

3D spine reconstruction from bi-planar radiographies for diagnosis and monitoring of spine pathologies

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Currently, the most used techniques on medical imaging are those based on ionizing radiation, such as radiographs or CT scans. These tools have proven their medical use for aiding in the diagnosis, prognosis, treatment and monitoring of patients. In particular, the spine is one of the most studied parts of the anatomy due to a set of pathologies of great severity that cause physical limitations and a reduction in the quality of life of patients.

However, there is growing scientific evidence that supports the fact that the excessive use of these technologies is beginning to increase the risks associated with the health of the patients as well as the costs associated with their use. This is especially important when acquiring three-dimensional medical images through the use of CT scans, since they radiate a significantly higher dose than other ionizing techniques.

During the last two years, we have been involved in the development of a three-dimensional reconstruction technology of the spine from bi-planar radiographs. The acquisition routine in patients with spinal pathologies include an anteroposterior and lateral images that enable the possibility to use computer vision techniques to provide a useful 3D image of the spine, avoiding the use of CT scans while still providing support for the diagnosis, prognosis and monitoring of spine pathologies.

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