

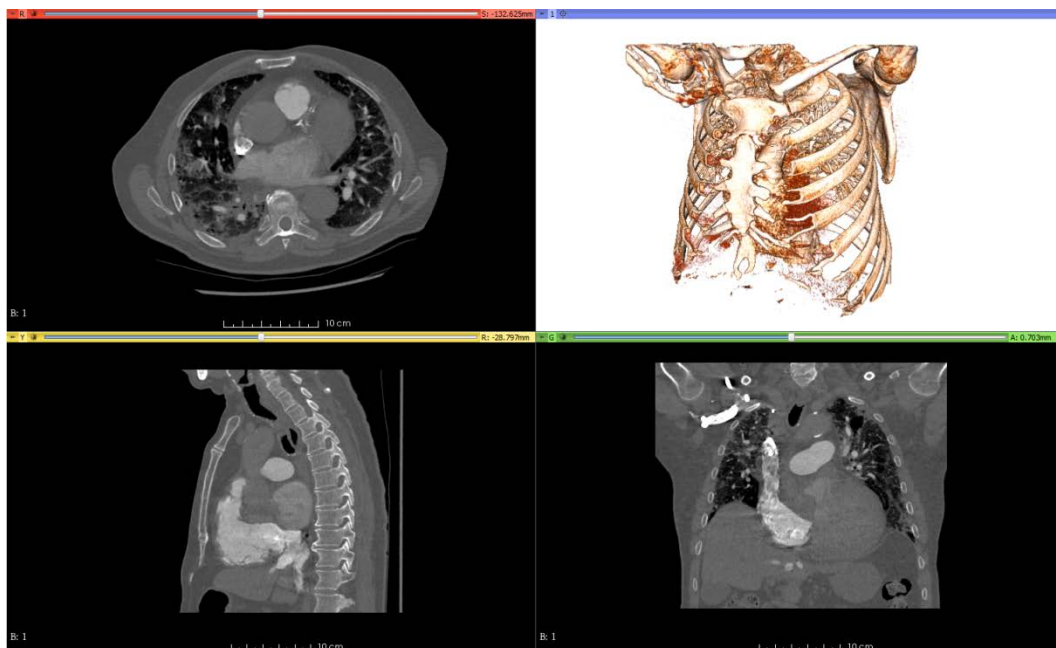
Automatic interpretation of lung CT volume images

A Master's thesis project in medical image analysis

Interpretation of diagnostic imagery by radiologists and pathologists is increasingly becoming a bottleneck in healthcare. Common interpretation tasks include identification of pulmonary embolism (PE) in contrast enhanced CT images. We are developing a method for automatic detection of PE, which utilizes pre-segmented lung parenchyma, trachea/airways, and vessels trees in lung CT image stacks.

The aim of the project is to develop software that loads a high-resolution chest CT stack, segments the lungs and produces a lung mask, and segments the airways within the lung to produce an airway mask, and also segments arterial and venous vessels into two vessel masks.

To reach this goal, the project will include a comparison and evaluation of some of the best performing segmentation methods (Grand Challenge competitions in the relevant areas, http://grand-challenge.org/All_Challenges/: EXACT09, LOLA11, VESSEL12) for segmentation and automatic interpretation of radiology imagery. The performance in the respective segmentation tasks will be measured by analysis of the Grand Challenge datasets.



Supervisors and subject supervisors

Tobias Sjöblom, Dept. of Immunology, Genetics and Pathology, UU

Robin Strand, Dept. of Information Technology and Division of Radiology, UU

Filip Malmberg, Dept. of Information Technology and Division of Radiology, UU

Contact: Robin.Strand@it.uu.se