**The Rocket App** – a flexible, modular, cloud-based platform for the management of heterogeneous data/information from multiple acquisitions/tools for biomedical and clinical research.

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The goal of the Rocket project is to create a web platform for assisting biomedical researchers, clinicians and life scientists in their daily work with the organisation of their (imaging) data and integration of analysis tools and relevant additional information. The goal is to generate a platform that provides an easy and nice **data repository**, a **computation engine** that allows the user to execute algorithms and programs in the cloud and an **interpretation engine** that can analyse the data and get individual as well as group-wise quantification and statistics in a comprehensive way.

For this, we propose to build a generic architecture for the organisation of individual data/information sets, potentially acquired/compiled at different time points or under different conditions as well groups of individual datasets representing (clinical/basic research) studies required for comparisons. The platform supports the management of all domain information (images, biomarkers, genetics, family histories, text, tools, etc) relevant to life science, with an emphasis on flexible presentation and comparison using different data/information views. For this, the platform uses state-of-the-art cloud technology to provide access from anywhere and to provide flexible technology for the clinician/researcher to evaluate the patient/sample. We demonstrate our technology for two distinct use cases: clinician-friendly management and decision making support of cardiomyopathy patients and bio-image analyst management of analysis tools optimal use and comparison.

Use case 1: With advancements of drug/device therapies, patients with cardiac abnormalities live considerably longer and their population is continuously growing. However, the wide variety of heart failure presentation with a broad spectrum of clinical symptoms, prognosis and therapies makes that almost each individual patient needs a targeted and personalised strategy. For many conditions, best-practice is translated into clinical guidelines, expert opinion consensus or scientific publications. However, access to these while in a consult with the patient is often limited and cumbersome. Rocket provides flexible access to medical knowledge relevant for the patient and easy access to the evaluation of decision trees suggested by professional organisations and literature.

Use case 2: With the publication/availability/commercialisation of a multitude of image analysis approaches for large and varied biomedical images resulting from basic research, the choice of the most appropriate tool for addressing a specific scientific question become more and more cumbersome and inefficient. Therefore, there is a need for a flexible and dynamic database of possible approaches towards bio-image analysis that integrates information on the features of the tools; the supported types of data; the way to use/run the processing engines; how the results can be further used in research. Besides providing informed access to the tools themselves, supporting their use in example datasets as well as benchmarking different implementations/approaches is of great importance for choosing the most efficient tool for a specific application. The proposed platform aims at doing exactly this by providing an informed overview of bio-image analysis tools, pointers to relevant sample datasets, methods for platform-independent execution as well as access to benchmarks and statistical comparison.