an endoscopic camera and displayed on a screen. MIS is associated with many benefits: small scars, less pain and shorter hospitalization time as compared to traditional open surgery. However, these benefits come at a cost: because surgeons have to work by looking at a monitor, and not down on their own hands, MIS disrupts their eye-hand coordination and makes even simple surgical maneuvers challenging to perform. In this study, we wish to use Mixed Reality technology to superimpose anatomical models over the surgical site and explore if it can be used to mitigate this problem.

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85 Prescott St., Suite 201, RBE 209 (Conf. Room)