

# BrainWave

Fast, easy fMRI analysis.

Functional Magnetic Resonance Imaging (fMRI) is fast becoming the diagnostic tool of choice for mapping neuro function in the brain. Non-invasive, no ingestion or infusion of tagged material required, and radiation free, fMRI maps neurological function through blood oxygen level dependent (BOLD) MRI scans of the brain. This technique measures heightened oxygen levels within a region of interest in response to external stimuli.

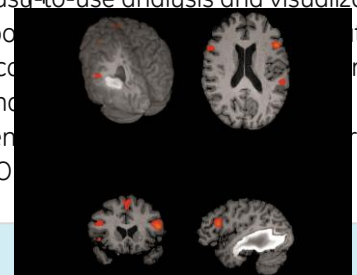
Analyzing maps generated by this technique yields valuable information that can help guide surgical intervention procedures. Consequently, technology that helps develop accurate and specific exam reports is essential.

## What's new

- Provides retrospective motion correction for patient motion.
- Activation maps generated using Generalized Linear Model (GLM) analysis.
- Sophisticated visualization techniques fuse analysis results with anatomical data.
- Clear visualization with color activation maps and interactive thresholding.
- Paradigms saved in the DICOM private structure for fast analysis.
- Full integration with AW filming, networking, and archiving.
- Full DICOM fidelity.

## Overview

BrainWave imaging software is an easy-to-use analysis and visualization tool for neurologists. It provides accurate and reliable results from BOLD data sets for neurological applications.



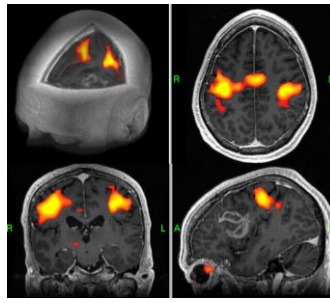
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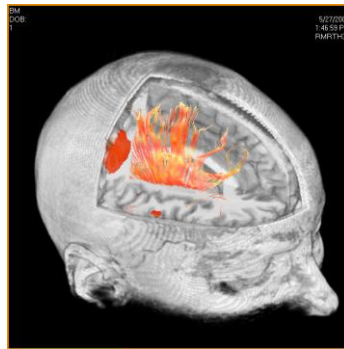


## Features

- BrainWave PA lets you interactively view and edit fMRI data. It can reside on the scanner or on your AW station
- Software reads volumetric T1-weighted acquisitions in addition to fMRI acquisitions.
- Processing steps for fMRI data include:
  - Six parameter rigid body motion correction via registration to the first volume
  - Spatial filtering
  - Segmentation of the anatomical data so that outer layers of non-brain signal are removed.
  - Registration of fMRI data sets to the structural data set
  - Calculation of statistical maps corresponding to task-based activation
  - Formation of Burnt In Pixel (BIP) maps outlining the area of activation in white on the structural scan
  - Calculation of DTI fiber tracks (option with BrainWave Fusion)
- View functional data overlaid on the structural image in 2D or 3D renderings. Add annotations or change color and opacities.



- BrainWave Fusion (option) lets you display white matter tracks with functional data on a high-resolution anatomical image.



## System Requirements

- Volume Share 5 or above
- One or two display monitors
- BrainWave PA requires BrainWave RT
- BrainWave Fusion requires BrainWave PA and DTI FiberTrak.

Minimum hardware required:

- HP Z800: 12 GB RAM or above

## Device Description

The GE BrainWave Option(s) for MRI systems is a modification to the GE Functional Brain Mapping Imaging Option for MRI systems. The GE BrainWave Option(s) produces images highlighting changes in blood oxygen level dependent images over time. These differences correspond to changing stimuli presented to patients which are synchronized with scanning. The resulting parametric or activation images are superimposed on structural images from the same patient. This device can be used to acquire, process, and display the results of BOLD MR studies with or without external stimulation hardware.

## Indications for Use

The GE Functional Brain Mapping Option is a software and hardware package that can be used to acquire, process, and display the results of BOLD MRI scan studies taken in the presence of synchronized stimuli presented to a person being scanned. When interpreted by a trained physician, these results may be useful in the determination of a course of treatment.

## Regulatory Compliance

This product complies with the European CE Marking regulation for Medical Devices Directive: Directive 93/42/EEC, dated 14 June 1993.



GE imagination at work