

Image Registration

Evaluation and Error Detection

Josien Pluim

Image Sciences Institute, University Medical Center Utrecht, The Netherlands
j.pluim@umcutrecht.nl

Knowing how accurate the results of a registration method are is an important question, yet one that is very hard to answer. This holds especially for deformable registration, for which the quality of alignment can vary across the image volume. The complexity of evaluating image registration is reflected in the imbalance in the list of recent image analysis challenges (www.grand-challenge.org/index.php): the majority is on image segmentation and only the odd one is on image registration.

The presentation will include a brief overview of methods on evaluation of image registration and on error detection. The presentation will further highlight some of the work of the UMC Utrecht in this area, including a method for fast generation of reference standards for evaluation and a method for automatic evaluation of local registration quality in deformable registration. It will then be shown how these approaches and the principle of boosting can be combined to improve registration results.