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## Calibration Method for Determining the Physical Location of the Ultrasound Image Plane

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*Proceedings of the 4th International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI 2001)*, October, 2001.

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### Abstract

This paper describes a calibration method for determining the physical location of the ultrasound (US) image plane relative to a rigidly attached 3D position sensor. A calibrated US probe can measure the 3D spatial location of anatomic structures relative to a global coordinate system. The calibration is performed by aiming the US probe at a calibration target containing a known point (1 mm diameter sphere) in physical space. This point is repeatedly collected at various locations in the US image plane to produce the calibration dataset. An idealized model of the collection process is used to eliminate outliers from the calibration dataset and also to examine the theoretical accuracy limits of this method. The results demonstrate accurate and robust calibration of the 3D spatial relationship between the US image plane and the 3D position sensor.

### Notes

- **Associated Center(s) / Consortia:** [Medical Robotics Technology Center](#)
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