

Senior Training Fellowship

1. Name: Roshan S Livingstone
2. Department: Radiology
3. Year of STF: 2017
4. Objectives stated in the application for STF:
 - a) To gain adequate knowledge and techniques in image processing in Radiology at state-of-art centers
 - b) To gain knowledge in neuro imaging: includes 3D modeling, MR spectroscopy, diffusion tensor imaging (DTI) and fMRI post processing techniques
 - c) To gain knowledge in cardiac imaging: includes spectroscopy of the myocardium, T1 and T2 mapping, strain imaging

5. Center visited for STF & Mentor :

Massachusetts General Hospital and Harvard Medical School

Dr Rajiv Gupta, MD, PhD,
Neuro and Cardiac Radiology
MGH Site Miner, CIMIT and B-BIC
Director, Advanced X-ray Imaging Sciences (AXIS) Center
Massachusetts Gen Hospital and Harvard Medical School

6. Short description of training:

The training was predominantly observational. I could observe a task based fMRI acquisition performed by Dr Bradley Buchbinder for a patient using a 3T MRI scanner and post processed using Brainlab software. I could also attend a few classes conducted by the Dr Bradley on basics of BOLD imaging and fMRI. Other observations involved visiting MR spectroscopy lab for cardiac MRI and the Martinos center for biomedical imaging. I could learn a few post processing techniques for advanced neuro imaging at the Martinos center. I could also interact with a few experts in spectroscopy and 3D image processing using different software. The stay was comfortable in the Van bay house as part of the Park street church community.

7. Implementation of the objectives in CMC:

Most of the studies observed at the MGH require high end computers. However, the following projects have already been initiated in CMC:

- Lipid quantification in the myocardium using ¹H MRS in collaboration with the cardiology department – completed for over 70 subjects
- Parcellation of the brain from volumetric studies using MRI in collaboration with the developmental Pediatrics unit - completed for over 50 subjects
- Diffusion tensor imaging (DTI) and tractography using 3D slicer - work in progress in collaboration with Neurosurgery

Date: 31.1.2019

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