

Update on MRI database & analysis

11/05/2017

C.Voena

Database

- Samantha: 35 patients: 11 CR+24 PR+NR
- **Now: 46 available:** 13 CR+33 PR+NR
- 5 to be added soon
- 4 problematic ROI..investigating
- few more without "int" scan

Analysis status

- **Texture analysis ready:**
 - ROI dimension
 - I-order (2D-3D): mean, sigma, skewness 2D-3D
 - II-order (2D) 4 co-occurrence matrix:
(homogeneity, energy, dissimilarity, contrast)
Revised the 15->8 bit downscaling
 - II-order: local entropy
- **Multivariate analysis:** Valerio implemented
random forest: under test

Prospects

- Complete database
 - Run monivariate & multivariate analysis
- The above analysis is without normalization (not all muscle ROI available, however this technique did not show significant improvement =>
- normalization to bladder
 - select region $[I_{\max}-40\%, I_{\max}+40\%]$
(suggested by radiologist and by Gemelli Fisica Medica group)

Collaboration with "Gemelli"

- Meeting last week
- They have $>\sim 100$ rectal cancer MRI database @1.5 T
- They found tumor "fractal dimension" is relevant

We are investigating the possibility to collaborate