Sajan Goud Lingala

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RESEARCH STATEMENT:

Magnetic Resonance Imaging (MRI) acquisition and reconstruction design for rapid imaging: The overall goal of my research is to develop innovative sparse sampling and constrained reconstruction strategies that push the limits of achievable resolution, signal-to-noise, coverage in multi-dimensional MRI. This will enable the next generation of MRI technology which a) allows for efficient extraction of quantitative information (eg. quantification of blood-brain barrier leakage for tumor characterization, quantification of myocardial perfusion) b) allows for new scientific applications (eg. rapid real-time imaging of vocal tract dynamics for speech production), and c) also improves patient comfort and compliance during imaging (eg. enabling free breathing, more rapid examinations).

EMPLOYMENT

- **University of Iowa**, Iowa city, IA — June 2018 - current
  Assistant Professor of Biomedical Engineering and Radiology
- **Siemens Healthineers**, Princeton, NJ — Mar 2017 - May 2018
  Senior Research Scientist
  Area: Compressed sensing MRI product development
- **University of Southern California**, Los Angeles, CA — Jan 2014 - Feb 2017
  Postdoctoral Research Associate
  Magnetic Resonance Engineering Laboratory (mrel.usc.edu)
  Signal Analysis and Language Interpretation Laboratory (sail.usc.edu)
  Department of Electrical Engineering
  Viterbi School of Engineering

EDUCATION

- **The University of Iowa**, Iowa city, IA — 2008 -2013
  Ph.D., Biomedical Engineering
  Transferred from **University of Rochester** in Aug 2011
  GPA: 4.3/4.3
  Thesis: Novel adaptive reconstruction schemes for accelerated myocardial perfusion MRI
- **Indian Institute of Technology, Bombay**, Mumbai, India — 2006 - 2008
  M. Tech., Biomedical Engineering
  Cumulative Performance Index, CPI : 9.58/10
  Thesis: Signal and Image processing for MRI
- **Osmania University College of Engineering**, Hyderabad, India — 2002 - 2006
  B. E., Biomedical Engineering
  Percentage: 77.98
  Thesis: Design of a low cost ECG amplifier in a Central Monitoring Station

HONORS & AWARDS

- Junior Fellow of the International Society of Magnetic Resonance in Medicine (ISMRM)
  Recognition by the ISMRM society as an outstanding researcher at an early stage in the career, with an established and long-term commitment to ISMRM. May 2016
- Distinguished Reviewer, Magnetic Resonance in Medicine — May 2016, April 2017, June 2018

- ◇ University of Southern California (USC) provost's postdoctoral research grant recipient — Apr 2015
- ◇ Rex Montgomery best dissertation prize
  Best dissertation with highest clinical translational value across all disciplines, Univ. of Iowa — July 2015
- ◇ American Heart Association (AHA) predoctoral fellowship
  Award number: AHA12PRE11920052 — July 2012-Dec 2013
- ◇ Outstanding graduate student award, Iowa institute of Biomedical Imaging (IIBI),
  University of Iowa — April 2012
- ◇ ISMRM Magna Cum Laude merit awards (**4 first author, and 2 co-author**) — 2012,2014,2015,2017
- ◇ ISMRM Summa Cum Laude merit award (**2 co-authors**) — 2015, 2016
- ◇ Best student paper award in category of Bio-imaging and signal processing,
  IEEE-ICASSP conference (**co-author**) — April 2014
- ◇ Finalist, EMBC student paper award in category of Bio-imaging and signal processing,
  IEEE-EMBC conference, (**co-author**) — April 2014
- ◇ ISMRM educational stipend awards — 2011, 2012, 2013, 2016
- ◇ IEEE-ISBI travel awards funded by NSF — 2010, 2013
- ◇ Graduate student travel award, University of Rochester — 2010
- ◇ Nitish Thakor award for excellence in M.Tech Biomedical Engineering,
  Indian Institute of Technology Bombay — June 2008
- ◇ Best undergraduate thesis award, Biomedical Engineering, Osmania University — June 2006

Grants

- ◇ Data-driven models for whole heart free breathing first pass myocardial perfusion MRI
  University of Southern California, Los Angeles, California
  Postdoctoral Provost's grant, July 2015-May 2016 — $ 25,000
  Role: Principal Investigator
- ◇ High resolution systolic free breathing perfusion MRI of the whole heart
  American Heart Association (AHA) - Mid-West Affiliate
  Predoctoral Fellowship, July 2012 - Dec 2013 — $ 26,000 per year
  Grant number: AHA12PRE11920052
  Role: Principal Investigator

Professional Activities

- ◇ **Service**:
  - · Annual meeting program committee (AMPC) member, International Society of Magnetic Resonance in Medicine (ISMRM).
  - · Working committee member of ISMRM's MR-Hub, a forum directed towards open source reproducible software sharing.
- ◇ **Reviewer**:
- ◇ **Journals**:
  - · Scientific Reports, Nature
  - · Magnetic Resonance in Medicine
  - · IEEE Transactions on Medical Imaging
  - · Journal of Magnetic Resonance Imaging
  - · IEEE Transactions on Biomedical Engineering
  - · IEEE Transactions on Image Processing
  - · Medical Physics
  - · IEEE Signal Processing Letters
  - · IEEE Transactions on Computational Imaging
  - · Medical Engineering and Biological Computing
  - · PLOS ONE

- Magnetic Resonance Imaging

◇ **Conferences**:

- IEEE-International Conference on Acoustics, Speech, and Signal Processing (ICASSP) 2010
- IEEE-International Symposia on Biomedical Imaging (ISBI) 2011
- IEEE-International Conference on Image Processing (ICIP) 2013
- International Society for Magnetic Resonance in Medicine (ISMRM) 2015
- International Society for Magnetic Resonance in Medicine (ISMRM) 2016
- IEEE-International Symposia on Biomedical Imaging (ISBI) 2015
- IEEE-International Symposia on Biomedical Imaging (ISBI) 2016
- IEEE-International Symposia on Biomedical Imaging (ISBI) 2017

◇ **Membership**:

- International Society for Magnetic Resonance in Medicine (ISMRM)
- Institute of Electrical and Electronics Engineers (IEEE)
- Radiological Society of North America (RSNA)
- Institute of Electrical and Electronics Engineers Communications Society
- Society of Cardiovascular Magnetic Resonance (SCMR)
- American Heart Association (AHA)

Patents

1. **S.G. Lingala**, M. Jacob, C. Chefd'hotel, M. Nadar, L. Zhang, "Unifying Reconstruction and Motion Estimation in First Pass Cardiac Perfusion MR Imaging", *United States Patent Application number: 20120148128*, June 2012.

Publications

Book chapter

1. **S.G. Lingala**, M. Jacob, "Accelerated Dynamic MRI using adaptive signal models", (Book Chapter), *MRI: Physics, Image Reconstruction, and Analysis*, CRC Press 2015.

Journal (IF: Impact Factor)

In review/ Submitted articles

1. **S.G. Lingala**, Y. Zhu, Y. Guo, N. Nallapareddy, Y. Bliesner, M. Law, K.S. Nayak "Tracer Kinetic Models as Temporal Constraints during DCE-MRI" *arXiv.1707.07569*
   (in review) Medical Physics
2. A. Pineda, H. Miedema, **S.G. Lingala**, K.S. Nayak "Optimizing Constrained Reconstruction in Magnetic Resonance Imaging for signal detection" *(in review) Physics in Medicine and Biology*
3. Y. Lim, Y. Zhu, **S.G. Lingala**, D. Byrd, S. Narayanan, K.S. Nayak "3D Real time MRI of the vocal tract during natural speech" (in review) Magnetic Resonance in Medicine

Published/ in-press articles

1. Y. Lim, **S.G. Lingala**, S. Narayanan, K.S. Nayak "Dynamic off resonance correction for spiral real-time MRI of speech" *Magnetic Resonance in Medicine*, early view, May 2018. doi: 10.1002/mrm.2737379.
2. Y. Guo, **S.G. Lingala**, R.M. Lebel, Y. Zhu, K.S. Nayak, "Joint estimation of arterial input function and tracer kinetic parameters for under-sampled DCE-MRI", Magnetic Resonance in Medicine, in press.
3. J. Toger, T. Sorensen, K. Somandepalli, A. Toutios, **S.G. Lingala**, S. Narayanan, K.S. Nayak, "Test-retest repeatability of human speech biomarkers from static and real-time dynamic magnetic resonance imaging", Journal of Acoustical Society of America (JASA), 141, pp. 3323-3336, 2017

4. **S.G.Lingala**, Y. Zhu, Y. Lim, A. Toutios, Y. Ji, W-C. Lo, N. Seiberlich, S. Narayanan, K.S. Nayak, "Feasibility of spiral through-time GRAPPA for low latency accelerated real-time MRI of speech", *Magnetic Resonance in Medicine* (early view). (IF: 3.57).
5. Y. Guo, **S.G. Lingala**, Y. Zhu, R.M. Lebel,, K.S. Nayak, "Direct estimation of pharmacokinetic parameters in highly accelerated DCE-MRI", *Magnetic Resonance in Medicine*, early view, Nov 2016, doi: 10.1002/mrm.26540. (IF: 3.57).
6. X. Miao, **S.G. Lingala** Y. Guo, T. Jao, M. Usman, C. Prieto, K.S. Nayak, "Accelerated cardiac cine MRI using locally low rank and finite difference sparsity constraints" , 34(6), pp.707714, July 2016, *Magnetic Resonance Imaging*. (IF: 2.09).
7. Y. Guo, R.M Lebel, Y Zhu, **S.G. Lingala**, M.S Shiroishi, M. Law, K.S. Nayak, "High-resolution whole-brain DCE-MRI using constrained reconstruction: Prospective clinical evaluation in brain tumor patients", *Medical Physics*, 43, 2016, early view: doi: 10.1118/1.4944736.. (IF: 2.635).
8. **S.G. Lingala**, Y. Zhu, Y-C. Kim, A. Toutios, S. Narayanan, K.S. Nayak, "A fast and flexible MRI based system for dynamic study of vocal production", *Magnetic Resonance in Medicine* (early view, Jan 2016, doi: 10.1002/mrm.26090) (IF: 3.57).
9. Y.Q. Mohsin, **S.G. Lingala**, E. DiBella, M. Jacob, "Accelerated dynamic MRI using Patch Regularization for Implicit motion Compensation (PRICE)", *Magnetic Resonance in Medicine*, Apr 2016 (early view), doi: 10.1002/mrm.26215.(IF: 3.57).
10. Y. Zhu, Y. Guo, **S.G. Lingala**, R.M. Lebel, M. Law, K.S. Nayak, "GOCART: GoLden Angle CartesIan Encoded Randomization for time-resolved 3D MRI", *Magnetic Resonance Imaging*, 34(7):940-50, Sep 2016.(IF: 2.090).
11. S. Bhave, **S.G. Lingala**, J. Newell, S. Nagle, M. Jacob, "Blind Compressed Sensing Enables 3D Dynamic Free Breathing MR Imaging of the Respiratory Mechanics: A Feasibility Study", *Investigative Radiology*, **Special issue on Advances for Clinical Imaging involving Data Sparsity in MRI and CT**, 51(6):387-99, June 2016. (IF: 4.43).
12. **S.G. Lingala**, M. Miquel, B.P. Sutton, K.S. Nayak, "Recommendations for real time speech MRI", *Journal of Magnetic Resonance Imaging*, vol. 43 (1), pp: 28-44, Jan 2016. (IF: 3.21).
13. Y. Guo, **S.G. Lingala**, K.S. Nayak, "Constrained Reconstruction enables clinical Whole Brain DCE-MRI", *SPIE News Room*, SPIE News Room, doi: 10.1117/2.1201507.006016.
14. **S.G. Lingala**, Y. Zhu, Y-C. Kim, A. Toutios, S. Narayanan, K.S. Nayak, "Towards High Frame Rate Real-Time Magnetic Resonance Imaging of Speech Production", *SPIE News Room*, doi: 10.1117/2.1201505.005916.
15. S. Bhave, **S.G. Lingala**, C.P. Johnson, V.A. Magnotta, M. Jacob, "Accelerated whole-brain multi-parameter mapping using blind compressed sensing", *Magnetic Resonance in Medicine*, early view, doi: 10.1002/mrm.25722. (IF: 3.57).
16. **S.G. Lingala**, E. DiBella, M. Jacob, "Deformation corrected compressed sensing (DC-CS): a novel framework for accelerated dynamic MRI", *IEEE Transactions on Medical Imaging*, vol.34(1), pp. 72-85, Jan 2015. (IF: 3.39).
17. **S.G. Lingala**, E. DiBella, G. Adluru, C. McGann, M. Jacob, "Accelerated free breathing myocardial perfusion MRI using multi coil radial k-t SLR", *Physics in Medicine and Biology*, vol.58(20),pp.7309-7327, Sep 2013.(IF: 3.39).
18. **S.G. Lingala**, M. Jacob, "Blind compressive sensing dynamic MRI", *IEEE Transactions on Medical Imaging*, pp 1132-1145, vol.32(6), June 2013.(IF: 3.39).
19. Y. Hu, **S.G. Lingala**, M. Jacob, "A fast majorize-minimize algorithm for the recovery of sparse and low rank matrices, *IEEE Transactions on Image Processing*, vol.21 (2), pp.742-753, Feb 2012.(IF: 3.625).
20. **S.G. Lingala**, Y. Hu, E. DiBella, M. Jacob, "Accelerated dynamic MRI using sparsity and low-rank structure: k-t SLR", *IEEE Transactions on Medical Imaging, (Special issue on Compressive Biomedical Imaging)*, vol. 30 (5), pp. 1042-54, May 2011. (IF: 3.39).

Conference proceedings

1. Y. Bliesener, **S.G. Lingala**, J.P. Haldar, K.S. Nayak "Influence of whole-brainc DCE-MRI (k,t) sampling strategies on variance of pharmaco-kinetic parameter estimates" Proceedings of the 26th International Society of Magnetic Resonance in Medicine (ISMRM), 2018. (power-pitch presentation)
2. Y. Lim, Y. Zhu, **S.G. Lingala**, D. Byrd, S. Narayanan, K.S. Nayak "3D Real time MRI of vocal tract shaping" Proceedings of the 26th International Society of Magnetic Resonance in Medicine (ISMRM), 2018. (e-poster presentation)
3. **S.G. Lingala**, Y. Guo, N. Nallapareddy, Y. Bliesener, R. Marc Lebel, K.S. Nayak, "Nested tracer-kinetic model-based DCE-MRI reconstruction from under-sampled data", Proceedings of 25th International Society of Magnetic Resonance in Medicine (ISMRM) Scientific Sessions, 2017.
4. Y. Guo, **S.G. Lingala**, R. Marc Lebel, K.S. Nayak, "Joint estimation of arterial input function and tracer kinetic parameters from under-sampled data", Proceedings of 25th International Society of Magnetic Resonance in Medicine (ISMRM) Scientific Sessions, 2017. **Receipient of an ISMRM Magna Cum Laude award**
5. Y. Guo, **S.G. Lingala**, K.S. Nayak, "Reconstruction of DCE tracer kinetic parameters from under-sampled data with a flexible model consistency constraint", Proceedings of 25th International Society of Magnetic Resonance in Medicine (ISMRM) Scientific Sessions, 2017.

   Y. Bliesener, **S.G. Lingala**, J.P. Haldar, K.S. Nayak, "Comparison of (k,t) sampling schemes for DCE-MRI pharmaco-kinetic parameter estimation", Proceedings of 25th International Society of Magnetic Resonance in Medicine (ISMRM) Scientific Sessions, 2017.

   Y. Lim, **S.G. Lingala**, S. Narayanan, K.S. Nayak, "Correction of dynamic off-resonance in spiral 2D real-time MRI of speech", Proceedings of 25th International Society of Magnetic Resonance in Medicine (ISMRM) Scientific Sessions, 2017. (e-poster presentation)
6. J. Chen, **S.G. Lingala**, Y. Lim, A. Toutios, S. Narayanan, K.S. Nayak, "Task-based Optimization of Regularization in highly accelerated speech RT-MRI", Proceedings of 25th International Society of Magnetic Resonance in Medicine (ISMRM) Scientific Sessions, 2017.
7. R. Marc Lebel, Y. Guo, **S.G. Lingala**, R. Frayne, K.S. Nayak, "Highly accelerated DCE imaging with integrated T1 mapping", Proceedings of 25th International Society of Magnetic Resonance in Medicine (ISMRM) Scientific Sessions, 2017.
8. J. Toger, T. Sorensen, K. Somandepalli, A. Toutios, **S.G. Lingala**, S. Narayanan, K.S. Nayak, "Test-retest repeatability of human speech biomarkers from static and real-time dynamic magnetic resonance imaging", Proceedings of 25th International Society of Magnetic Resonance in Medicine (ISMRM) Scientific Sessions, 2017.
9. R.M. Lebel, N. Nallapareddy, **S.G. Lingala**, L.B. Andersen, R. Frayne, K.S. Nayak, "Automatic bolus detection for dynamic contrast enhanced imaging with sparse sampling", Society of Magnetic Resonance Angiography, p. 76, (2016).
10. **S.G. Lingala**, A. Toutios, J. Toger, Y. Lim, Y. Zhu, Y-C. Kim, C. Vaz, S. Narayanan, K.S. Nayak, "State-of-the-art MRI Protocol for Comprehensive Assessment of Vocal Tract Structure and Function", *Interspeech*, 2016.
11. A. Toutios, **S.G. Lingala**, C. Vaz, J. Kim, J. Esling, P. Keating, M. Gordon, D. Byrd, L. Goldstein, K. Nayak, S. Narayanan, "Illustrating the Production of the International Phonetic Alphabet Sounds using Fast Real-Time Magnetic Resonance Imaging", *Interspeech*, 2016.
12. J. Toger, Y. Lim, **S.G. Lingala**, S. Narayanan, K. Nayak, "Sensitivity of quantitative RT-MRI metrics of vocal tract dynamics to image reconstruction settings", *Interspeech*, 2016.
13. Y. Lim, **S.G. Lingala**, A. Toutios, S. Narayanan, K.S. Nayak, "Improved Depiction of Tissue Boundaries in Vocal Tract Real-time MRI using Automatic Off-resonance Correction", *Interspeech*, 2016.

14. A. Kammen, B. Mordkin, S. Cen, **S.G. Lingala**, M. Law, K.S. Nayak, "High resolution DCE-MRI permeability differentiates pseudoprogression from true disease progression in primary high-grade gliomas and metastatic melanoma", ASNR (American Society of Neuroradiology) 54th Annual meeting, Washington, May 2016.
15. A. Kammen, B. Morkin, S. Cen, **S.G. Lingala**, J. Arevalo-Perez, A. Thomas, K. Peck, T. Kaley, M. Law, R. Young, K.S. Nayak, "Multi-center study demonstrates dynamic contrast enhanced permeability MRI differentiates pseudo progression from true progression in primary high-grade gliomas and metastatic melanoma", ASNR (American Society of Neuroradiology) 54th Annual meeting, Washington, May 2016.
16. N. Nallapareddy, **S.G. Lingala**, Y. Guo, R.M. Lebel, B. Driscoll, R.J. Bosca, C. Coolens, M. Shiroishi, C. Chung, M. Law, K.S. Nayak, "Validation of highly accelerated DCE-MRI using a perfusion phantom", Annual meeting of Radiological Society of North America (RSNA), 2016.
17. **S.G. Lingala**, S. Bhave, Y. Zhu, K.S. Nayak, M. Jacob, "Temporal point spread function interpretation of low rank, dictionary learning models in dynamic MRI", Annual meeting of the International Society of the Magnetic Resonance in Medicine (ISMRM), May 2016 *(e-poster presentation)*.
18. **S.G. Lingala**, Y. Guo, Y. Zhu, R.M. Lebel, N. Nallapareddy, M. Law, K.S. Nayak, "Accelerated brain DCE-MRI using Contrast Agent Kinetic Models as Temporal Constraints", Annual meeting of the International Society of the Magnetic Resonance in Medicine (ISMRM), May 2016 *(oral presentation)*.
19. **S.G. Lingala**, Y. Zhu, Y. Ji, A. Toutios, W-C Lo, N. Seiberlich, S. Narayanan, K.S. Nayak, "Accelerating Real-time MRI of speech using spiral through-time GRAPPA", Annual meeting of the International Society of the Magnetic Resonance in Medicine (ISMRM), May 2016 *(e-poster presentation)*.
20. Y. Guo, **S.G. Lingala**, Y. Zhu, R.M. Lebel, K.S. Nayak, "Direct reconstruction of pharmacokinetic parameter maps in accelerated brain DCE-MRI using the extended Tofts model", Annual meeting of the International Society of the Magnetic Resonance in Medicine (ISMRM), May 2016 *(oral presentation)*.
21. S. Bhave, **S.G. Lingala**, J. Newell, S. Nagle, M. Jacob, "Clinical evaluation of the respiratory mechanics using accelerated 3D dynamic free breathing MRI reconstruction", IAnnual meeting of the International Society of the Magnetic Resonance in Medicine (ISMRM), May 2016 *(oral presentation)*. **Recepient of an ISMRM summa cum Laude merit award**
22. **S.G. Lingala**, Y. Mohsin, S. Bhave, X. Miao, Y. Guo, K.S. Nayak, E. DiBella, M. Jacob, "Data-driven adaptive reconstruction algorithms for accelerated dynamic MRI: an open source MATLAB package". ISMRM Workshop on Data Sampling and Image Reconstruction, Sedona, Arizona, Jan 2016.
23. **S.G. Lingala**, Y. Guo, Y. Zhu, N. Nallapareddy, R.M. Lebel, M. Law, K.S. Nayak. "Accelerated brain DCE-MRI using Contrast Agent Kinetic Models as Temporal Constraints". ISMRM Workshop on Data Sampling and Image Reconstruction, Sedona, Arizona, Jan 2016.
24. Y. Guo, Y. Zhu, **S.G. Lingala**, R.M. Lebel, K.S. Nayak, "Direct Reconstruction of Tracer-Kinetic Parameter Maps from Prospective Highly Under-sampled DCE-MRI". ISMRM Workshop on Data Sampling and Image Reconstruction, Sedona, Arizona, Jan 2016.
25. K.S. Nayak, Y. Guo, Y. Zhu, **S.G. Lingala**, R.M. Lebel, N. Nallapareddy, M.S. Shiroishi, M. Law. "Improved clinical DCE-MRI pipeline for high resolution, whole brain imaging: application to brain tumor patients." Radiological Society of North America (RSNA), 2015, Chicago.
26. **S.G. Lingala**, Y. Guo, Y. Zhu, S. Barnes, R.M. Lebel, K.S. Nayak, "Accelerated DCE MRI using constrained reconstruction based on pharmaco-kinetic model dictionaries", *International Society for Magnetic Resonance in Medicine (ISMRM)*, 2015, p.196. **Recipient of an ISMRM Magna cum Laude Merit Award**

27. **S.G. Lingala**, Y. Zhu, Y-C Kim, A. Toutios, S. Narayanan, K.S. Nayak, "High spatio-temporal resolution multi-slice real time MRI of speech using golden angle spiral imaging with constrained reconstruction, parallel imaging, and a novel upper airway coil", Proceedings of 23rd International Society of Magnetic Resonance in Medicine (ISMRM) Scientific Sessions, 2015, p. 689. **Recipient of an ISMRM Magna cum Laude Merit Award**
28. Y. Guo, Y. Zhu, **S.G. Lingala**, R.M. Lebel, K.S. Nayak, "Highly Accelerated Brain DCE MRI with Direct Estimation of Pharmacokinetic Parameter Maps", Proceedings of 23rd International Society of Magnetic Resonance in Medicine (ISMRM) Scientific Sessions, 2015, p. 573. **Recipient of an ISMRM Summa cum Laude Merit Award**
29. X.Miao, **S.G. Lingala**, Y. Guo, T. Jao, K.S. Nayak, "Accelerated cardiac cine MRI using Locally Low rank and Total variation Constraints", Proceedings of 23rd International Society of Magnetic Resonance in Medicine (ISMRM) Scientific Sessions, 2015, p. 571. **Recipient of an ISMRM Magna cum Laude Merit Award**
30. Y. Zhu, Y. Guo, **S.G. Lingala**, R.M. Lebel, M. Law, K.S. Nayak, "Evaluation of GLACIER 3DFT phase encode order for DCE-MRI", Proceedings of 23rd International Society of Magnetic Resonance in Medicine (ISMRM) Scientific Sessions, 2015, pp. 2535.
31. Y. Zhu, Y. Guo, **S.G. Lingala**, S. Barnes, R.M. Lebel, M. Law, K.S. Nayak, "Evaluation of DCE-MRI data sampling, reconstruction and model fitting using digital brain phantom", Proceedings of 23rd International Society of Magnetic Resonance in Medicine (ISMRM) Scientific Sessions, 2015, pp. 3052.
32. R.M. Lebel, Y. Guo, Y. Zhu, **S.G. Lingala**, R. Frayne, L.B. Andersen, J. Easaw, K.S. Nayak, "The Comprehensive Contrast-enhanced Neurovascular Exam", Proceedings of 23rd International Society of Magnetic Resonance in Medicine (ISMRM) Scientific Sessions, 2015, pp. 3705.
33. Y.Q. Mohsin, **S.G. Lingala**, E. DiBella, M. Jacob, "Motion Compensated Free Breathing Myocardial Perfusion MRI Using Iterative Non Local Shrinkage", Proceedings of 23rd International Society of Magnetic Resonance in Medicine (ISMRM) Scientific Sessions, 2015, p. 2684.
34. S. Bhave, **S.G. Lingala**, C.P. Johnson, V.A.Magnotta, M. Jacob, "Whole Brain multi-parameter mapping using dictionary learning", Proceedings of 23rd International Society of Magnetic Resonance in Medicine (ISMRM) Scientific Sessions, 2015, p. 1675.
35. S. Bhave, **S.G. Lingala**, J. Newell, A. Comellas, M. Jacob, "Dynamic 3D MRI Of the whole Lung using Constrained Reconstruction with learned dictionaries", Proceedings of International Society ofMagnetic Resonance in Medicine (ISMRM) Scientific Sessions, 2015, p 1466.
36. S. Bhave, **S.G. Lingala**, M. Jacob, "A variable splitting based algorithm for Fast multi-coil Blind compressed sensing MRI reconstruction", *IEEE International conference of the IEEE Engineering in Medicine and Biology Society (IEEE-EMBS)*, 2014. **Finalist, Student paper competition.**
37. S. Poddar, **S.G. Lingala**, M. Jacob, "Joint recovery of undersampled signals on a manifold: application to free breathing cardiac MRI", *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, 2014. **Best student paper award in the category of Bio Imaging and Signal processing**.
38. **S.G. Lingala**, Y. Mohsin, J. Newell, J. Sieren, D. Wang, D. Thedens, M. Jacob, "Towards 3D dynamic MRI of the lung using blind compressed sensing", *International Society for Magnetic Resonance in Medicine (ISMRM)*, 2014. p0298. **Recipient of an ISMRM Magna cum Laude Merit Award**
39. Y. Mohsin, Z. Yang, **S.G. Lingala**, M. Jacob, "Motion compensated dynamic imaging without explicit motion estimation", *International Society for Magnetic Resonance in Medicine (ISMRM)*, 2014.
40. S. Poddar, **S.G. Lingala**, M. Jacob, "Real Time Cardiac MRI using Manifold Sensing", *International Society for Magnetic Resonance in Medicine (ISMRM)*, 2014.

41. **S.G. Lingala**, E. DiBella, M. Jacob, "A generalized motion compensated compressed sensing scheme for highly accelerated myocardial perfusion MRI", *(SCMR)-ISMRM workshop on Accelerated CMR: Towards Comprehensive Clinical Cardiovascular Imaging*, 2014.
42. **S.G. Lingala**, Y. Mohsin, J. Newell, J. Sieren, D. Thedens, P. Kollasch, M. Jacob, "Accelerated dynamic imaging of the lung using blind compressive sensing", *(SCMR)-ISMRM workshop on Accelerated CMR: Towards Comprehensive Clinical Cardiovascular Imaging*, 2014.
43. **S.G. Lingala**, E. DiBella and M. Jacob, "Accelerated myocardial perfusion MRI using motion compensated compressed sensing (MC-CS)", *International Society for Magnetic Resonance in Medicine (ISMRM)*, 2013.
44. **S.G. Lingala**, and M. Jacob, "Blind compressed sensing dynamic MRI with sparse dictionaries", *International Society for Magnetic Resonance in Medicine (ISMRM)*, 2013.
45. **S.G. Lingala**, M. Jacob, "Accelerated dynamic MRI using sparse dictionary learning", *Wavelets and Sparsity IV, Proceedings of SPIE, 8858*, Aug 2013.
46. **S.G. Lingala** and M. Jacob, "Blind compressed sensing with sparse dictionaries for accelerated dynamic MRI" , *IEEE-International Symposia on Biomedical Imaging, ISBI*, 2013.
47. **S.G. Lingala** and M. Jacob, "Blind Compressed Sensing dynamic MRI", *International Society for Magnetic Resonance in Medicine (ISMRM)*, 2012. **Recipient of an ISMRM Magna Cum Laude Merit award.**
48. **S.G. Lingala** and M. Jacob, "A Blind compressive sensing frame work for accelerated dynamic MRI" , *IEEE-International Symposia on Biomedical Imaging, ISBI*, 2012.
49. **S.G. Lingala**, E. DiBella, M. Nadar, C. Chefd'hotel and M. Jacob, "Motion compensated reconstruction for myocardial perfusion MRI", *Society for Cardiac Magnetic Resonance (SCMR)*, 2012.
50. **S.G. Lingala**, E. DiBella and M. Jacob, "Accelerated imaging of rest and stress myocardial perfusion imaging using multi-coil k-t SLR: A feasibility study", *Society for Cardiac Magnetic Resonance (SCMR)*, 2012.
51. **S.G. Lingala**, Y. Hu, E. DiBella, M. Jacob, "Highly accelerated myocardial perfusion MRI using k-t SLR with parallel imaging", *International Society for Magnetic Resonance in Medicine (ISMRM)* 2011.
52. Y. Hu, **S.G. Lingala**, M. Jacob, "High resolution structural free breathing cardiac MRI enabled by k-t SLR", *International Society for Magnetic Resonance in Medicine (ISMRM)* 2011.
53. **S.G. Lingala**, Y. Hu, and M. Jacob, "Blind linear models for the recovery of dynamic MRI data", *IV conference on Wavelets and Sparsity, SPIE*, Aug 2011.
54. **S.G. Lingala**, Y. Hu, E. DiBella, M. Jacob, "Accelerated first pass perfusion cardiac perfusion MRI using improved k-t SLR", *IEEE-International symposium on Biomedical Imaging (ISBI)* 2011.
55. **S.G. Lingala**, M. Nadar, C. Chefd'hotel, L. Zhang, M. Jacob, "Unified reconstruction and motion estimation in first pass cardiac perfusion imaging", *IEEE-International symposium on Biomedical Imaging (ISBI)* 2011.
56. **S.G. Lingala** , M. Jacob, "Free Breathing Cardiac Perfusion MR Reconstruction using a sparse and low rank model: Validation with the Physiologically Improved NCAT phantom", (in press) *IEEE-International conference on Communications and Signal Processing (ICCSP)* 2011.
57. **S.G. Lingala**, Y. Hu, M. Jacob, "Real time Cardiac MRI using low rank and sparsity penalties", *IEEE-International symposium on Biomedical Imaging (ISBI)* 2010.
58. R.K. Bhatt, **S.G. Lingala**, A.V. Deshmukh, V.M. Gadre,"Quantification of cardiac motion in Cardiac Magnetic Resonance Imaging", in the *proceedings of the International Conference on Sensors, Signal Processing, Communication, Control and Instrumentation (SSPCCIN)*, 2008.
59. B.K. Errangi, **S.G. Lingala**, "Diffusion Tensor Magnetic Resonance Imaging", *proceedings of IEEE North East Bioengineering conference*, pp. 67-68, 2006.

Teaching

◇ **Invited speaker, Annual meeting of the International Society of Magnetic Resonance in Medicine (ISMRM)** April 2017
Invited to deliver an educational talk on "Motion Compensated Reconstruction" in the weekend educational session track on "Image Acquisition and Reconstruction"

◇ **EE 591: Magnetic Resonance Imaging and Reconstruction**
Primary Instructor: Prof. Krishna Nayak
University of Southern California
Spring 2015

· Assisted Prof. Krishna Nayak in designing innovative learning methods in this class taught in a "flipped class room" format, including design of in-class group activities, quizzes, assistance in on-line forums for question and answer discussions, and conduction of on-line quizzes.

· Independently delivered a 45-minute video-taped lecture, and conducted a 3-hour in class lecture and learning activity on the topic of "Dynamic MRI imaging".

◇ **EE 591: Magnetic Resonance Imaging and Reconstruction**
Primary instructor: Prof. Justin Haldar
University of Southern California
Fall 2016

· Independently lectured a 80 minute class on the topic of "Spin echo and Gradient echo"

◇ **Teaching Assistants for courses:**

◇ **Signals and Measurements in BME**,
University of Rochester
Spring 2010

◇ **Biomedical Computation**,
University of Rochester
Fall 2009

◇ **Biostatistics**,
Indian Institute of Technology Bombay
Spring 2008

◇ **Virtual Instrumentation in BME**,
Indian Institute of Technology Bombay
Fall 2007

Mentoring

◇ Co-mentored the below trainees along with Prof. Krishna Nayak at University of Southern California (USC)

· Yinghua Zhu, Ph.D student Jan 2014-Mar 2016

– Area: Rapid real-time MRI methods, 3D dynamic spiral MRI, Constrained reconstruction, Vocal tract imaging.

· Yi Guo, Ph.D student Jan 2014-current

– Area: Model-based reconstruction, Non-convex optimization, Tracer-Kinetic models, Whole brain DCE-MRI methods.

· Xin Miao, Ph.D student Jan 2014-current

– Area: Free breathing cardiac 3D cine imaging, Free breathing myocardial 3D first pass perfusion imaging, Motion correction, Data adaptive transform design for dynamic MRI

· Yongwan Lim, Ph.D student Aug 2015-current

– Area: Off-resonance correction in spiral MRI, Image reconstruction, Vocal tract MRI.

· Yannick Bliesner, Ph.D student Aug 2015-current

– Area: Design of k-space based digital reference objects for whole-brain DCE-MRI.

· Naren Nallapareddy, M.S student Jan 2015-June 2016

  - Area: Validation of sparse DCE-MRI methods using a physical flow phantom.

· Jieshen Chen, M.S student — May 2016-current
  - Area: Advanced constrained reconstruction methods for improved real-time MRI of the vocal tract.

· Arjun Viswanathan, High school student — June 2015-July 2015
  - Area: Basics of Fourier Transforms, Introduction to MRI image formation.

Relevant Course Work

1. Analytical Foundations in BME
2. Medical Imaging
3. Biostatistics
4. Introduction to Neuro-engineering
5. Random Process
6. Wavelets
7. Digital signal processing and its Applications
8. Magnetic Resonance Imaging: from spins to brains
9. Pathways to Human Disease

Skills

◇ **Operating Systems**: Windows 98 or higher, Mac OS, Linux

◇ **Tools and Programming**: C, Matlab, Python, FSL, GE-EPIC programming, Lab windows, Lab view, LaTeX

◇ **Languages** : English(fluent), Telugu(native), Hindi(fluent)

Personal Info

◇ **Born:** April 13, 1985 Hyderabad, India

◇ **Legal status:** Permanent Resident of the United States

References

◇ **Prof. Krishna Nayak**
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University of Southern California
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◇ **Prof. Mathews Jacob**
Associate Professor
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University of Iowa
mathews-jacob@uiowa.edu

◇ **Prof. Edward DiBella**
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◇ **Prof. Shrikanth Narayanan**
Professor
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