# TBI Lesion Segmentation in Head CT: Impact of Preprocessing and Data Augmentation
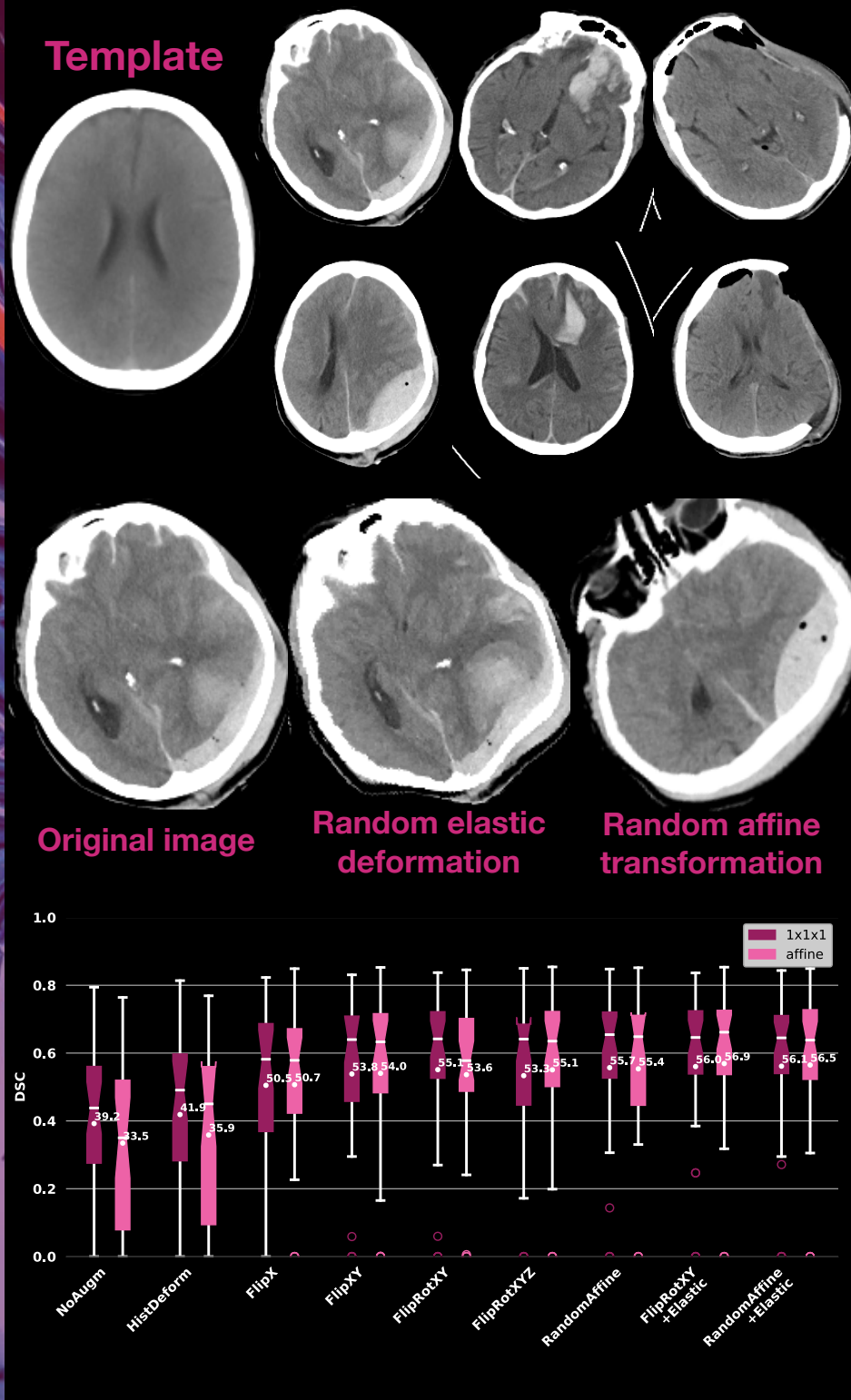
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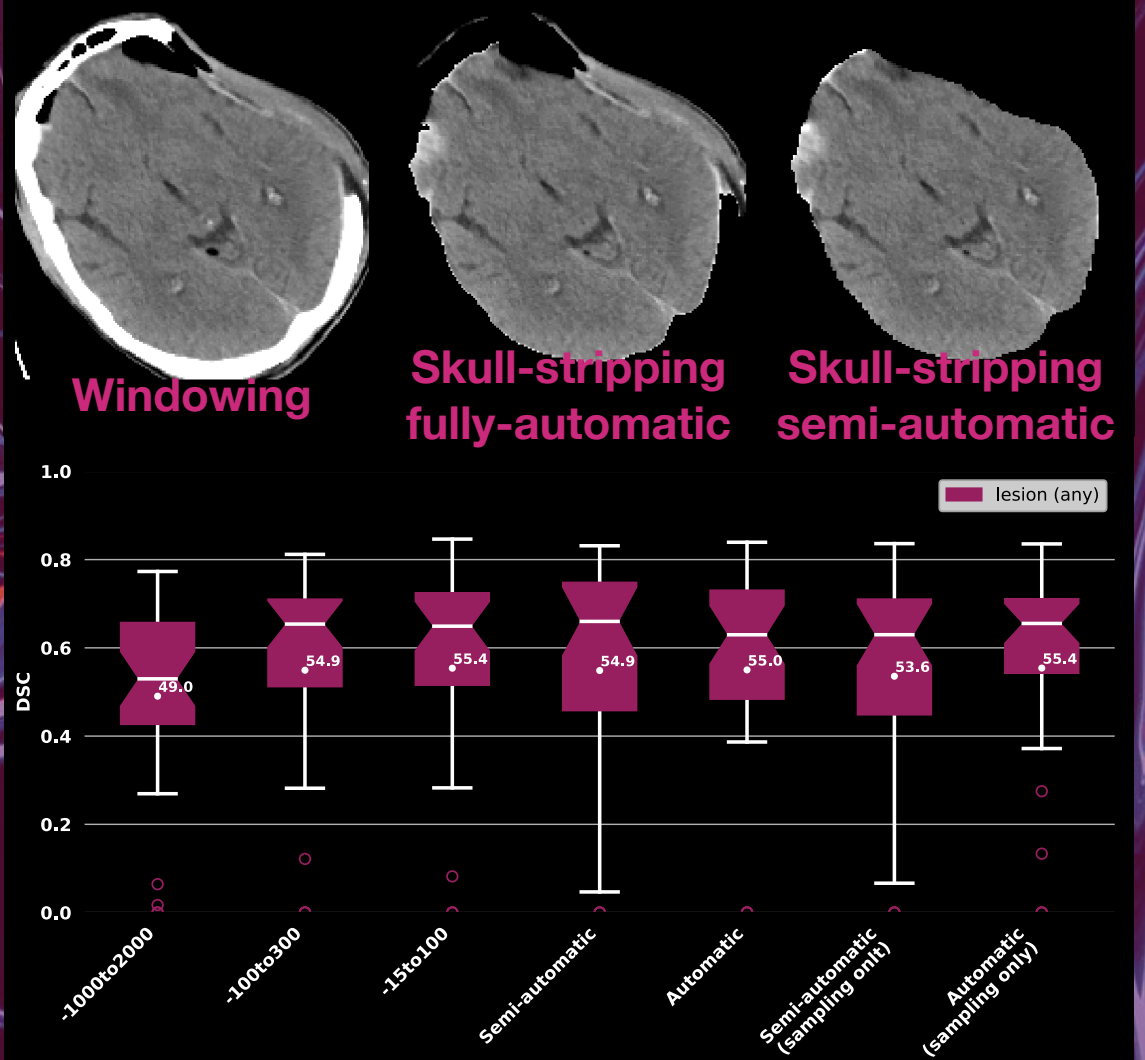Imperial College London

BioMedIA

Introduction

- TBI is a leading cause of death and disability worldwide with heavy socio-economic consequences;

- Preprocessing and data-augmentation can be as important as network architecture;

image

target

prediction
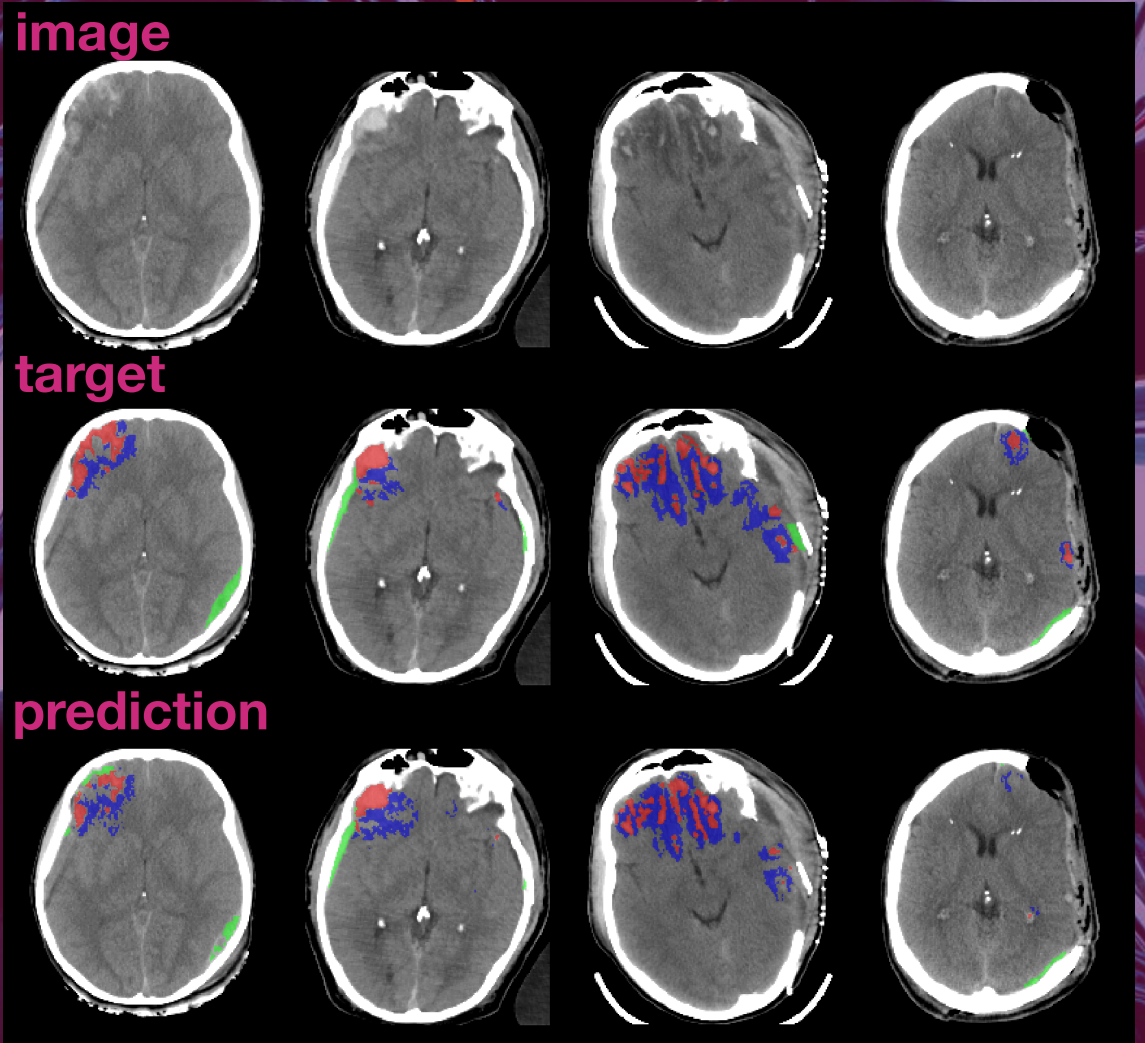
Affine Registration and spatial data-augmentation

Template

Original image

Random elastic deformation

Random affine transformation

Skull-stripping and intensity windowing

Windowing

Skull-stripping fully-automatic

Skull-stripping semi-automatic

- Skull-stripping does not offer benefits;

- Small intensity windows are better;

- Affine registration does not offer benefits;

- Natural and artificial spatial variation can greatly benefit the segmentation.