

RESUME
Of
MAHNAZ ETEHAD TAVAKOL

Researcher at:

Medical Image and Signal Processing Research Center, Isfahan University
of Medical Sciences,
Tel: +98-311-6691224

PhD Thesis Title:

ASYMMETRY AND NONLINEAR ANALYSIS OF BREAST
THERMOGRAMS TO ESTABLISH POSSIBLE DIFFERENCES BETWEEN
MALIGNANT AND BENIGN PATTERNS

Education:

- 1) PhD, Electrical Engineering, Isfahan University of Technology, 2006-2010
- 2) PhD student, Electrical Engineering, University of Texas at Arlington, 2005-2006
- 3) MS in applied mathematics, Purdue University West Lafayette Indiana, 1989
- 4) BS in Electrical Engineering, Purdue University West Lafayette, Indiana, 1987

Publications:

Journal papers:

- EtehadTavakol, M., Sadri, S., and Ng, E. Y. K., Application of K- and Fuzzy c-Means for Color Segmentation of Thermal Infrared Breast Images, Journal of Medical Systems, Volume 34, Issue 1 (February 2010), Pages: 35 - 42
- MahnazEtehadTavakol, Caro Lucas, Saeed Sadri and E.Y. K. Ng, "Analysis of Breast Thermography Using Fractal Dimension to Establish Possible Difference between Malignant and Benign Patterns", Journal of Healthcare

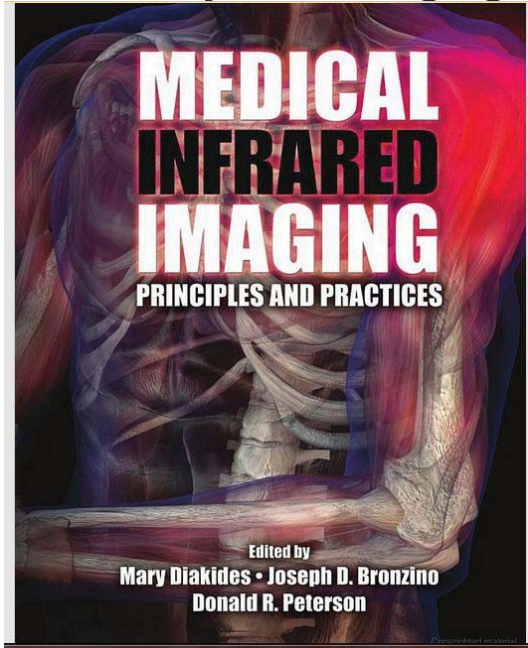
Engineering· Multi-Science Publishing, UK, Vol. 1, No. 1, (2010), Pp. 27 -- 43. (ISSN 2040 2295)

- M. EtehadTavakol, E.Y. K. Ng, Caro Lucas , S. Sadri, N. Gheissari , " Estimating the Mutual Information between Bilateral Breast in Thermograms Using Nonparametric Windows“, Journal of Medical Systems,35(5) ; 959-967(2011)
- M. EtehadTavakol,, Caro Lucas , S. Sadri, M. Ataei, E.Y. K. Ng , " Nonlinear Analysis using Lyapunov Exponents in Breast Thermograms to Identify Abnormal Lesions“,Infrared Physics & Technology, Elsevier , 55 (2012) 345– 352
- MAHNAZ ETEHADTAVAKOL, EDDIE Y. K. NG, BREAST THERMOGRAPHY AS A POTENTIAL NON-CONTACT METHOD IN THE EARLY DETECTION OF CANCER: A REVIEW, Journal of Mechanics in Medicine and Biology, Vol. 13, No. 2 (2013) 1330001 (20 pages), World Scientific Publishing Company, DOI: 10.1142/S0219519413300019
- MahnazEtehadtavakol, VinodChandran, E.Y.K.Ng, RahelehKafieh, "Breast Cancer Detection from Thermal Images using Bispectral Invariant Features", International Journal of Thermal Sciences, Elsevier,69 (2013) 21- 36
- MahnazEtehadtavakol, E.Y. K. Ng, VinodChandran, HossienRabbani, "Separable and Non-separable Discrete Wavelet Transform based Texture Features and Image Classification of Breast Thermograms" Infrared Physics & Technology, Elsevier
- Nasser SamadzadehAghdam, MortezaMoradiAmin,MahnazEtehadTavakol, E.Y.K.Ng, “Designing and Comparing Different Color Map Algorithms for Pseudo-coloring Breast Thermograms”,Journal of Medical Imaging and Health Informatics
- M.Etehadtavakol, E.Y.K. Ng, N. Gheissari, “Using Shape Contexts Method for Registration of Contra lateral Breasts in Thermal Images”, *World Journal of Clinical Oncology*
- N.Golestani, M. EtehadTavakol, E.Y.K. Ng, “LEVEL SET METHOD FOR SEGMENTATION OF INFRARED BREAST THERMOGRAMS”, EXCLI Journal 2014;13:241-251

Book Chapters:

- Book Title:

Medical infrared imaging : principles and practices



Edited by Mary Diakides, Joseph D. Bronzino, Donald R. Peterson.

Boca Raton, FL CRC Press/Taylor & Francis, 2013

Contribution in chapters

- 1) M. Etehadtavakol, Ng, E.Y.K., Caro Lucas, and S. Sadri, “Fuzzy C Means Segmentation and Fractal Analysis of the Benign and Malignant Breast Thermograms”, pp. 16-1 – 16-20, **Chp. 16.**
- 2) M. Etehadtavakol, Ng, E.Y.K., Caro Lucas, S. Sadri, and N. Gheissari, “Application of Nonparametric Windows in Estimating the Mutual Information between Bilateral Breasts in Thermograms”, pp. 14-1 – 14-14, **Chp. 14.**

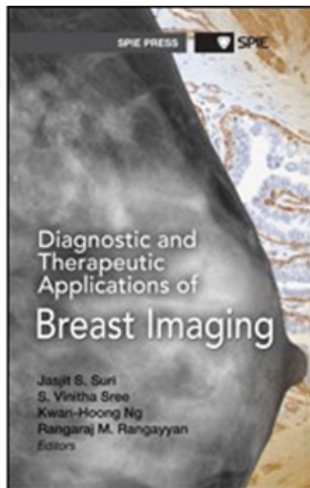
Available in following sites

1. <http://www.amazon.com/Medical-Infrared-Imaging-Principles-Practices/dp/143987249X>

2. books.google.com/books?isbn=143987249X

3. <http://www.thefreelibrary.com/Medical+infrared+imaging%3B+principles+and+practices.-a0324601179>

- Book Title:



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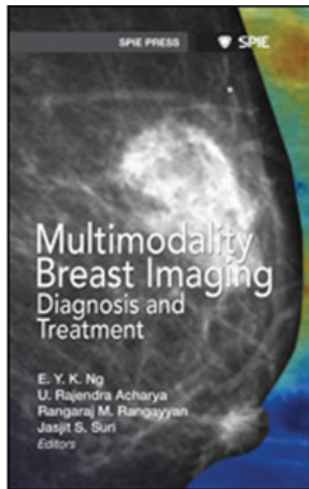
Contribution in chapter (11);

1) Color Segmentation and Fractal analysis of Breast Thermograms
MahnazEtehadTavakol, E.Y. K. Ng, Caro Lucas, Saeed Sadri

1. http://spie.org/x648.html?product_id=899757

2. http://spiedigitallibrary.org/ebooks/spie/press_monographs/pm211

- Book title:



SPIE PRESS BOOK

Multimodality Breast Imaging: Diagnosis and Treatment

Editor(s): E. Y. K. Ng; U. Rajendra Acharya; Rangaraj M. Rangayyan; Jasjit S. Suri

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Contribution in chapter;

- 1) Abnormal Lesions Detection from Breast Thermal Images using Lyapunov Exponents, M. EtehadTavakol, E.Y.K. Ng, C. Lucas, M. Ataei,

Teaching Experiences:

- 1) lecturer, Electrical Engineering, Azad university, 1376-1384
- 2) lecturer, Math department, Isfahan University of Technology, 1370-1378
- 3) graduate assistant and graduate instructor, Purdue university, Aug 1988 – Dec 1989
- 4) lecturer, Department of Advanced Medical Technology, Isfahan University of Medical Sciences, Graduate course: Advanced medical imaging, spring 2013 & fall 2013

Research & Work Experience:

- 1) Research project : Feature extraction by higher order spectral of two bilateral breast thermograms, in Medical Image and Signal Processing Research Center, Isfahan University of Medical Sciences
- 2) Research project : Comparison of Separable and Nonseparable Discrete Wavelet Transform to Extract first and Second Order Statistical Features from Contra lateral Pectoral Regions In Breast Thermograms to Detect Abnormalities, in Medical Image and Signal Processing Research Center, Isfahan University of Medical

Sciences

- 3) Research project: Breast thermograms segmentation by level set method, in Medical Image and Signal Processing Research Center, Isfahan University of Medical Sciences
- 4) Research project: Collecting Nailfold Capillaroscopic Database of Iranian Autoimmune Patients
- 5) Breast Infrared Imaging in SeyedoShohada hospital, Isfahan, Iran, in two projects
- 6) Breast Thermography Workshop, 17th Iranian Conference on Biomedical Engineering Isfahan University of Medical Sciences, Nov. 2010

Associate Editor of :

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