MEDICAL IMAGING SPECIALISTS AND 3D: A DOMAIN PERSPECTIVE ON MOBILE 3D INTERACTIONS

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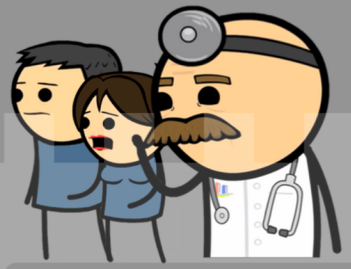
OVERVIEW

3D VOLUMETRIC MEDICAL IMAGES, SUCH AS MRIS, ARE COMMONLY INTERACTED WITH SYSTEMS THAT REQUIRE KEYBOARD AND MOUSE-BASED TECHNIQUES. THESE TECHNIQUES PRESENT INTERACTION CHALLENGES FOR MEDICAL IMAGING SPECIALISTS, AND IN THIS WORK, WE EXPLORE A POTENTIAL SOLUTION BY DRAWING UPON TANGIBLE INTERACTION AND 3D TECHNIQUES, USING A TABLET.

WHAT WE BUILT?

WE IMPLEMENTED TWO DIFFERENT TYPES OF 3D INTERACTION TECHNIQUES: RATE BASED, SIMILAR TO A JOYSTICK AND POSITION-BASED, SIMILAR TO A MOUSE, EXCEPT AN IPAD IS USED AS INPUT. THESE ALLOW MEDICAL IMAGING SPECIALISTS TO VIEW NON-ORTHOGONAL CUTS OF THE VOLUMETRIC IMAGES.



METHODOLOGY

WE USED A DESIGN SESSION APPROACH WITH THE IMPLEMENTATIONS. OUR DESIGN SESSIONS FOCUSED ON QUALITATIVE FEEDBACK WITH THREE MEDICAL IMAGING SPECIALISTS, WHO EACH PERFORMED SIMPLE NAVIGATION TASKS WITH BOTH IMPLEMENTATIONS.

OBSERVATIONS

FROM OUR FEEDBACK AND OBSERVATIONS WITH MEDICAL IMAGING SPECIALISTS, WE SYNTHESIZE 3 PRIMARY POINTS:

1.RATE BASED AND POSITION-BASED TECHNIQUES DO PROVIDE VALUE TO THE MEDICAL IMAGING DOMAIN AND WARRANT FURTHER EXPLORATION.

2.3D INTERACTION TECHNIQUES SHOULD CONSIDER THE FAMILIARITY USERS HAVE WITH 2D INPUT TECHNIQUES.

3. 3D INTERACTION RESEARCH IN THE MEDICAL DOMAIN NEEDS TO CONSIDER THE ENTIRE CHAIN AND NOT DISTINCT DISCIPLINES.

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