

APPENDIX II

COST B21 „Physiological Modelling of MR image formation” WG2 Meeting, Dundee, 12 March 2004

Working Group 2 “Software, simulation and modelling”

General objectives

The goal of WG2 activity is to develop methods, algorithms and software for:

- numerical modeling of MR images, taking into account properties of tissue/phantoms,
- quantitative description of MR images,
- quantitative analysis of MR images, e.g. classification, segmentation,
- continuous update of software packages developed so far within the COST B11 and B21 projects.

Moreover, members of WG2 will take part in data analysis tasks that overlap with activities of WG2 and WG3.

MaZda update plan

1. Including functionality of unsupervised image segmentation.
2. Inclusion of NIfTI file format in the image file reading routine.
3. Development of routines for computing 3D texture parameters.
4. Adding an option of “invariant” texture parameter selection (in the sense defined by D. Jirak).
5. Adding SVM classifier as a all-feature-set reference to classifiers using selected parameters.

Cooperation of the TUL team with Professor Petrou group and Dr de Certaines group is assumed for the above.

New software development

1. Vascular tree modeling; taking into account blood exchange with tissue, wall permeability, cancerous tissue growth was suggested, brain vessels modeling.
2. MRI simulator; to generate data for 2D and 3D analysis – to study correlation between simulated physical objects and their MRI properties, e.g. texture.

It has been decided that the software package will be designed and developed for computers running under MS Windows operating system. The routines for computation of texture parameters, data analysis, image formation process simulation, etc., will be written in plain C, for possible connection to other operating systems, e.g. Linux. Experimental verification (VT physical model, microscopy + MRI measurements, simulated MRI model) is planned.

The teams involved in model and software verification include people from Lodz, Bergen and Jena.

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Two short-term-missions are planned for Autumn 2004

- M. Kocinski (TUL) to Bergen.
- Researchers from Jena to Lodz.