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B.Sc. 1977 Mechanical Engineering. Technion-IIT

M.Sc. 1984 Biomedical Engineering, Tel Aviv University

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#### Field of research:

Medical imaging: Application of Magnetic Resonance Imaging (MRI) and ultrasound, in medical imaging. Algorithms and methods for image reconstruction. Image processing and information extraction from medical images. Implementation of medical imaging for ge

#### About:

Dr. Haim Azhari, was born in Jerusalem, Israel in 1955. He received his B.Sc in Mechanical Eng. from the Technion in 1977, his M.Sc. (Cum Laude) in Biomedical Eng. from Tel-Aviv University 1984, and his D.Sc. in Biomedical Eng. from The Technion in 1987. From 1987 to 1990 he was on the staff of the Technion Department of Biomedical Engineering in a postdoctoral position. Dr. Azhari then received a double appointment as an International Research Fellow in both the Department of Radiology and the Division of Cardiology at the Johns Hopkins School of Medicine in Baltimore Maryland USA, and was in the USA from 1990 to 1992. On his return in 1992 he was appointed Senior Lecturer in the Department of Biomedical Engineering Technion-IIT. From 1999-2000 he was on a Sabbatical leave at Harvard Medical School at Beth-Israel radiology department at Boston Massachusetts. His Field of research is Medical imaging, which includes: Application of ultrasound and MRI in medical imaging. Image tomographic reconstruction. Image processing and information extraction from medical images.

Dr. Azhari is the laboratory coordinator of the [Medical Imaging Laboratory](#) located in the [Heart System Research Institute](#).

#### Research interests:

Medical imaging, generation of tomographic images , Magnetic Resonance Imaging (MRI), and Ultrasound.

Application of ultrasound and MRI in biomedical engineering

Information extraction from medical images

## Research Focus

New imaging techniques and algorithms in ultrasound and MRI (Magnetic Resonance Imaging) are being developed to produce images of the internal anatomy and/or physiology of the human body. We are investigating the use of ultrasound and MR for medical imaging and biomedical engineering, for information processing in medical imaging and for physiological analysis of the cardiovascular system. Our ultrasonic tomography research is focused on the early detection of breast cancer as it has been proved that early detection significantly improves the chances of curing this disease. Furthermore, in order to avoid the use of x-rays and provide a complement modality to mammography, we have developed a new volumetric technique for breast imaging in 3D for use in mass screening for the early detection of breast cancer. Our MRI research is

focused mainly on the development of rapid MRI imaging techniques. As rapid image acquisition is required for monitoring dynamic physiological changes, such as cardiac contraction and vascular flow/perfusion, we aim to provide imaging techniques that might serve as tools for cardiac diagnosis, and 3D analysis. We have also studied the effects that metallic stents might have on image formation. The image analysis research program has led to the development of an automatic method for the analysis of intravascular ultrasonic (IVUS) images. And we are also involved in an ongoing research, in collaboration with Tel-Hashomer Medical Center, for the development of an automated analysis of the Multiple Sclerosis (MS) lesion burden.

Selected publications:

### **Refereed Papers in Professional Journals**

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