Incorporating Priors On Expert Performance Parameters for Segmentation Validation and Label Fusion: a Maximum A Posteriori STAPLE





Children's Hospital Boston Olivier Commowick^{1,2} and Simon K. Warfield²

(1): VISAGES Research Team, INRIA Rennes - Bretagne Atlantique, France (2): Computational Radiology Laboratory, Childrens Hospital Boston, USA



Introduction

Context: Label fusion algorithm STAPLE [1]: robust estimation of reference standard and performance parameters. Many applications: Atlas construction, label fusion for segmentation

· Validation of segmentation algorithms

Problems

- Manual delineation is a time consuming task → some structures may be missing for some experts
- · Some local inconsistencies may exist in the segmentations
- → Leads to errors in fused delineations and performance parameters estimation

Our approach: Incorporate priors on the expert performance parameters into the STAPLE Algorithm

