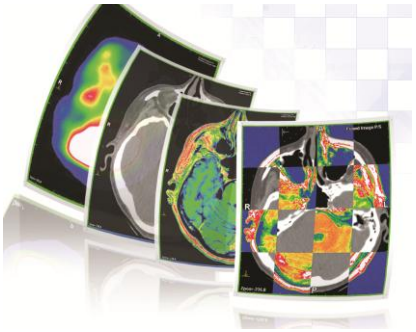
ImSimQA

Image Fusion and Registration QA Software

MODUS
MEDICAL DEVICES INC

Testimonial



"Image Guided Radiation Therapy (IGRT) using daily kilovoltage Cone Beam CT (kvCBCT) or Megavoltage CT (MVCT) imaging is emerging as the standard of care in Radiation Oncology. The technology, workflow, and clinical implementation have been on the fast track for the past year at most centers in the USA.

One of the key components in IGRT workflow is the direct imaging of soft tissue and comparison with the treatment planning CT image to derive the shift of the day. This is being routinely done in most clinical institutions using a vendor supplied rigid registration auto-fusion algorithm. However, very little quality assurance has been carried out to validate this process and its accuracy in clinical work flow.

I have been using ImSimQA for the last four months in both clinical and research environments. It provides excellent tools to explore the validity of registration algorithms used in IGRT work flow. Actual patient images and a library of supplied phantoms can be imported and used to test the image fusion registration accuracy.

I have been particularly impressed with the ImSimQA software's potential to evaluate the validity and accuracy of deformable registration algorithms. Deformable registration is the key technology or process to implement adaptive radiotherapy and 4D planning because one is interested in the total dose delivered over several fractions that incorporate different patient images (adaptive) or different time points (4D). There have been numerous publications in the literature describing various algorithms on deformable registration but very few papers have addressed the validity and accuracy of the algorithms to verify that the deformations produced are indeed correct. The problem arises from the absence of a gold standard on how this can be implemented. It is clear that building a deformable phantom is an enormous challenge for most clinical departments.

ImSimQA software has tremendous potential for evaluating the deformable registration algorithm used against a known applied deformation. The software has tools to allow the user to apply known deformations on a patient DICOM studyset thereby replicating a clinical scenario and then applying the deformable registration algorithm to evaluate what you recover after the deformation.

We are currently working towards the development of a framework within which ImSimQA tools can be used to validate deformable registration algorithms. We believe ImSimQA is a powerful software with applications in both clinical and research settings."

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Senior Medical Physicist
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Modus Medical Devices has partnered with UK-based ImSimQA developer, Oncology Systems Limited (OSL), to deliver their innovative virtual phantom software in North America. Please contact Modus to learn more.

ACCURACY IS CRITICAL