# Prasad Sudhakar


**Contact Information**

Research Scientist
Medical Image Analysis Lab
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**Research Interests**

Structured models for ill-posed inverse problems, machine learning methods in medical data processing, theory of deep learning, convex optimization

**Education**

**INRIA Rennes - Bretagne Atlantique**, Rennes, France

Ph.D. in Signal Processing, February 2011

- Thesis Topic: "Sparse Models and Convex Optimization for Convolutive Blind Source Separation"
- Advisor: Rémi Gribonval

**Indian Institute of Science**, Bangalore, India
*Department of Electrical Engineering*

M.Sc.(Engg.), Systems Science and Signal Processing, February, 2007

**Bangalore University**, India

B.E., Computer Science and Engineering, September, 2000

**Honors and Awards**

INRIA CORDIS - French government scholarship for doctoral studies, 2007-2011

Student travel grant from IBM India Research to participate in ICME 1993, in Toronto, Canada

**Academic Experience**

**Univérsité catholique de Louvain**, Louvain-la-Neuve, Belgium

*Postdoctoral research assistant* **September, 2011 - May, 2014**

Included teaching the following courses, along with Prof. Benoit Macq

- Information Theory and Coding, Spring 2013, 2014
- Digital Signal Processing, Spring 2013

**Indian Institute of Science**, Bangalore, India

*Visiting researcher* **June, 2013 - August, 2013 and January, 2014**

Included teaching the following course, along with Prof. K. R. Ramakrishnan

- Selected Topics in Image Processing, Fall 2013

**Ecole Polytechnique Federale de Lausanne**, Lausanne, Switzerland

*Visiting researcher* **January 2011**

**IIT Bombay, Electrical Engineering department**, Mumbai, India

*Research assistant* **July 2003 - December 2003**

**Publications**

1. P. Sudhakar, L. Jacques, X. Dubois, P. Antoine and L. Joannes, Compressive imaging and characterization of sparse light deflection maps, SIAM Journal on Imaging Sciences, 8(3), 1824-1856, 2015.

2. A. Benichoux, P. Sudhakar, F. Bimbot and R. Gribonval, Well-posedness of the frequency permutation problem in sparse filter estimation with $\ell^p$ minimization, Applied and Computational Harmonic Analysis, 35(3), pp. 359-540, November 2013.

**Papers in preparation**

1. P. Sudhakar, R. Madhavan and S. E. Joel, A new group clustering method for fMRI data analysis.

2. P. Sudhakar and R. Gribonval, Double sparsity for estimating mixing filters in blind stereo source separation.

**Peer reviewed conference papers**

1. A paper on transfer learning of deep CNNs for medical imaging problems submitted to MICCAI 2016. (Title and full author list not mentioned due to obligation of anonymity with MICCAI)

2. A. Adiga, S. Mulleti, P.Sudhakar and C. S. Seelamantula, Two-Dimensional FRI Signal Reconstruction Using Blind Deconvolution, SampTA 2015.

3. P. Sudhakar and P. K. Ghosh, Recognition benefit of articulatory features from acoustic-to-articulatory inversion using sparse smoothing, Interspeech 2014, Singapore.

4. P. Sudhakar, L. Jacques and P. K. Ghosh, A sparse smoothing approach for Gaussian mixture model based acoustic-to-articulatory inversion, ICASSP 2014, Florence, Italy.

5. P. Sudhakar, L. Jacques, A. Gonzalez, X. Dubois, P. Antoine and L. Joannes, Compressive acquisition of sparse deflectometric maps, in SampTA 2013, Bremen, Germany.

6. P. Sudhakar, L. Jacques, X. Dubois, P. Antoine and L. Joannes, Compressive schlieren deflectometry, in Acoustics, Speech and Signal Processing, IEEE International Conference on (ICASSP 2013), Vancouver, Canada.

7. A. Benichoux, P. Sudhakar, F. Bimbot and R. Gribonval, Some uniqueness results in sparse convolutive source separation, in International Conference on Latent Variable Analysis and Source Separation, Mar 2012, Tel Aviv, Israel.

8. S. Arberet, P. Sudhakar and R. Gribonval, Wideband Doubly-Sparse Approach for MITO Sparse Filter Estimation, in Acoustics, Speech and Signal Processing, IEEE International Conference on (ICASSP 2011), May 2011.

9. P. Sudhakar, S. Arberet and R. Gribonval, Double Sparsity: Towards Blind Estimation of Multiple Channels, in Latent Variable Analysis and Signal Separation, 9th International Conference on (LVA/ICA2010), September 2010.

10. P. Sudhakar and R. Gribonval, A sparsity-based method to solve the permutation indeterminacy in frequency domain convolutive blind source separation, in ICA 2009, 8th International Conference on Independent Component Analysis and Signal Separation, March 2009.

11. S. Prasad and K. R. Ramakrishnan, On resampling detection and its application to detect image tampering, in IEEE International Conference on Multimedia and Expo (ICME 2006), July 2006.

**Peer reviewed conference posters**

1. P. Sudhakar, R. Madhavan, R. Mullick, E. T. Tan and S. Joel, Method to functionally parcellate the brain consistently across subjects, to appear in OHBM 2016, Geneva.

2. P. Sudhakar, R. Madhavan, R. Mullick, E. T. Tan and S. Joel,, Reproducibility of group spectral clustering of the sensorimotor cortex, to appear in OHBM 2016, Geneva.

## Peer reviewed workshop papers

1. S. Arberet, P. Sudhakar and R. Gribonval, Estimating multiple filters from stereo mixtures: a double sparsity approach, in SPARS11, Edinburgh, Scotland, June 27-30, 2011.

2. A. Benichoux, P. Sudhakar and R. Gribonval, Well-posedness of the frequency permutation problem in sparse filter estimation with $\ell^p$ minimization, in SPARS11, Edinburgh, Scotland, June 27-30, 2011.

3. P. Sudhakar and R. Gribonval, Sparse filter models for solving permutation indeterminacy in convolutive blind source separation, in SPARS09 - Signal Processing with Adaptive Sparse Structured Representations, April 2009.

## Professional Experience

**GE Global Research**, Bangalore, India
*Research Scientist* **October, 2014 - present**

**Satyam Computers**, Bangalore, India
*Systems Analyst* **October, 2006 - May, 2007**

**Inspiration Technologies**, Bangalore, India
*Consultant* **April, 2006 - July, 2006**

**Ittiam Systems**, Bangalore, India
*Engineer, Video and Image Processing* **March, 2001 - September, 2002**

**Robert Bosch India Limited**, Bangalore, India
*Junior Software Engineer* **October, 2000 - March, 2001**

## Professional Activities

**Member - Local organisation/Technical committee**
- LVA/ICA 2010 (http://lva2010.inria.fr)
- SPARS09 (http://spars09.inria.fr)
- iTWIST14 (https://sites.google.com/site/itwist14/home)

**Reviewer**
- Elsevier Signal Processing
- Springer Signal, Image and Video Processing
- IEEE TCSVT
- IEEE ICASSP, ICIP, SampTA, SPCOM

**Session chair**
- SPIE Photonics Europe 2014 - Image Processing

## Computer Skills

- Languages: Matlab, Python.
- Operating Systems: Unix/Linux, Mac OS, Windows.