

Registration of Lung MRI-Images with Machine Learning Methods

Background:

Before analyzing medical images, a registration of images with different imaging timepoints or conditions is often required. The calculation times of common registration tools are frequently high, and the results are heavily influenced by choosing the right registration parameters.

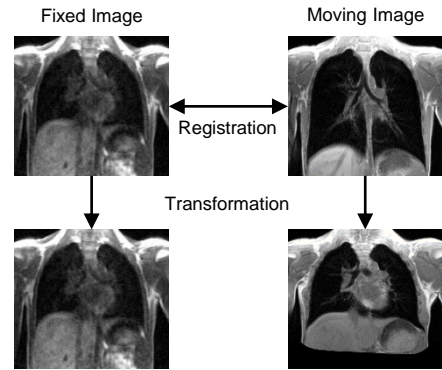


Fig.: Registration of Lung MRI Images

Your tasks:

Using Convolutional Neural Networks (CNNs), an algorithm for automatic, unsupervised registration of lung MRIs based on different MR sequences should be developed. For this purpose, promising work regarding registration using CNNs should be identified and analyzed first. Then the most promising concept should be implemented in practice. The development, implementation, training and testing of the ML model should be done using the in-house AI and ML framework *CIDS*.

Qualifications:

For the processing of the topic basic machine learning knowledge is recommended. Programming experience in a higher programming language (ideally Python) is mandatory. Additionally, interest in medical research should be present.

We offer:

- Intensive support
- Modern workstations and high-performance computers as working environment
- Productive and dynamic atmosphere in a team
- Cooperation with international research groups
- Cooperation with a clinical research institute
- Career perspectives as young scientist

Interested?

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