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3D Registration in a Virtual Reality Simulator for Neurosurgical Instruction¹ TED DORFEUILLE, Mercer University Department of Computer Science, RICHARD ROWE, Georgia Neurosurgical Institute, ANDREW POUNDS, Mercer University Department of Computer Science — Virtual Reality and computer graphics techniques have been used since their inception in numerous medical professions and it has long been thought that the technology would be ideal for training simulations. A recent review article noted that simulators for neurosurgery containing completely immersive environments and realistic touch response were particularly lacking. This project attempts to utilize commercial gaming headsets with a mechanical haptic feedback device to simulate surgery in an immersive environment with touch feedback. The focus of the current research is the use of 3D registration techniques and basis set transformations to map the space of the 3D models in the VR environment to the physical models and surgical instruments that might be in the hands of the operator.

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