

First flexible robotic intra-operative nuclear imaging for image-guided surgery**José Gardiazabal - tum.de****Tobias Reichl - tum.de****Aslı Okur - tum.de****Tobias Lasser - tum.de****Nassir Navab - tum.de**

Functional imaging systems for intra-operative use, like freehand SPECT, have been successfully demonstrated in the past, with remarkable results. These results, even though very positive in some cases, tend to suffer from high variability depending on the expertise of the operator. A well trained operator can produce datasets that will lead to a reconstruction that can rival a conventional SPECT machine, while an untrained one will not be able to achieve such results. In this paper we present a flexible robotic functional nuclear imaging setup for intra-operative use, replacing the operator in the scanning process with a robotic arm. The robot can assure good coverage of the area of interest, thus producing a consistent scanning pattern that can be reproduced with high accuracy, and provides the option to compensate for radioactive decay. We show first results on phantoms demonstrating the feasibility of the setup to perform 3D nuclear imaging suitable for the operating room.

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