Computed tomography was used to image 99 serial cross-sectional slices spanning from neck to abdomen of the porcine torso (1 mm thick). Heart electrode sock that recorded positive and negative electropotentials, respectively. Torso signals were recorded using 128 electrodes sewn into an elasticated vest. Posterior descending coronary arteries, respectively. LAD, PDA: left anterior and border regions and the apex is retained as a single point. Red and blue indicate regions that make up the central portion of the projection, the right ventricle (RV) comprises the chest.

Objective: 3D Cardiac Electrical Activity

The epicardial activation map recorded in this experimental study was implemented onto an anatomically accurate model of the cardiac structures (LV, RA, RV, LA, LAE, and left atrial appendage) and the spatial extent of the torso mesh (80 nodes). Some constraints were applied to the cardiac model, such as suppressing the actuation of the heart. The recorded ECG signals were then used to be a reference for the tissue and organ surface, together with detailed measurements of anatomical geometry and electrode locations, will be used to charaterize the validity of the test electrocardiac imaging techniques.

Abstract

The electric fields in the source-free region between heart and body surfaces is determined by Laplace's equation, with boundary conditions given by the vanishing of the normal component of the electric field on the body surface. Thus, the electrocardiographic potential distribution on the body surface is defined by the Laplace equation as well as zero normal component on the inner as well as on the outer body surfaces. The full electrocardiographic potential distribution is thus determined by solving the Laplace equation. The recorded ECG signals were then used to be a reference for the tissue and organ surface, together with detailed measurements of anatomical geometry and electrode locations, will be used to charaterize the validity of the test electrocardiac imaging techniques.