

# Gopal Karemore

Synarc Labs  
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**DOB:** 24th Dec 1982

**University website:** <http://research.ku.dk/search/profil/publikationsliste/?personid=342429>

**Personal website:** <http://WWW.GOPALRK.COM>

## OBJECTIVE

Intend to build career with leading corporate of hi-tech environment with committed and dedicated people, which will help me to explore myself fully and realize my potential. Willing to work as a key player in challenging and creative environment.

## EDUCATION QUALIFICATION

- (BE) Bachelor of Electronics Engineering from Pune University, India in 2005
- (MS) Master of Science in Medical Software from Manipal University, India in 2007
- (Phd) Currently Pursuing Phd in Dept. of Comp Science at University of Copenhagen, Denmark.

## PROGRAMMING SKILLS

- Programming languages: Matlab, Visual C++, ITK, VTK, ImageJ
- Operating Systems : Windows 2000 Server Family, XP, Linux

## INDUSTRY EXPOSURE

- (2011) Invited Phd scholar at *University of Pennsylvania*, Radiology Dept. worked on developing imaging biomarker (eg. structure & diffusion tensor) for Estrogen receptor specific populations in Breast Imaging.
- (2010) Phd intern at *Siemens Corporate Research*, Princeton, USA worked on fast automatic landmark detection in CT-topographs.
- (2008-2011) currently working as a Phd research scholar with an interest in Breast Cancer risk assessment using shape and texture of mammograms at University of Copenhagen in collaboration with *Synarc Imaging Technology & Nordic Bioscience Imaging A\S*, Denmark.
- (2007) Invited Scholar at The Department of Bioinformatics, *The Fraunhofer Institute for Algorithms and Scientific Computing*, Germany. Worked on shape based image segmentation in application to Chemical Structure Reconstruction CSR.

- (2007) Research Consultant in Imaging Labs, **GE Global Research**, John F Welch Technology Center , Bangalore, India worked on CT Perfusion imaging for detection of Ischemic Stroke (Segmentation of WT,GT and CSF to evaluate Penumbra and Infarct region),vessel partitioning brain tissue labeling and non rigid registration for atlas based segmentation.
- (2006-07) Master Thesis on Early Detection of Breast Cancer using Ultrasound at **Philips Medical System**, Bangalore, India.
- (2005-2007) Worked as a junior research scientist on Female cancer project at **Manipal University** worked on Improved Techniques for the Classification of Cancerous Data collected by optical pathology using HPLC-LIF
- (2003-04) Bachelor thesis on Intelligent Unmanned Battle Tank (Real Time Pattern Recognition and Feature Extraction): This project has got Sponsorship from (**V.R.D.E., Ministry of Defense Govt. of India**) in 2005.
- (2005-06) Application development on SIMPUTER using GTK library with Linux Kernel for **PHILIPS BOP** for Oral Cancer awareness program in 2005-06.

## PATENT

*Inventors:* Jakob Raundahl, Marco Loog, Mads Nielsen, Sami S. Brandt, **Gopal R. Karemore**  
*USPTO:* 20110013819, **BREAST TISSUE DENSITY MEASURE** - *method of processing mammogram image to derive a value for a parameter useful in detecting differences in breast.*

## SCIENTIFIC PUBLICATIONS

### 2011

- S. Brandt, **Gopal Karemore**, Karssemeijer N, Mads, Anatomically oriented breast coordinate system for mammogram analysis, *Trans in Medical Imaging*, May 23, 2011, In Press
- **Gopal Karemore**, Brad Keller, Huen Oh, Julia Tchou, Emily Conant, Despina Kontos,Computer-Aided Parenchymal Texture Analysis in Digital Mammograms: The Potential for Estrogen-Receptor Specific Breast Cancer Risk Estimation, *RSNA-2011-Accepted-Trainee prize nominee*
- **Gopal Karemore**,S Brandt, N Karssemeijer,M Nielsen, Discovery of Mammogram Regions That Show Early Changes Due to the Development of Breast Cancer: A Preliminary Work, *RSNA-2011-Accepted*
- **Gopal Karemore**, S. Brandt, M. Nielsen, Automatic breast cancer risk assessment from digital Mammograms, *European Congress of radiology-2011*, Vienna, Austria-in press
- **Gopal Karemore**, S. Brandt, Karssemeijer, N & Nielsen, ‘Anatomic Breast Coordinate System for Mammogram Analysis’ *5th International Workshop on Breast Densitometry and Breast Cancer Risk Assessment-2011* ,San Francisco, United States. In Press

## 2010

- Nielsen, Mads, **Gopal Karemore**, Loog M, Raundahl J, Karssemeijer N, Otten JD, Karsdal MA, Vachon CM, Christiansen C., A novel and automatic mammographic texture resemblance marker is an independent risk factor for breast cancer, *Cancer Epidemiology*. 2010 Dec 9, In Press
- Nielsen, Mads; Pettersen, Paola; Alexandersen, P;**Gopal Karemore**; Raundahl, Jakob; Loog, Marco; Christiansen, Claus . Breast density changes associated with postmenopausal hormone replacement therapy: post hoc radiologist- and computer-based analyses. *Menopause Journal* 2010, Volume 17 - Issue 4 - pp 772-77
- Chen, Chen ; Chernoff, Konstantin ; **Gopal Karemore** ; Lo, Pechin Chien Pau ; Nielsen, Mads ; Lauze, Francois Bernard. Classification in Medical Image Analysis Using Adaptive Metric KNN. *SPIE Medical Imaging* 2010, No. 2010, February 18, 2010,USA
- **Gopal Karemore**, M. Nielsen, An Automatic Framework for Assessing Breast Cancer Risk Due to Various Hormone Replacement Therapies (HRT): A novel CAD application in Digital Mammography. *RSNA 2010*, Chicago, USA.
- **Gopal Karemore** et al, Relevance of Echo-structure and texture features: An application in ultrasound breast tumor classification, *22nd European Congress on medical ultrasound* 2010, Denmark
- **Gopal Karemore** et al , Anisotropic diffusion tensor applied to temporal mammograms: an application to breast cancer risk assessment, *Proc IEEE Eng in Medicine and Biology -2010: 3178-81*, Argentina.
- **Gopal Karemore** et al , Classification of protein profiles using fuzzy clustering techniques: An application in early diagnosis of oral, cervical and ovarian cancer, *Proc IEEE Eng in Medicine and Biology -2010: 6361-4* Argentina.

## 2009

- Nielsen, Mads; Raundahl, Jakob; Pettersen, Paola; Loog, Marco;**Gopal Karemore**; Karsdal, Morten; Christiansen, Claus , Low dose transdermal estradiol induces breast density and heterogeneity changes comparable to those of raloxifene, *Menopause Journal*, August 2009 Vol 16(4)- 2009, USA
- **Gopal Karemore** et al, Fractal Dimension and Lacunarity analysis of mammographic patterns in assessing breast cancer risk related to HRT treated population: A Longitudinal and Cross-sectional study , *Progress in biomedical optics and imaging , SPIE Proceedings*, 2009, Vol 10 (2) 2009, USA.
- **Gopal Karemore** et al, Protein profile study of clinical samples using Laser Induced Fluorescence as the detection method: Case of malignant and normal cervical tissues, *Advanced Biomedical and Clinical Diagnostic Systems VII, SPIE proceedings*, Volume 7169 (2009), pp. 71691-8 , USA.
- **Gopal Karemore** et al , Serum Protein Profile Study of Clinical Samples Using High Performance Liquid Chromatography-Laser Induced Fluorescence: Case of Cervical and Oral

Cancers , *Imaging, Manipulation, and Analysis of Biomolecules, Cells, and Tissues VII* , SPIE proceedings, Vol. 7182, 71820J (2009),USA.

- **Gopal Karemore** et al , Automatic Consistent Registration Framework for temporal pairs of mamogram: In application to breast cancer risk assessment due to HRT (Hormone Replacement Therapy), International Journal of Computer Assisted Radiology and Surgery, *In proceedings of CARS 2009*, Volume 4, Supplement 1, June, 2009 , Berlin, Germany.
- **Gopal Karemore** et al, Yet Another Mammography Measure to Evaluate Breast Cancer Risk, 4th International workshop on Breast Densitometry and the 1st International Workshop on Mammography-based Assessment of Breast Cancer Risk, 2009, USA.
- **Gopal Karemore** et al , An Automatic Framework for Assessing Breast Cancer Risk Due to Various Hormone Replacement Therapies (HRT), 4th International workshop on Breast Densitometry and the 1st International Workshop on Mammography-based Assessment of Breast Cancer Risk, 2009, USA.
- **Gopal Karemore** et al, Fractal Analysis: In Application to Breast Cancer Risk assessment, Summer school on manifold learning in image and signal analysis, August 17 - 21, 2009, Ven, Sweden.

#### 2008

- **Gopal Karemore** et al, Classification of Laser Induced Fluorescence Spectra from Normal and Malignant bladder tissues using Learning Vector Quantization Neural Network in Bladder Cancer Diagnosis , 8th IEEE International Conference on Bioinformatics and Bioengineering, BIBE 2008, Athens, Greece.

#### 2007

- **Gopal Karemore**, et al, Markov Random Field in Image Segmentation, *International Conference on Stochastic Process and Application*, July 16, 2007, Indian Institute of Science (IISc), Bangalore, India.
- **Gopal Karemore** et al , Analysis of protein profiles using fuzzy clustering methods: Case of malignant and normal cervical tissues , *International Symposium on Frontiers in Functional Genomics*, IACR Conference, Ahmadabad, India
- **Gopal Karemore** et al, Fuzzy clustering of Protein Profiles Recorded using High Performance Liquid Chromatography -Laser Induced Fluorescence (HPLC-LIF) Technique, *First Asian Spectroscopy conference & Asian Biospectroscopy Conference*, ASC07, 29th -2nd Feb-2007, TH-30, pg 230, Indian Institute of Science (IISc), Bangalore, India.

2006

- **Gopal Karemore** et al , Serum Protein Profile Analysis using Fuzzy clustering Technique with Sammon Visualization, *International Satellite meeting on Computational Insights into Biological Systems*, CIBS06,pg 156, Indian Institute of Science (IISc), Bangalore, India.
- **Gopal Karemore** et al, Boundary Extraction of breast Masses on Ultrasound by Gibbs Sampled Hidden Markov Model, *11th National Conference on Breast Cancer*, Breastcon-2007, Manipal, India

### SCHOLARSHIPS & MEMBERSHIPS

- Invited scholar at Radiology Dept., University of Pennsylvania, USA.
- Phd scholarship at Image group, Dept. of computer science, **University of Copenhagen**, Denmark.
- Phd Scholarship at **Medical Image Analysis Group**, (Simon Fraser Univ. in collaboration with British Columbia University, Canada).
- Phd Scholarship at **MINOS group**, University Rovira Vergili, Spain.
- Member Indian Association of Cancer Research **IACR**
- Member European Association of Cancer Research **EACR**.
- Member Radiological Society of North America **RSNA**.

### INDUSTRIAL VISIT & COLLABORATIONS

- Synarch Labs, San Francisco, USA
- Nijmegen Medical Center, The Netherlands
- Univ. of Penn, Radiology Dept., PL, USA.
- Center for Advanced Imaging Research, Mayo Clinic, Rochester, MN (USA).
- Epidemiology Dept- Mayo Clinic, USA.
- Dept of Applied Mathematics, University of California, Berkeley, USA.
- Dept. of Computer Science, UC-Berkeley, USA.
- Siemens Corporate Research, Medical Imaging Labs, Princeton, USA.

### Teaching

Master Level: “Medical Image Analysis-2009 and 2010” at DIKU, Copenhagen Univ.

Master Level: “Signal and Image Processing- 2010” at DIKU, Copenhagen Univ.

## REFERENCES

**Prof. Dr. Mads Nielsen, PhD**

Head of Image Group  
Dept. of Computer science  
University of Copenhagen  
Denmark  
Email: Available on Request

**Sami Brandt, PhD**

Adjunct professor  
Machine Vision Group at University of Oulu, Finland.  
Email: Available on Request

**Despina Kontos, PhD**

Research Ass. Professor  
Radiology Dept., University of Pennsylvania, USA  
Email: Available on Request

**Prof. Dr. Santhosh C., PhD**

Assoc. Professor/HOD  
The Centre for Atomic and Molecular Physics  
Manipal University  
Manipal-576104, India  
Email: Available on Request

**David Liu, PhD**

Scientist, Siemens Corporate Research  
Princeton, USA.

**Yogish Mallya, MS**

Lead Scientist at Philips Healthcare  
Medical Imaging Dept., Bangalore, India  
Email: Available on Request

**Prof. Dr. Martin Hofmann-Apitius, PhD**

Director  
Bioinformatics Dept.  
The Fraunhofer Institute for algorithms & scientific computing  
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I hereby declare that the information furnished above is true to the best of my knowledge.

Place: Copenhagen.

Date: June 27, 2011 (Gopal Karemore)