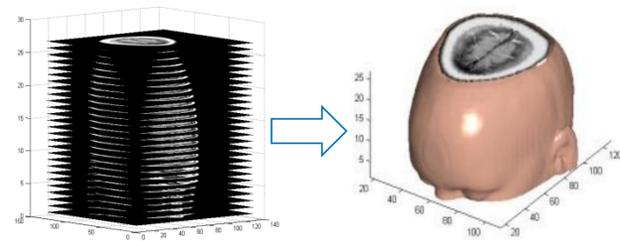
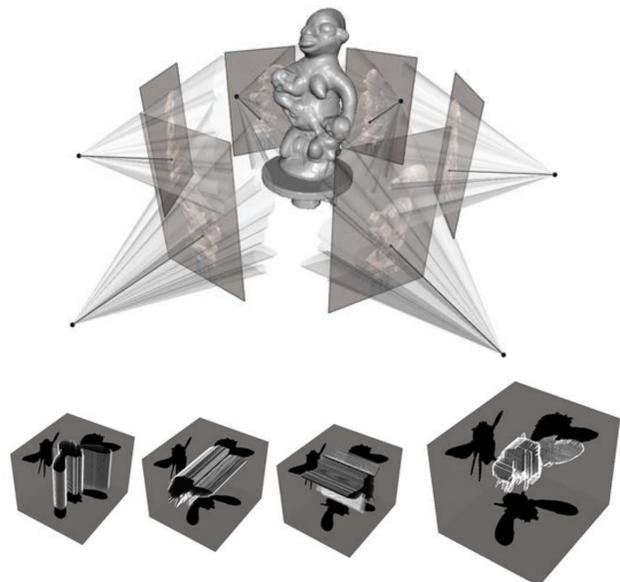


BACKGROUND

3D reconstruction from multiple 2D images



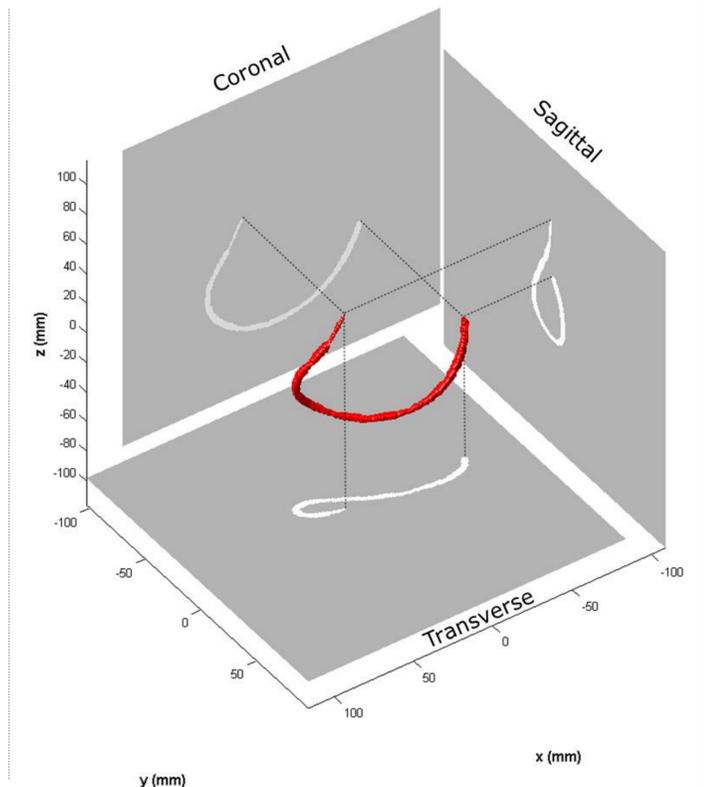
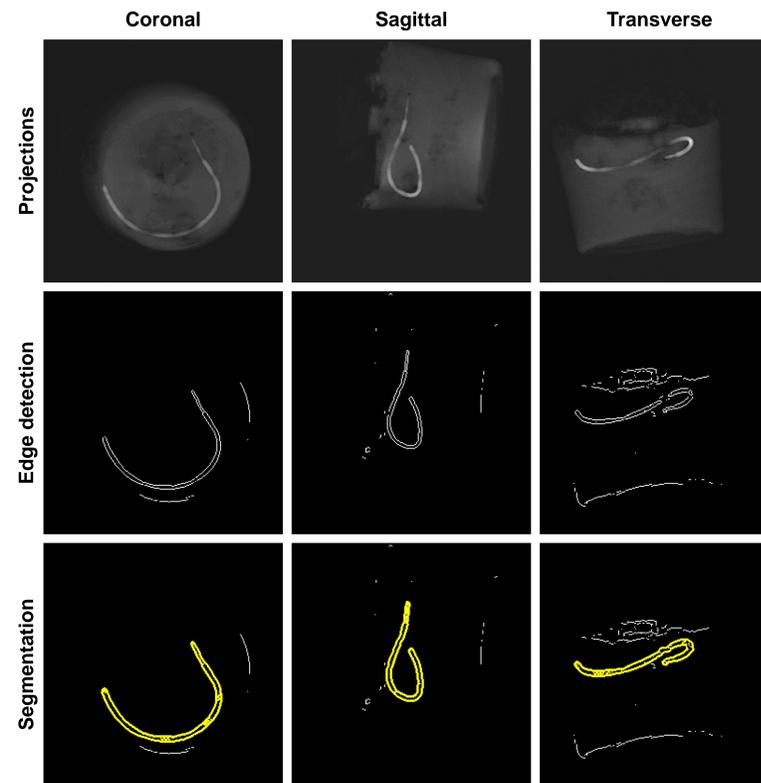
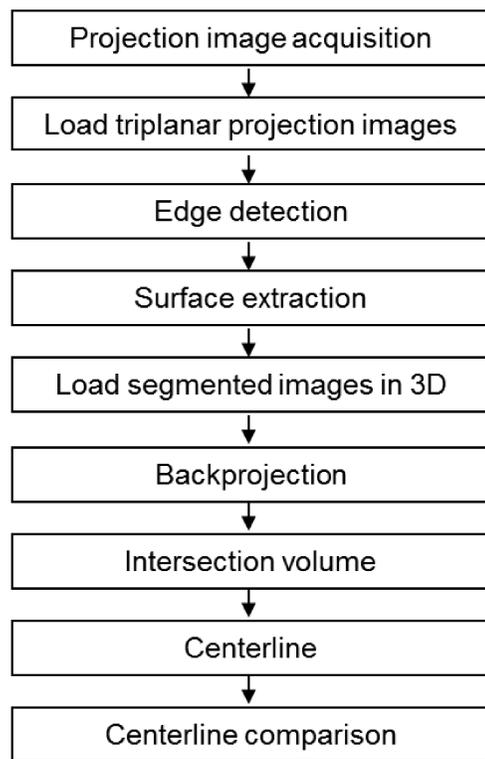
Visual Hull from silhouette images



INTRODUCTION

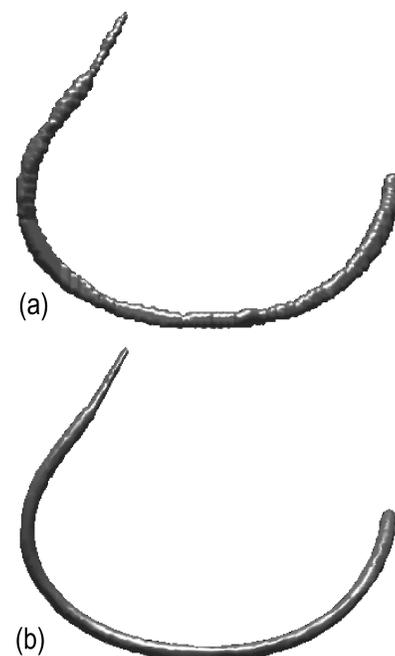
Fast visualization of catheters and blood vessels is important for MRI-guided interventions. Multi-projection imaging methods have been proposed previously for 3D visualization of active catheters. In this study, we describe the experimental results of an acquisition scheme for 3D volumetric reconstruction method of a contrast enhanced tubular structure with the simultaneous acquisition method - triplanar projection imaging (TPI). In addition, accuracy assessment of the 3D reconstruction method was performed by comparing the centerlines of the 3D reconstructed model of the tubular structure from the TPI set and the multislice set. The described methods can be employed for 3D visualization of blood vessels and catheters [1].

METHODS

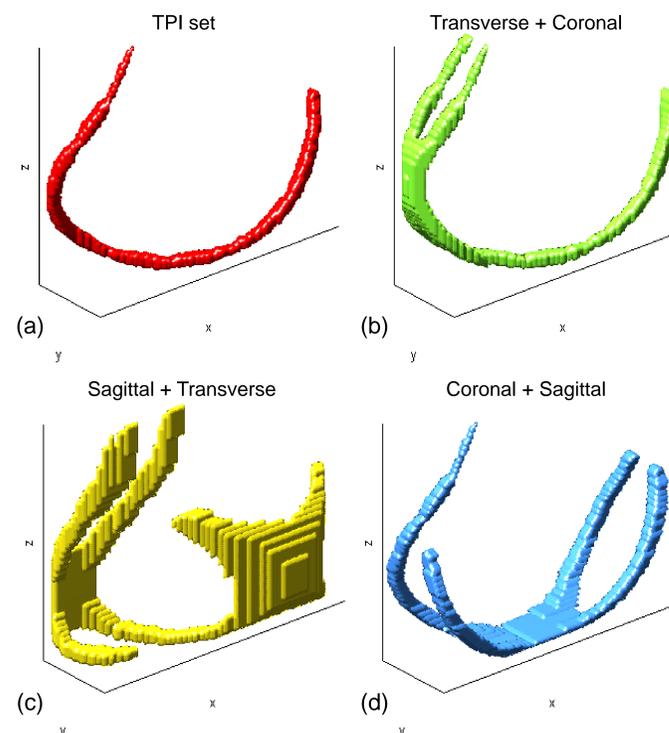


EXPERIMENTAL RESULTS

- 3D reconstructed model from (a) three orthogonal MR projections and (b) the 128 coronal multislice set.



- Why Triplanar?



DISCUSSION AND CONCLUSION

The average μ and standard deviation σ of signal intensity (SI) of the contrast enhanced structure from three projections were 39.44 ± 11.48 as compared to a fat SI of 16.06 ± 4.07 . For the 3D accuracy analysis of the two 3D rendered models of the tubular structures, the corresponding centerlines were extracted. The centerline differences on the X, Y and Z axis coordinates were calculated to 0.86 ± 0.69 , 0.49 ± 0.32 and 0.76 ± 0.41 ($\mu \pm \sigma$), respectively [1].

REFERENCES

- [1] An, J., Unan, M., Chin, K., Shah, D. J., Webb, A. G., Seimenis, I., & Tsekos, N. V. (2016). 3D Reconstruction of Tubular Structures from Three Orthogonal MRI Projections. In *XIV Mediterranean Conference on Medical and Biological Engineering and Computing 2016* (pp. 326-331). Springer International Publishing.

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