# Abstract: Automatic Detection of Cervical Spine Ligaments Origin and Insertion Points

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Creating patient-specific simulation models helps to make customised implant or treatment plans. To create such models, exact locations of the Origin and Insertion Points of the Ligaments (OIPL) are needed. Locating these OIPL is usually done manually and it is a time-consuming procedure. A fast method to detect these OIPL automatically using spine atlas-based segmentation [1] is proposed in this paper [2]. The average detection rate is 96.16% with a standard deviation of 3.45. The required time to detect these points is around 5 seconds. The proposed method can be generalised to detect any other important points or features related to a specific vertebra. The method is implemented as an open-source plugin for 3D Slicer. The method and the datasets are available for a free download from a public server.
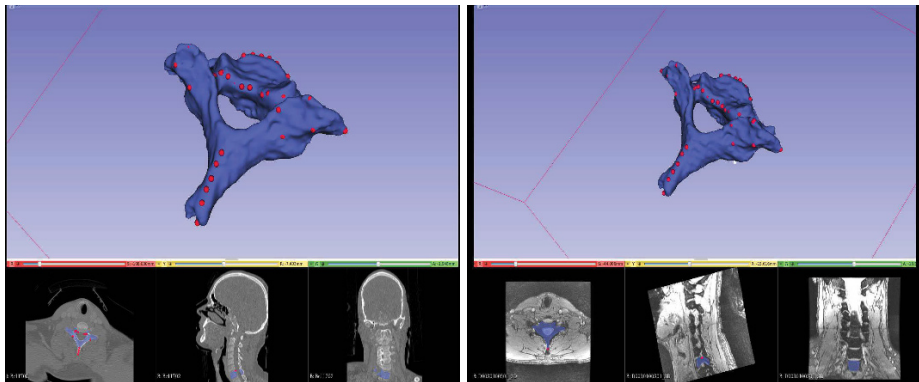
Fig. 1. Samples of detection results of C7 vertebra, left: CT, and right: MRI.

References

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2. AL-Dhamari I, Bauer S, Keller E, et al. Automatic detection of cervical spine ligaments origin and insertion points. In: 2019 IEEE 16th International Symposium on Biomedical Imaging (ISBI 2019); 2019. p. 48–51.