

VIVEK WALIMBE, PhD

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<http://www.vivekwalimbe.com>**Objective**

To work in a challenging environment utilizing my experience, knowledge and skills to produce effective results.

Highlights**Scientific Specialization**

- Strong background in image and signal processing (especially biomedical applications), computer graphics, and instrumentation and control systems.
- Extensive experience in development of low- to high-end medical image processing algorithms for wide range of clinical applications; proven track record of working with multimodality images including real-time 3D ultrasound, CT, MR, PET, SPECT.
- Formal training in human physiology, specialization in cardiovascular sciences.

General

- Experience in leading successful global cross-functional project teams in an industry-leading diagnostic imaging business.
- Experience in independent handling of academic/research and commercial/industrial projects (conceptualization, proposal presentation and successful implementation)
- Experience in writing successful business proposals, technical grant proposals and research proposals for IRB approval.
- Proven leadership qualities; excellent written and verbal communication skills, logical and critical thinking, analytical ability, problem solving skills and programming ability.

Education**Ph.D.****2001 - 2006****Major: Biomedical Engineering***GPA: 3.8/4*

The Ohio State University/ The Cleveland Clinic, USA

Research Advisors: Prof. Raj Shekhar (University of Maryland) & Prof. Cynthia Roberts (The Ohio State University)

*Dissertation Title: "Interactive, quantitative 3D stress echocardiography and myocardial perfusion SPECT for improved diagnosis of coronary artery disease"***Bachelor of Engineering****1997 – 2001****Major: Instrumentation Engineering***Graduated with Distinction*

Government College of Engineering, University of Pune, India

Awards/Honors**"Top Talent" – Highest Possible Performance Rating (2007)**, Global Diagnostic X-Ray Engineering, GE Healthcare**Management Award for Image Quality Leadership (2007)**, Global Diagnostic X-Ray Engineering, GE Healthcare**Innovator Award (2006)**, The Cleveland Clinic**Phi-Kappa-Phi Honor Society (2006)**, The Ohio State University**Cum Laude Poster Award (2006)**, SPIE Medical Imaging Conference**Predocorial Fellowship (2004-06)**, American Heart Association**University Fellowship (2002)**, The Ohio State University**Best Undergraduate Project (2001)**, Instrumentation Engineering, Government College of Engineering, Pune, India**Top 10 Rank (2000)**, Instrumentation Engineering, University of Pune, India**State Talent Search Scholarship (1994)**, Government of Maharashtra, India**Professional Membership**

Member, IEEE – The Institute of Electrical and Electronics Engineers

Member, EMBS – IEEE Engineering in Medicine and Biology Society

Work Experience

- Advanced Imaging Engineer** **Duration:** 08/2006 – Current
Global Diagnostic X-Ray Engineering, GE Healthcare, Waukesha, WI, USA
- Graduate Research Assistant** **Duration:** 09/2002 – 08/2006
Biomedical Engineering Center, The Ohio State University, Columbus, OH, USA
Lerner Research Institute, The Cleveland Clinic, Cleveland, OH, USA
- Technical Consultancy** **Duration:** 09/2004 – 08/2006
Provided assistance for a range of image/signal processing tasks for various projects undertaken by clinical staff at the Cleveland Clinic and other institutes.

Other Ongoing Experience

- Reviewer**, IEEE Transactions on Ultrasonics, Ferroelectrics, & Frequency Control
Reviewer, Medical Science Monitors

Current Work Responsibilities

- Demonstrate feasibility and develop intellectual property related to **imaging algorithms for advanced applications** for radiography product lines, including GE's Definium 8000, Precision 500D and future product lines.
- Collaborate with global cross-functional teams to specify image chain design and implement solutions during **transition of advanced concepts to new-product introduction programs** in X-ray engineering.
- Collaborate with regulatory personnel for **510(K) & PMA submissions**; collaborate with global product management teams for **marketing of radiography products**.
- Provide **customer support** for radiography product line through delivery of solutions for global Level 4 quality escalations.

Important Past Projects

- Development of a fully automatic algorithm for **myocardial segmentation in real-time 3D echocardiography** (patent pending).
- Development of a novel software package of fully automatic image analysis tools for **interactive, quantitative real-time 3D stress echocardiography** (patent pending).
- Automatic **elastic registration of whole-body PET and CT images** from separate and combined scanners (patent pending).
- **Auscultation Assistant**: Design of software package for automatic wavelet-based analysis of phonocardiographic signals for diagnosing murmur-producing heart ailments (undergraduate degree project).

Skills

- Operating Systems** – Windows, UNIX, LINUX
Programming – C/C++/VC++, OpenGL, nVidia CUDA programming, OpenInventor, CG, MATLAB, HTML/XML
Other software packages – SAS, MINITAB, MS Office
Languages – English (fluent), Marathi & Hindi (native languages), German (beginner)

Formal Training/ Coursework

- Digital Image Processing, Medical Imaging, Computer Vision
Introduction to Computer Graphics, Introduction to 3D Image Generation
Random Signal Analysis, Random Processes and Applications
Biomedical Instrumentation, Transducers I-II, Control System Components I-II
Mathematical Principles in Science I-II, Design & Analysis of Experiments
- Organ System Physiology I-II, Comparative Cardiovascular Physiology
Advanced Comparative Electrocardiography

Patent Applications

- R. Shekhar, **V. Walimbe**, "Techniques for 3-D Elastic Spatial Registration of Multiple Modes of Measuring a Body," 2006.
- R. Shekhar, V. Zagrodsky, **V. Walimbe**, "Segmentation of Regions in Measurements of a Body based on a Deformable Model," 2006.
- R. Shekhar, **V. Walimbe**, "Quantitative, Real-Time 4D Stress Echo Analysis," 2007.

Successful Grant Proposals**Funding Agency:** The American Heart Association**Award:** Predoctoral Fellowship/Portfolio (AHA #: 0415141B)**Role:** Principal Investigator**Duration:** 07/2004 – 06/2006**Registration and Quantitative Analysis of 3D Echocardiography & SPECT for Improved Diagnosis of Coronary Artery Disease**

Specific aims: (1) To develop techniques for automatic multimodality fusion of RT3D echo and cardiac SPECT images, (2) to develop algorithms for automatic quantitative analysis of myocardial function and perfusion from fused multimodality images, and (3) to evaluate the effectiveness of the image registration and quantitative analysis techniques for diagnosis of ischemic heart disease.

Selected Publications (from about 15 total journal publications, abstracts, conference proceedings, etc.)**Journals**

- **V. Walimbe**, O. Lalude, M. Garcia, R. Shekhar, “Quantitative Real-time 3-Dimensional Stress Echocardiography: A Preliminary Investigation of Feasibility and Effectiveness,” *Journal of the American Society of Echocardiography*, 20(1):13-22, 2007.
- **V. Walimbe**, R. Shekhar, “Automatic elastic image registration by interpolation of 3D rotations and translations from discrete rigid-body transformations,” *Medical Image Analysis*, 10: 899-914, 2006.
- R. Shekhar, **V. Walimbe**, S. Raja, V. Zagrodsky, M. Kanvinde, G. Wu, B. Bybel, “Automated Three-Dimensional Elastic Registration of Whole-Body PET and CT from Separate or Combined Scanners,” *Journal of Nuclear Medicine*, 46(9):1488-96, 2005. **Paper featured exclusively on the cover page of volume #46(9) of the journal.**
- V. Zagrodsky, **V. Walimbe**, C.R. Castro-Pareja, J. Qin, J. M. Song, R. Shekhar, “Registration-assisted segmentation of real-time 3D echocardiographic data using deformable models,” *IEEE Transactions on Medical Imaging*, 24(9):1089-99, 2005.
- **V. Walimbe**, V. Zagrodsky, S. Raja, W.A. Jaber, F.P. DiFilippo, M.J. Garcia, R.C. Brunken, J. D. Thomas, R. Shekhar "Mutual information-based multimodality registration of cardiac ultrasound and SPECT images: A Preliminary Investigation," *International Journal of Cardiovascular Imaging*, 19:483-94, 2003.

Conference Proceedings/Abstracts/Presentations

- **V Walimbe**, O Dandekar, F Mahmoud, R Shekhar, “Automated 3D Elastic Registration for Improving Tumor Localization in Whole-body PET-CT from Combined Scanner,” *Proceedings of the IEEE Engineering Medicine and Biology Society*, 2006.
- **V. Walimbe**, V. Zagrodsky, R. Shekhar, “Fully automatic segmentation of left ventricular myocardium in real-time three-dimensional echocardiography”, *Proceedings of SPIE (Medical Imaging 2006, San Diego, California, USA)*, 2006. (**Cum Laude Poster**)
- **V. Walimbe**, V. Zagrodsky, S. Raja, B. Bybel, M. Kanvinde, R. Shekhar, “Elastic registration of three-dimensional whole body CT and PET images by quaternion-based interpolation of multiple piecewise linear rigid-body registrations”, *Proceedings of SPIE (Medical Imaging 2004, San Diego, California, USA)*, 2004.

Community ServiceMentoring as a BIG BROTHER for **Big Brothers Big Sisters of Metro Milwaukee****Other Activities****Rowing** – Member, Maharashtra State team at Indian National Rowing Championships (2001); Best Coxed Four Award, Govt. College of Engineering, Pune, India (2001)**Senior Member**, Organizing Committee for annual inter-collegiate techno-cultural festival “INSTRU FIESTA” at Govt. College of Engineering, Pune, India (2000,2001).**Work**

Currently authorized to work in the United States on H1B visa

Authorization