“You Can’t See Me” - Developing an Optical Measurement Tracking System for Minimally Invasive Spinal Surgical Drills.

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INTRODUCTION

Minimally invasive spinal surgeries provide faster healing times when compared to traditional methods.

To reduce exposure from CT imaging, optical measurement tracking (OMT) tools use CT scans to see where surgical components are placed.

There are no spinal drills or beveling systems that use OMT, requiring surgeons to estimate where to drill or bevel.

Minimally invasive surgeries require immense training. The steep learning curve makes inexperienced physicians struggle with the technology, and with identifying anatomy during the procedure.

OBJECTIVE

Develop an OMT system for spinal surgical drills.

Create an augmented reality system that allows physicians to “see” the CT scan image of the spine as they are conducting surgery.

RESULTS

A trackable drill system was created and was able to track the drill system.

Currently, we are adding the CT scan overlay to the system.

CONCLUSION

OMT systems for minimally invasive spinal surgery are feasible to create.

OMT systems may prove useful for training and helping young surgeons.

Further research should be conducted on haptic feedback and image identification for these tools.

REFERENCES