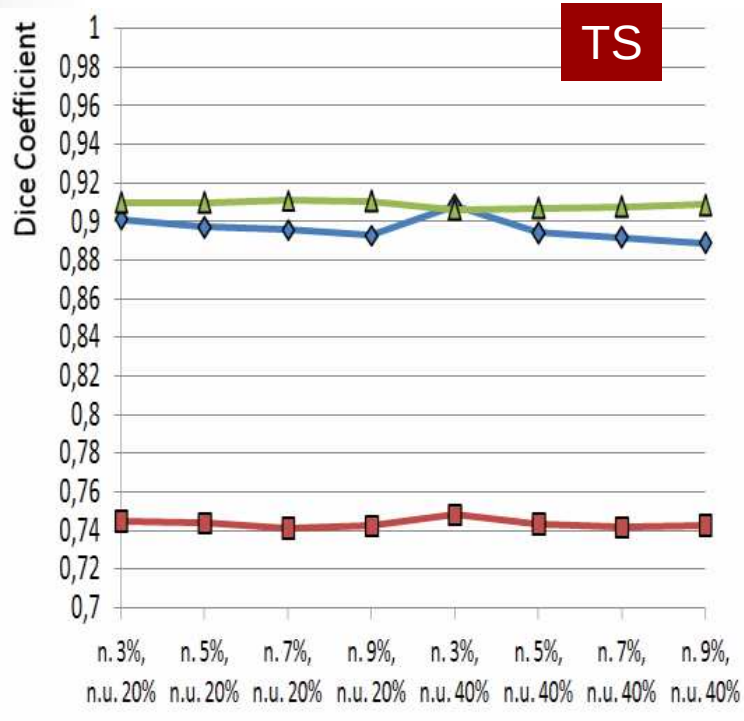
A Conditional Random Field approach for coupling local registration with robust tissue and structure segmentation

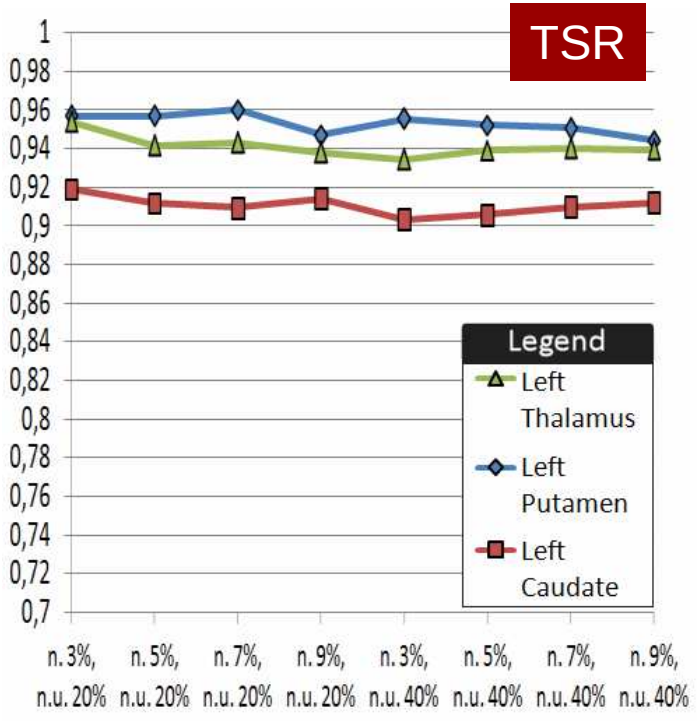
Additional materials

Evaluation on BrainWEB

- BrainWeb evaluation : TS and TSR
  (with our STAPLE gold standard, for different noise and nonuniformity values)

Results for each experiments :

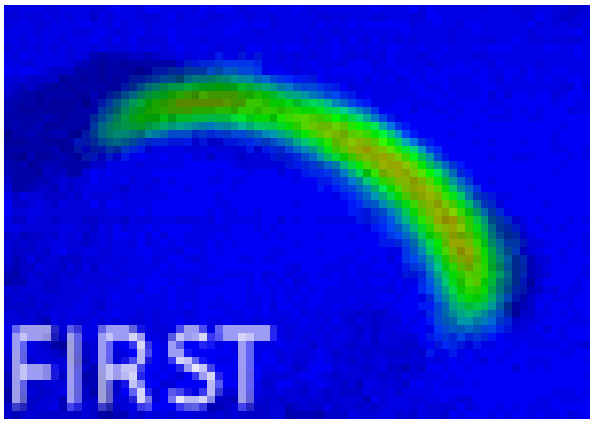




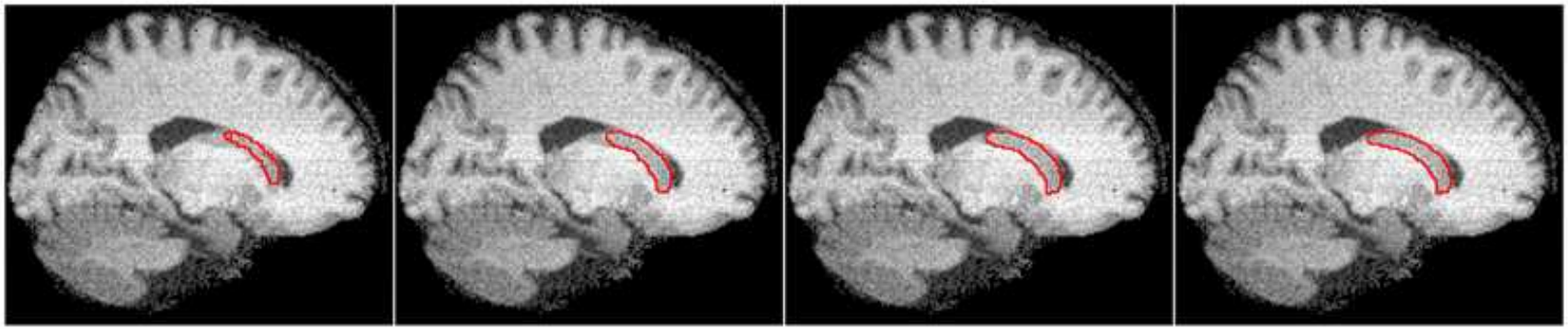
⇨ Robustness to noise & nonuniformity

Evaluation on BrainWEB

- Why such an improvement for the caudate ?
  Illustration of the improvement of the atlas registration



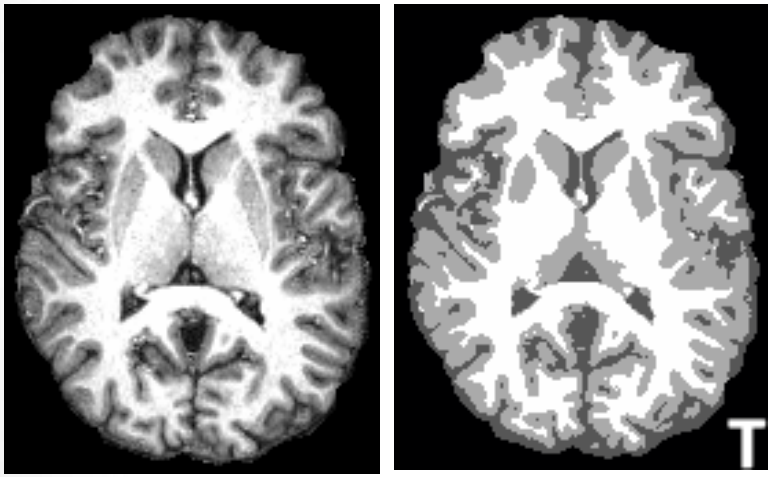
Caudate Nucleus segmentation



Evaluation on a REAL 3T Brain Scan

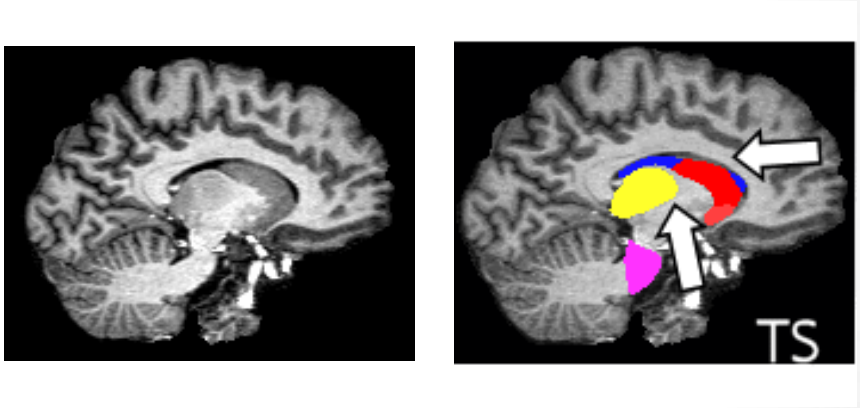
Animations better illustrate differences between the approaches

- Tissue segmentation
  T – TS – TSR



(Corresponding to Figure 2c in the manuscript)

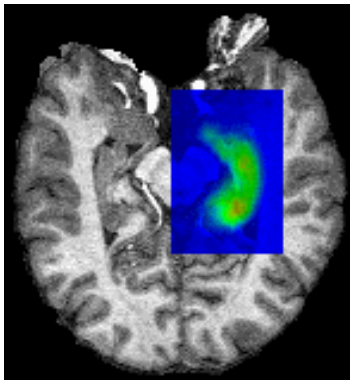
- Structure segmentation
  TS – TSR



Evaluation on a REAL 3T Brain Scan

- Evolution of atlas registration and structure segmentation during iterations

TS approach



TSR approach

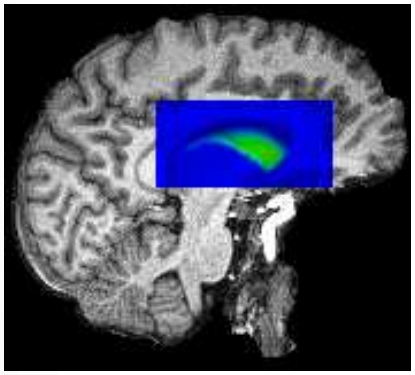
(Corresponding to Figure 2a in the manuscript)

- Synthesis :
  Final segmentation of
  TS versus **TSR**

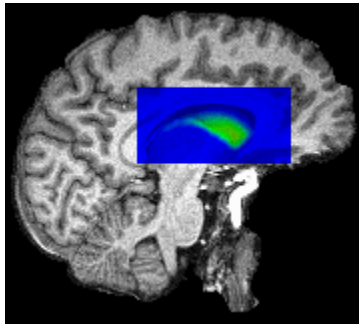
Evaluation on a REAL 3T Brain Scan

- Artificial initial perturbation of the caudate atlas

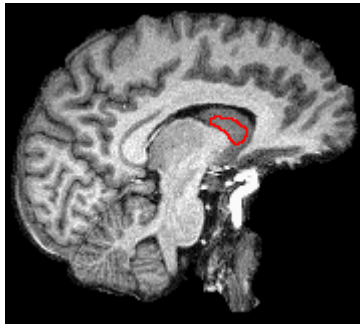
Initial perturbed registration



Evolution of the atlas registration and the segmentation



Atlas



Segmentation

(Corresponding to Figure 2b in the manuscript)