

Evaluating Cardiovascular Surgical Planning in Mobile Augmented Reality

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Summary:

Advanced surgical procedures for congenital heart diseases (CHDs) require precise planning before the surgeries. The conventional approach utilizes 3D-printing and cutting physical heart models, which is a time and resource intensive process. While rapid advances in augmented reality (AR) technologies have the potential to streamline surgical planning, there is limited research that evaluates such AR approaches with medical experts. This paper presents an evaluation with 6 experts, 4 cardiothoracic surgeons, and 2 cardiologists, from Children's Healthcare of Atlanta (CHOA) Heart Center to validate the usability and technical innovations of CardiacAR, a prototype mobile AR surgical planning application. Potential future improvements based on user feedback are also proposed to further improve the design of CardiacAR and broaden its access.

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