

Image analysis & AI platform

The right treatment for each individual patient is the promise of personalised medicine. Imaging modalities (CT, PET, MRI) enable non-invasive phenotyping. New image analysis tools such as radiomics and deep learning hold the promise to optimally learn the relation between the imaging phenotype and e.g. disease stage and therapy outcome, paving the way for more personalised medicine.



In this project, we will develop a comprehensive platform for artificial intelligence (AI)-supported image analysis, covering workflows for image data retrieval, review, quality assurance, annotation, segmentation and quantification.

The platform will be built using two representative use cases, but the underlying implementation will be generic and therefore be of value to multiple research and clinical departments in Erasmus MC. This platform will greatly benefit: any clinical and population study within Erasmus MC that involves imaging; multi-centre clinical trials that involve central image review; and 3) secondary use and analysis of imaging data with advanced radiomics and deep-learning techniques.

Following the project, the envisioned platform, coined “Erasmus MC Image Analysis AI Platform”, will be implemented as a production service in the Erasmus MC research suite, to turn it into a sustainable platform. We will address the required set of standards for such a service in terms of documentation and security requirements to obey privacy regulations.

The platform will improve the quality of clinical and population imaging studies, allow for re-use of existing data, enable accelerated discovery of novel imaging biomarkers informing treatment, and forward the implementation of personalised medicine. Also, it will enable Erasmus MC to take a leading role in national and European AI initiatives in health.

To support the analysis of imaging data within the Erasmus MC, the Erasmus MC Image Analysis AI Platform will link to the image data storage platform of Erasmus MC, which will become an enterprise-wide VNA in the near future. The platform will be able to seamlessly extract (anonymized or pseudonymized) data from the VNA and can be considered as an image analysis service on top of the VNA. We will closely collaborate with national initiatives such as Health RI, to optimally facilitate image analysis in multicentre studies.