

## MRI Image Processing & Visualization

**Client:** Manufacturer and supplier of Medical Imaging Equipment

**Location:** Japan

### Client Description

The client is a leader in the medical domain involved in the manufacture, sales and marketing of a variety of medical electronic equipment, nuclear medicine equipment, diagnostic X-ray equipment, radio therapeutic equipment, industrial X-ray equipment and other medical equipments and instruments.

### Business Need

The client needed to develop a MRI console application supported by various 2D and 3D post-processing tasks such as Image Filters, Maximum Intensity Projection (MIP), Multi Planar Reformat (MPR), Volume Rendering (VR) and many others.

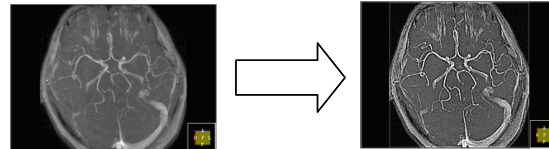
To optimize the time to market the client insisted upon usage of a third party library (Cedara) that provided a key set of algorithms required for the processing.

### Solution Offered

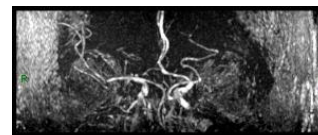
The major challenge was in architecting a framework to support image processing and visualization algorithms (using third party library) which would be used by 2D & 3D tasks.

BSI's prior experience in dealing with similar situations enabled it to successfully implement the framework specifications. Key activities included:

1. BSI's Imaging team implemented the the algorithms by designing the complex IAP pipelines using IAP objects
2. The following 3D functionalities were developed:
  - MIP, MPR, VR
  - Virtual Endoscopy
3. The following 2D image processing features were provided:
  - Addition/Subtraction of images
  - 2D Filter
  - Diffusion
  - Perfusion
  - BSI also implemented several add-on viewport tools for drawing ROIs and performing measurements on the images.



**Edge  
Enhancement  
Filter**



**MIP**

### Benefits to the Client

- BSI's plug-in architecture provided the flexibility and ability to easily replace any third party software components if required in future
- Optimal mix of new development and re-usable components coupled with BSI's medical knowledge of the domain ensured that the client met their desired objectives and were able to release a quality product to market
- BSI's knowledge of the medical domain and utilization of external specialists (doctors) ensured that the framework was adequately tested using real-world scenarios thereby ensuring higher usability of the product and quality

#### TOOLS / TECHNOLOGY

- .NET (VB.NET, C#, Managed C++)
- Third party library: Cedara PrServer

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