Motivation

Multimodal imaging analysis is a valuable tool for better understanding of disease and promises improvement in diagnostics. RONDO is a software platform that is able to handle a large number of different imaging modalities such as different MRI methods, PET and CT allowing a more comprehensive and combined image analysis with one single software tool.

Image Registration

Images with different contrast or from different modalities are automatically registered on importing data into the workspace (data cache) of RONDO to enable multimodal evaluation. The registration can be corrected manually if necessary.

Spectroscopy

Different types of MR Spectroscopy data (SVS and CSI) can be visualized and evaluated (pre-defined metabolites as well as user-defined spectral regions) in RONDO alongside other imaging modalities to combine the information.

Quantitative Analysis

Statistical measures are evaluated for all structures defined on data sets in the current workspace. The quantitative measures for these structures are also evaluated on all data sets that are registered to the image on which the structures were defined to allow direct comparison of multimodal imaging data.

Additional Features

RONDO provides a large range of features for multimodal data processing. Advanced segmentation tools (2D and 3D) facilitate the contouring of important structures for quantitative analysis. Furthermore, evaluation of standard perfusion models and simple PET analysis are provided. Also tools for radiation therapy evaluation are included in Rondo.

Implementation/Hardware Requirements

RONDO is based on the MeVisLab-Framework (www.mevislab.de). C++ and Python are used to implement image processing algorithms and to create workflow modules. The software runs on 64-bit Windows and is able to directly access PACS-systems through standardized DICOM interfaces for data import and export in clinical settings.