

Cardiac ElectroPhysiology Analysis System, CEPAS, is a software application for researchers in the area of cardiac electrophysiology. It has particular application to current research into Atrial Fibrillation. The program was originally developed for multi-channel recording and analysis of data from intraoperative mapping procedures. It has been adapted to work for a wide range of configurations including standard EP catheter procedures and cellular level experiments.

Functions available in CEPAS include:

- Ability to read data files in a variety of formats. This includes Bard ASCII format, NavX waveform format, a variety of specialist mapping systems, eg BioSemi, UnEmap and a native CEPAS binary format. The list of formats that can be read is constantly being added to and any requested format will be implemented.
- Calculation of a range of mapping parameters. This includes Activation Time, Dominant Frequency from FFT, Fractionation Index, Phase, Voltage, and Velocity.
- Ability to create a static 2D map of any of the available mapping parameters for a specified electrode configuration. Ideal for multi-channel mapping devices like operative patches or catheters such as the basket, spiral or pent-array.
- Animated phase maps.
- Power Spectrum using FFT is computed on all channels. Various settings, eg window, rectification, zero padding available to be applied. Organization or Regularity Index calculated.
- Time Domain Filtering: Low Pass, High Pass, Notch and Baseline Wander Removal.
- QRST Template Subtraction for surface ECG AF analysis.
- Real time interface to specific mapping hardware, eg BioSemi or National Instruments data acquisition equipment.
- Ability for user to create their own “plug-in” modules to implement their own proprietary algorithms.

CEPAS aims to be the tool of choice where researchers do not have the time to write their own software and want a rigorous application of signal processing techniques to their cardiac signals. The User Guide provides extensive examples and information on the application of signal processing methods.

As well as the standard support for the product the CEPAS price includes 2 weeks of dedicated analysis support to each customer. The extent of this support is negotiable but it can be for use of the program to analyse specific recordings or support in writing research papers in those method sections of a paper where CEPAS has been used for analysis. The price covers use by two researchers within the same department. All upgrades are provided for two years from date of purchase.

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