

CARDIAC ATLAS PROJECT MESA ANCILLARY PROJECT: ADDENDUM

MESA Ancillary Study Title:

#69 Young: Cardiac Atlas Project: Establishment of a Cardiac MRI Database. Alistair Young, PI; Bluemke, Toga, Finn.

Summary:

This addendum details the collaborative nature of the Cardiac Atlas Project (CAP) and describes the nature of the work performed by each of the collaborating parties, and the location of data.

Background:

The CAP aims to build a standardized database of cardiac MRI examinations, together with derived analyses, contributed from all over the world. Two main initial studies contributing cardiac MRI data to the CAP are MESA (funded by NHLBI) and DETERMINE (funded in part by St Jude Medical). Further studies are expected to be included in the near future. The CAP is funded by a R01 grant from NHLBI.

CAP Collaborating Partners:

There are two main institutions involved in CAP: the University of Auckland, in New Zealand, and the University of California Los Angeles, in the USA. The Principal Investigator of the CAP is Associate Professor Alistair Young, PhD, of the University of Auckland Bioengineering Institute. The host institution of the CAP is the University of Auckland. There is a sub-award via the University of Auckland to UCLA. The UCLA PI is Professor Paul Finn, who is Director of the Diagnostic CardioVascular Imaging Laboratory.

Responsibility of the CAP Partners:

The University of Auckland Bioengineering Institute is responsible for:

1. Development of open source cardiac image analysis and visualization tools to enable users to visualize and manipulate cardiac MRI data in three dimensions and in time.
2. Development of open source modeling tools to enable the construction of mathematical models of cardiac shape and function to cardiac MRI data.
3. Development of ontologies and metadata formats to enable classification and searching of cardiac MRI information, together with domain dependant descriptors for cardiac MRI examinations and derived information.
4. Development of analytic tools to enable the transformation of results between contributing studies, so that derived information from one study can be directly compared with derived information from another study which may have been performed with different imaging or analysis protocols.
5. Development of strategies and designs to enable CAP data and software to be used in conjunction with other cardiac atlas and database projects, including the cardiovascular research grid (cvrGRID) as part of a proposal to NIH PAR-07-426 in September 2009.

The UCLA Diagnostic CardioVascular Imaging Laboratory is responsible for:

1. Operational management of the CAP project partnership and contributing studies, through the CAP project manager Dr Carissa Fonseca, who is based in UCLA.
2. Development and management of the CAP Production Database hosted by the UCLA Center for Computational Biology.
3. Development of Center for Computational Biology infrastructure for de-identifying the data, archiving of images and derived information, and serving the data to authorized third party users.
4. Definition of domain dependant classifiers, in consultation with users in the community, to describe and annotate cardiac MRI data and derived information.

5. Management of the distribution of data to approved users, and ensuring that the terms of use and reporting requirements are met.

Location of Data in CAP:

In order to fulfill these responsibilities and the overall goals for the CAP project, two databases have been developed:

1. The Production Database: This is hosted by the UCLA Center for Computational Biology, and is an extension of their existing brain mapping infrastructure, modified for use with cardiac images. The purpose of this database is to provide a mechanism by which approved third party users can access the de-identified data and derived information.
2. The Research Database: This is hosted by the University of Auckland Bioengineering Institute, with a mirror at the UCLA Diagnostic CardioVascular Imaging Laboratory. The purpose of this database is to enable CAP researchers to develop the required analytic tools for visualization, modeling and classification of cardiac MRI data and derived information. This database will not be made accessible to third party users. However, care will be taken to maintain compatibility with cvrGRID and other worldwide heart mapping research projects with similar goals to CAP. In this way tools developed during the course of the CAP can be used in future studies which build on collaborative heart mapping research infrastructure.