Multimodal Brain Tumor Segmentation Challenge 2017 (BraTS)

Mariano Cabezas

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Example problem

- Annotations comprise (Fig1):
  - The whole tumor
  - The tumor core (including cystic areas)
  - The Gd-enhancing tumor core

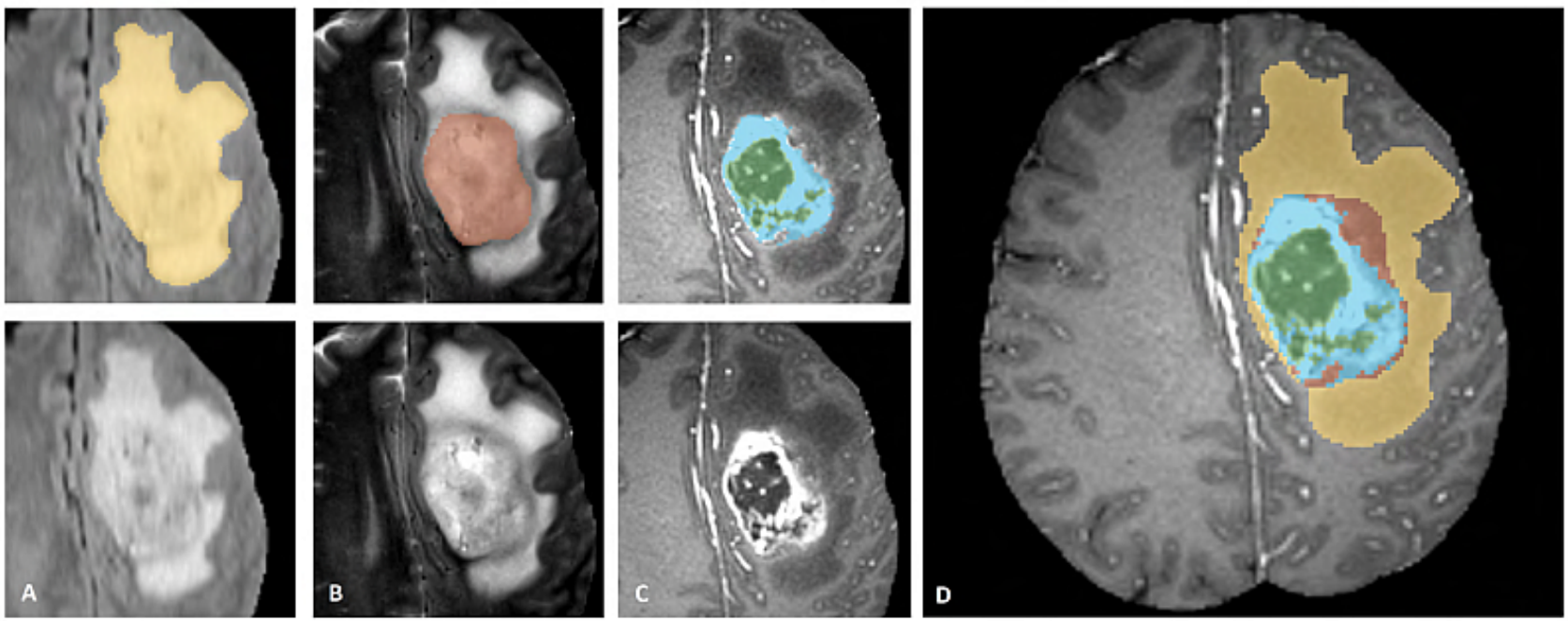


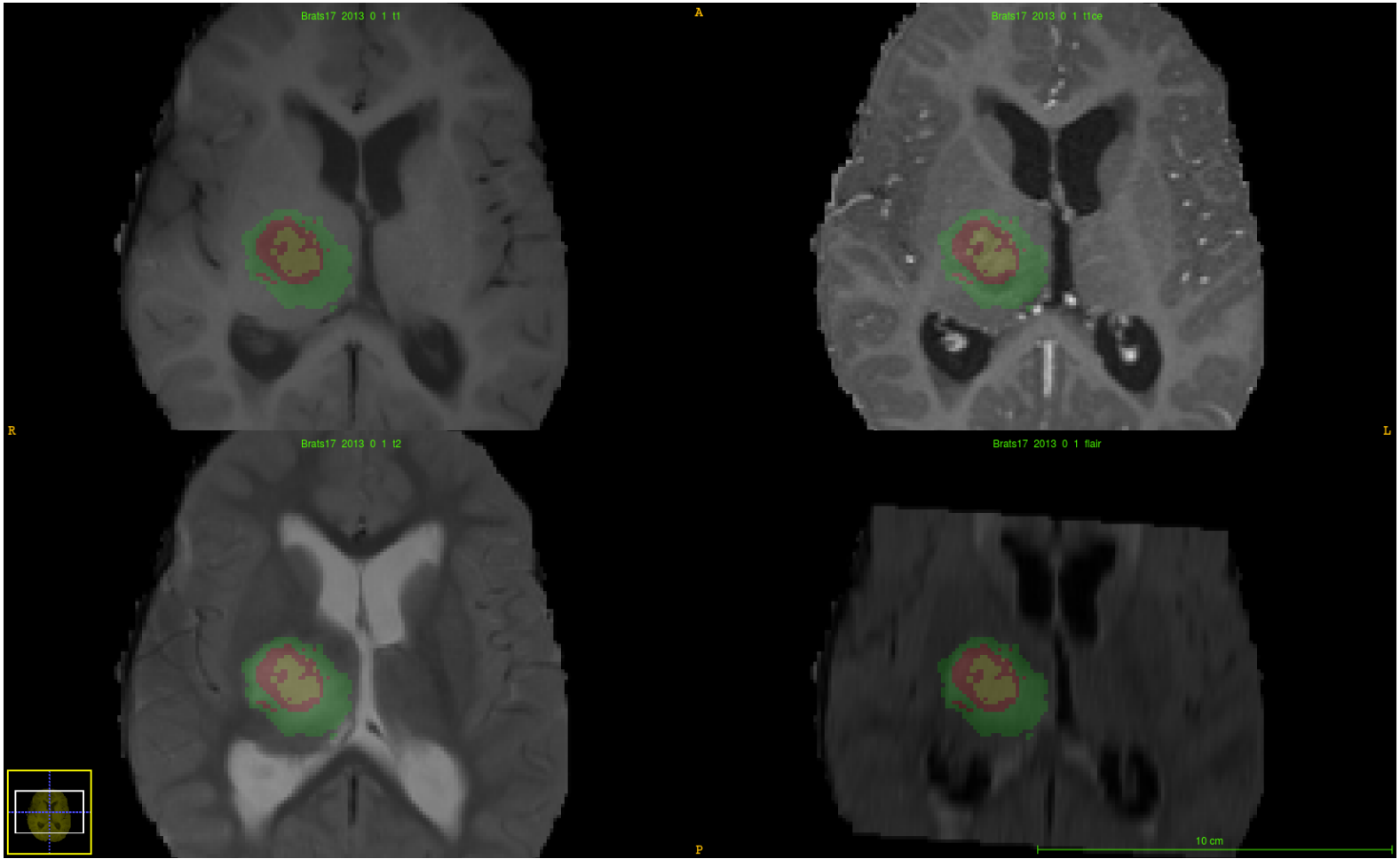
Figure 1: Fig.1: Glioma sub-regions. The whole tumor (yellow) visible in T2-FLAIR (Fig.A), the tumor core (red) visible in T2 (Fig.B), the enhancing tumor structures (light blue) visible in T1Gd, surrounding the

DATA

- Complete original TCIA glioma collections:
  - TCGA-GBM, n=262
  - TCGA-LGG, n=199
- Images acquired with different clinical protocols and various scanners from multiple (n=13) institutions:
  - The native (T1)
  - Post-contrast T1-weighted (T1Gd)
  - T2-weighted (T2)
  - T2 Fluid Attenuated Inversion Recovery (FLAIR)
- All the imaging datasets have been segmented manually, by **one** to **four** raters
- **Participants are not allowed to use additional private data (from their own institutions) for data augmentation**

Training I

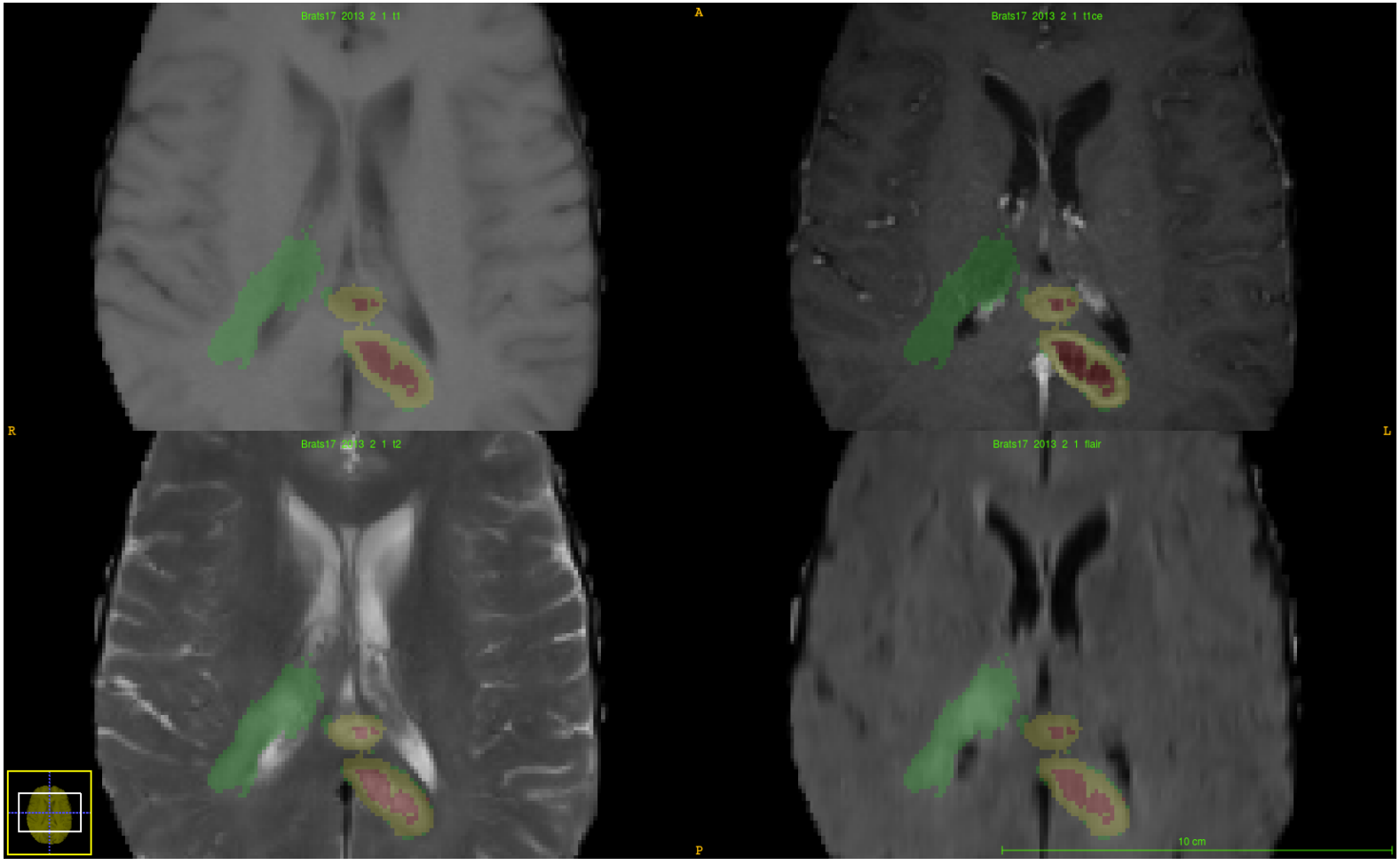
- Images skull-stripped (or cropped)
- LGG, n = 75 (Bad quality)



- All in ftp://xtian.udg.edu:22321

Training II

- HGG, n = 210 (*Better* quality)



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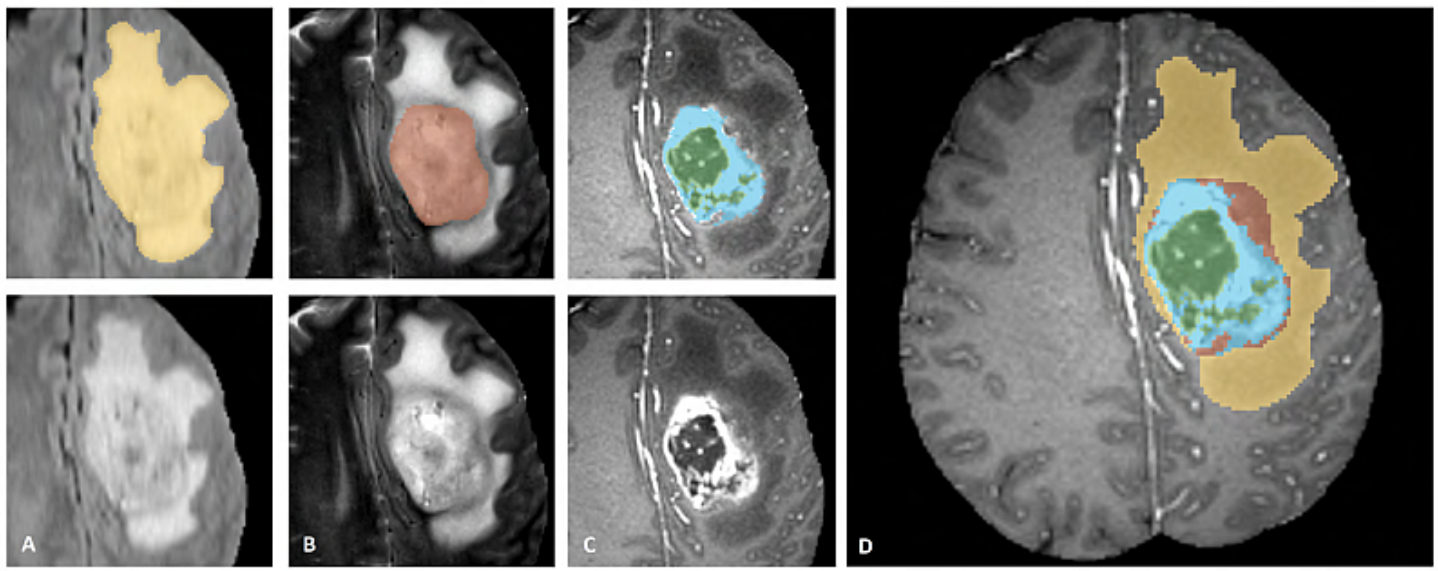
Tasks I

- Task 1: Segmentation of gliomas in pre-operative scans
  - "Enhancing tumor" (ET): hyper-intensity in T1Gd when compared to T1 and "healthy" WM in T1Gd
  - "Tumor core" (TC): bulk of the tumor (ET + necrotic (fluid-filled) + non-enhancing (solid))
  - "Whole tumor" (WT): complete extent of the disease (TC + peritumoral edema)



Tasks II

- Task 2: Prediction of patient overall survival (OS) from pre-operative scans
  - Predict a csv file with the subjects ids and the predicted survival values

Brats17ID	Age	Survival
Brats17_TCIA_167_1	74.907	153
Brats17_TCIA_242_1	66.479	147
Brats17_TCIA_319_1	64.860	254
Brats17_TCIA_469_1	63.899	519
Brats17_TCIA_218_1	57.345	346
Brats17_TCIA_406_1	78.745	82
Brats17_TCIA_280_1	57.362	508

Deadlines

- Training data availability **(5th May)**
- Validation data availability **(June)**
- Short paper submission: 2-6 LNCS pages validation results **(July)**
- Test Data availability & Performance Evaluation: 48-hour window **(1-21st August)**
- Oral presentations **(14th September)**
- Post-conference LNCS paper: only top-ranked methods for BrainLes Workshop
- Joint post-conference journal paper