# KRISHNA S. NAYAK

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## EDUCATION

| | | | |
|---|---|---|---|
| Ph.D. | Electrical Engineering | Stanford University | 2001 |
| M.S. | Electrical Engineering | Stanford University | 1996 |
| B.S. | Elec Eng, Comp Sci, Appl Math | Florida State University | 1995 |

## PRIMARY POSITIONS

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|---|---|
| Professor, Electrical and Computer Engineering, University of Southern California (joint appointments in Biomedical Engineering and Radiology) | 2014- |
| Associate Professor, Electrical Engineering, University of Southern California | 2009-14 |
| Assistant Professor, Electrical Engineering, University of Southern California | 2003-09 |
| Lecturer & Research Associate, Electrical Engineering, Stanford University | 2001-03 |

## INDUSTRY POSITIONS

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|---|---|
| President, Lively Sensors, LLC | 2016-20 |
| Consultant, Physical Optics Corporation | 2016 |
| Consultant, Lithera, Inc. | 2013 |
| Consultant, California Heart Centers Group | 2009-11 |
| Consultant, Phantoms by Design, Inc. | 2002-09 |
| Consultant, NetVMG, Inc. | 2001-03 |

## VISITING POSITIONS

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|---|---|
| Sabbatical, Lively Sensors, LLC | 2017-18 |
| Visiting Professor (1 month), Indian Institute of Sciences | 2017 |
| Sabbatical, Laboratory of Cardiac Energetics, NIH/NHLBI Intramural Division | 2010-11 |
| Research Professor, Department of Medicine, Loma Linda University | 2008-13 |

## RESEARCH AND TEACHING FIELDS

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|---|---|
| Magnetic Resonance Imaging | Signals & Systems |
| Medical Physics | Digital Signal Processing |

## HONORS and AWARDS

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|---|---|
| Elected “Fellow” of IEEE | 2022 |
| USC Viterbi School of Engineering Use-Inspired Research Award | 2020 |
| Elected “Board of Trustees” of ISMRM | 2018-21 |
| Elected “Fellow” of SCMR | 2018 |
| Elected “Fellow” of AIMBE | 2017 |
| USC Community Engagement Award | 2014 |
| USC Center for Excellence in Teaching, Faculty Fellow | 2013-16 |
| NAE Frontiers of Engineering Education, Participant | 2011 |
| GE Healthcare Magnetic Resonance Thought Leader Award | 2009 |
| USC Mellon Mentoring Award, Faculty Mentoring of Graduate Students | 2008 |
| Elected “Senior Member” of IEEE | 2008 |
| USC Viterbi School of Engineering Outstanding Junior Faculty Research Award | 2007 |
| Fannie and John Hertz Foundation Doctoral Thesis Prize | 2001 |
| ISMRM Student Stipend Recipient | 1997-99 |
| Fannie and John Hertz Foundation Graduate Fellowship | 1995-00 |
| NSF Graduate Fellowship (declined, b/c accepted Hertz) | 1995 |
| Tau Beta Pi Centennial Fellowship #11 | 1995 |
| Phi Kappa Phi Graduate Fellowship | 1995 |

## MEMBERSHIP

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|---|---|
| American Institute for Medical and Biological Engineering (Fellow 2017-present) | 2017- |
| American Society for Engineering Education | 2011- |
| American Association for the Advancement of Science | 2008- |
| American Heart Association | 2003- |
| Institute of Electrical and Electronics Engineers (Senior Member 2008-present, Fellow 2022-present) | 2001- |
| Society for Cardiovascular Magnetic Resonance (Fellow 2018-present) | 2000- |
| International Society for Magnetic Resonance in Medicine | 1996- |

# RESEARCH

## FUNDING

- **Principal Investigator** (MPI with Adrienne Campbell-Washburn), NIH/NHLBI, "Volumetric Real-Time MRI at 0.55 Tesla," U01-HL167613. Jan 2023 – Dec 2026. Total: $2.1M. KN's portion: $1.9M.
- **Principal Investigator**, NIH/NHLBI, "Improved Myocardial Perfusion Assessment using High-Performance Low-Field MRI," R21-HL159533. June 2022 – May 2024. Total: $470k. KN's portion: $470k.
- **Principal Investigator** (MPI with Brian Hargreaves), NIH/NIAMS, "Improved Diagnostic MRI around Metallic Implants," R01-AR078912. Feb 2022 – Dec 2026. Total: $3.9M. KN's portion: $3.0M.
- **Principal Investigator**, USC Provost's Strategic Directions Research Award (SDRA), "Translational Pipeline for Pediatric and Fetal Applications of 0.55 Tesla MRI," Jan 2022 – Aug 2023. Total: $300k.
- **Co-Investigator**, AHA/TPA, "Novel Identification of Myocardial Scar Tissue using Arterial Spin Labeling," 19TPA34880024. PI: Parveen Garg. July 2019 – June 2022. Total: $300k. KN's portion: $137k.
- **Principal Investigator**, NSF/CNS, "MRI: Development of a High-Performance Low-Field MRI for Dynamic Imaging," #1828736. Oct 2018 – Sep 2023. Total: $2.5M. KN's portion: $2.5M.
- **Principal Investigator**, NIH/NCI, "Precise DCE-MRI Assessment of Brain Tumors," R33-CA225400. Sep 2017 – Jun 2022 (nce). Total: $1.6M. KN's portion: $1.3M.
- **Principal Investigator**, NIH/NHLBI, "Novel Myocardial Perfusion Stress Test using Arterial Spin Labeling," R01-HL130494. Jul 2016 – Jun 2022 (nce). Total: $1.7M. KN's portion: $1.2M.
- **Co-Investigator**, NIH/NIDCD, "Dynamics of Vocal Tract Shaping," R01-DC007142, PI: Shrikanth Narayanan. May 2005 – Apr 2010. Total: $2.1M. KN's portion: $400k. May 2010 – April 2015. Total: $2.0M. KN's portion: $380k. Dec 2015 — Nov 2020. Total: 2.0M. KN's portion: $380k.
- **Co-Principal Investigator**, NSF/CISE, "RI: Medium: Collaborative Research: Understanding individual-level speech variability: from novel articulatory data to robust speaker recognition," #1514544. PI(s): Shrikanth Narayanan, Krishna Nayak. Sep 2015 – Aug 2020. Total: $1.2M.
- **Co-Investigator**, NIH/NIDDK, "Optimizing Tissue Iron Quantification at 3 Tesla," R01-DK097115. PI: John Wood. Sep 2013 – Aug 2018. Total: $1.6M. KN's portion: $140k.
- **Co-Investigator**, NIH/NIEHS 5P01ES022845-04 and EPA RD-83544101-0, "Southern California Children's Environmental Health Center (SC-CEHC)," PI: Rob McConnell. June 2013 — May 2018.
- **Co-Investigator**, NIH/NHLBI, "Model-based Phenotyping of OSAS in Pediatric Obesity using Dynamic MR Imaging," R01-HL105210. PI: Michael Khoo. Sep 2010 – Aug 2016. (no cost extension) Total: $3.4M. KN's portion: $1.2M.
- **Co-Investigator**, NIH/NIDDK, "β-cell Preservation through Fat Mitigation," U01-DK094430. PI(s): Tom Buchanan, Anny Xiang. Sep 2011 – Jun 2016. Total: $3.8M. KN's portion: $20k.
- **Principal Investigator**, American Heart Association, Grant-in-Aid, "Myocardial ASL Perfusion Imaging with Improved Coverage and Sensitivity," 13GRNT13850012, Jan 2013 – Dec 2015. Total: $140k.

- **Principal Investigator**, Wallace H. Coulter Foundation, Coulter Translational Research Award, "Myocardial Perfusion Imaging without Contrast Agents," Phase-I: September 2010 – August 2012. Total: $180k. Phase-II: Sep 2012 — Aug 2015. Total: $320k.
- **Co-Investigator**, NIH/NIDDK, "Risk Factors for Type-II Diabetes in Hispanic Adolescents," R01-DK059211. PI: Michael Goran. Oct 2009 – Sep 2015. Total: $3.2M. KN's portion: $60k.
- **Co-Investigator,** NIH/NIBIB, "Novel ICA Based Multi-fiber Streamline Tractography Approach," R21-EB013456. PI: Meng Law. Jan 2012 – Dec 2013. Total: $440k. KN's portion: $16k.
- **Principal Investigator**, NIH/NIDDK, "Rapid MRI Measures of Absolute Fat Mass in Adipose Tissue and Organs," R21-DK081173. Feb 2009 – Dec 2012. (no cost extension). Total: $450k.
- **Co-Principal Investigator**, GE Healthcare, "Cardiovascular Magnetic Resonance at 3 Tesla," PI(s): Gerald Pohost, Krishna Nayak. Jul 2008 – Dec 2011. Total: $320k. KN's portion: $240k.
- **Principal Investigator**, NIH/NHLBI, "Superior Cardiac MRI using Wideband SSFP at 3 Tesla," R21-HL079987. Feb 2006 – Nov 2008. Total: $430k.
- **Principal Investigator**, American Heart Association, Scientist Development Grant, "Coronary Magnetic Resonance Angiography at 3 Tesla," #0435249N, $260,000. Jul 2004 – Jun 2008. Total: $320k.
- **Subcontract PI,** NIH/NHLBI, "Comprehensive Assessment of Valvular Function with MRI," R01-HL074332. PI: John Pauly (Stanford). Jan 2004 – Jan 2008. Total: $350k.

*Total amounts include F&A and indirect costs, and are rounded to two significant digits.*
*If funding is shared by multiple investigators, my portion is listed separately.*

## Small / Pilot Grants

- **Co-Investigator**, Keck School of Medicine, Dean's Pilot Award, "Exploiting 0.55T for improved MRI screening of at-risk fetuses in mothers with poor acoustic windows: supporting studies," PI: John Wood, Jan 2022 — Dec 2022. $50,000.
- **Co-Principal Investigator**, Ming Hsieh Institute for Research on Engineering Medicine for Cancer, "Novel Dynamic PET Kinetics and MRI Radiomics Analyses in Brain Tumors," PIs: Hossein Jadvar, Krishna Nayak, J Andrew MacKay, July 2021 — August 2021. $125,000.
- **Co-Investigator**, BRACCO Global Investigator, "Evaluation of Regional Gadolinium Retention in the Brain," PI: Alex Lerner, August 2016 – July 2018.
- **Principal Investigator**, RSNA-QIBA Groundwork Project Round 6, "Evaluation of RF Transmit Calibration Options for Quantitative DCE-MRI," July 2016 – June 2017. $50,000.
- **Co-Investigator**, Wright Foundation, Pilot Grant, "Noninvasive Coronary Endothelial Function using Arterial Spin Labeling," PI: Parveen Garg, July 2015 – June 2017. $48,000.
- **Co-Investigator**, Whittier Foundation, Pilot Grant, "Myocardial ASL Stress Testing in Heart Transplant Recipients," PI: Andrew Yoon, September 2014 – December 2016. $100,000.
- **Co-Investigator**, Southern California Clinical and Translational Science Institute, Pilot Grant, "Drug-Induced Sleep Endoscopy and Magnetic Resonance Imaging in Obstructive Sleep Apnea," PI: Eric Kezirian, July 2014 – June 2015. $49,000.
- **Principal Investigator**, Southern California Clinical and Translational Science Institute, Pilot Grant, "Improved DCE Neuro-MRI using Constrained Reconstruction," July 2013 – June 2014. $38,282.

- **Principal Investigator**, Clinical and Translational Science Institute, Pilot Grant, "MRI Assessment of 3D Blood Flow Dynamics in Patients with Carotid Atherosclerosis," July 2008 – June 2009. $41,556.
- **Subcontract PI,** Respironics Foundation, "Development of Non-invasive Airway Compliance Assessment using Real-Time MRI," PI: Ian Colrain (SRI International), January 2008 – July 2008. $73,150.
- **Principal Investigator**, Center for Transdisciplinary Research on Energetics and Cancer, Pilot Grant, "Rapid and Non-invasive Quantitation of Abdominal Fat Distribution using Magnetic Resonance Imaging," September 2007 – August 2008. $35,000.
- **Co-Principal Investigator**, James H. Zumberge Research and Innovation Fund, Interdisciplinary Research Grant, "Assessment of Myocardial Perfusion by Cardiac MRI," with Co-PI: Gerald Pohost, July 2005 – June 2006. $50,000.
- **Subcontract PI,** Respironics Foundation, "Non-invasive Airway Compliance Assessment using Real-Time MRI," PI: Ian Colrain (SRI International), October 2004 – March 2006. $86,673.
- **Principal Investigator**, James H. Zumberge Research and Innovation Fund, Individual Research Grant, "Cardiac Magnetic Resonance Imaging at 3 Tesla," July 2004 – June 2005. $25,000.

## Funding from a previous institution (Stanford):

- **Investigator**, NIH/NHLBI, "Noninvasive Coronary Artery Imaging using MR," PI: Dwight Nishimura (Stanford), R01-HL39297. July 1992 – August 2007.
- **Investigator**, NIH/NHLBI, "Integrated Myocardial Ischemia Assessment with MRI," PI: John Pauly (Stanford), R01-HL67161. January 2003 – December 2007.
- **Investigator**, NIH/NIBIB, "MR Guided Vascular Interventions," PI: John Pauly (Stanford), R01-EB002992. September 2003 – July 2007.
- **Investigator**, NIH/NCI, "High-Speed MRI for Tumor Interventions," PI: Al Macovski (Stanford), R01-CA50948. July 2000 – June 2003.
- **Investigator**, California TRDRP, "Comprehensive Evaluation of the Ischemic Leg," PI: Dwight Nishimura (Stanford), 9RT-0024. July 2000 – June 2003.
- **Investigator**, NIH/NCRR, "Center for Advanced Magnetic Resonance Technology at Stanford," PI: Gary Glover (Stanford), R01-HL39297. January 2001 – December 2006.
- **Investigator**, NIH/NIBIB, "Development of a Prepolarized MRI Extremity Scanner," PI: Al Macovski (Stanford), R01-EB000346. September 2001 – August 2005.
- **Investigator**, NIH, "Development of Improved MRI Techniques for Cartilage Injury and Repair," PI: Al Macovski (Stanford), R01-AR46904. September 1999 – August 2003.

## PUBLICATIONS

## JOURNAL PAPERS (refereed)

1. M Taso, V Aramendia-Vidaurreta, EK England, S Francis, S Franklin, AJ Madhuranthakam, P Martirosian, **KS Nayak**, Q Qin, X Shao, DL Thomas, Z Zun, MA Fernandez-Seara. "An update on state-of-the-art for Arterial Spin Labeling (ASL) human perfusion imaging outside of the brain." *Magnetic Resonance in Medicine*. accepted.
2. S Ponrartana, HN Nguyen, SX Cui, Y Tian, P Kumar, JC Wood, **KS Nayak**. "Low-Field 0.55T MRI evaluation of the fetus." Pediatric Radiology. accepted.
3. B Li, NG Lee, SX Cui, **KS Nayak**. "Lung parenchyma transverse relaxation rates at 0.55 Tesla." *Magnetic Resonance in Medicine*. early view online.
4. Y Tian, SX Cui, Y Lim, NG Lee, Z Zhao, **KS Nayak**. "Contrast-optimal simultaneous multi-slice (SMS) bSSFP cine cardiac imaging at 0.55 Tesla." *Magnetic Resonance in Medicine*. 89(2):746-755, February 2023.
5. F Muñoz, Y Lim, SX Cui, H Stark, **KS Nayak**. "Evaluation of a Novel 8-Channel RX Coil for Speech Production MRI at 0.55 T." *Magnetic Resonance Materials in Physics, Biology, and Medicine (MAGMA)*, early view online.
6. Q Qin, DC Alsop, DS Bolar, L Hernandez-Garcia, J Meakin, D Liu, **KS Nayak**, S Schmid, MJP van Osch, EC Wong, JG Woods, G Zaharchuk, MY Zhao, Z Zun, J Guo. "Velocity-selective arterial spin labeling perfusion MRI: A review of the state of the art and recommendations for clinical implementation." *Magnetic Resonance in Medicine*. 88(4):1528-1547, October 2022.
7. NG Lee, R Ramasawmy, Y Lim, AE Campbell-Washburn, **KS Nayak**. "MaxGIRF: Image Reconstruction Incorporating Concomitant Field and Gradient Impulse Response Function Effects." *Magnetic Resonance in Medicine*. 88(2):691-710, August 2022.
8. EK Doyle, S Thornton, N Ghugre, T Coates, **KS Nayak**, JC Wood, "Effects of B1+ Heterogeneity on Spin Echo-Based Liver Iron Estimates," *Journal of Magnetic Resonance Imaging*. 55(5):1419-1425, May 2022.
9. JJ Weyers, V Ramanan, A Javed, J Barry, M Larsen, **KS Nayak**, GA Wright, NR Ghugre. "Myocardial Blood Flow is the Dominant Factor Influencing Cardiac Magnetic Resonance Adenosine Stress T2." *NMR in Biomedicine*. 35(3):e4643, March 2022.
10. **KS Nayak**, Y Lim, A Campbell-Washburn, J Steeden. "Real-Time Magnetic Resonance Imaging." *Journal of Magnetic Resonance Imaging*. 55(1):81-99. January 2022.
11. Z Zhu, RM Lebel, Y Bliesener, J Acharya, RM Frayne, **KS Nayak**. "Sparse Pre-Contrast $T_1$ Mapping for High-Resolution Whole-Brain DCE-MRI." *Magnetic Resonance in Medicine*. 86(4):2234–2249, October 2021.
12. Y Bliesener, RM Lebel, J Acharya, R Frayne, **KS Nayak**. "Pseudo Test-Retest Evaluation of millimeter-resolution whole-brain Dynamic Contrast-Enhanced MRI in Patients with High-Grade Glioma." *Radiology*. 300(2):410-420. August 2021.
13. Y Tian, Y Lim, Z Zhao, D Byrd, SS Narayanan, **KS Nayak**. "Aliasing Artifact Reduction in Spiral Real-Time MRI." *Magnetic Resonance in Medicine*. 86(2):916-925, August 2021.
14. AH Xiang, MP Martinez, E Trigo, KM Utzschneider, M Cree-Green, S Arslanian, DA Ehrmann, S Caprio, DH Hwang, N Katkhouda, **KS Nayak**, TA Buchanan (for the Rise Consortium). "Liver Fat Reduction after Gastric Banding and Associations with Changes in Insulin Sensitivity and β-cell Function." Obesity. 29(7):1155-1163. July 2021.
15. D Kim, SF Cauley, **KS Nayak**, RM Leahy, JP Haldar. "Region-Optimized Virtual (ROVir) Coils: Localization and/or Suppression of Spatial Regions using Sensor-Domain Beamforming." *Magnetic Resonance in Medicine*. 86(1):197-212, July 2021.

16. Y Lim, A Toutios, Y Bliesener, Y Tian, SG Lingala, C Vaz, T Sorensen, M Oh, S Harper, W Chen, Y Lee, J Töger, ML Montesserin, C Smith, B Godinez, L Goldstein, D Byrd, **KS Nayak**, SS Narayanan, "A multispeaker dataset of raw and reconstructed speech production real-time MRI video and 3D volumetric images," *Scientific Data (Nature)*. 8:187. 20 July 2021.
17. A Pineda, H Miedema, SG Lingala, **KS Nayak**, "Optimizing constrained reconstruction in magnetic resonance imaging for signal detection," *Physics in Medicine and Biology*. 66(14):145014. 16 July 2021.
18. Z Zhao, Y Lim, D Byrd, SS Narayanan, **KS Nayak**. "Improved 3D real-time MRI of speech production." *Magnetic Resonance in Medicine*. 85(6):3182-3195, June 2021.
19. RA Lobos, WS Hoge, A Javed, C Liao, K Setsompop, **KS Nayak**, JP Haldar. "Robust Autocalibrated Structured Low-Rank EPI Ghost Correction" *Magnetic Resonance in Medicine*. 85(6):3403-3419, June 2021.
20. RB Jones, L Arenaza, C Rios, JF Plows, PK Berger, TL Alderete, JL Fogel, **KS Nayak**, P Mohamed, D Hwang, S Palmer, F Sinatra, H Allayee, R Kohli, MI Goran. "PNPLA3 Genotype, Arachidonic Acid Intake, and Unsaturated Fat Intake Influences Liver Fibrosis in Hispanic Youth with Obesity" *Nutrients*. 13(5), 1621. May 2021
21. S Gutta, J Acharya, MS Shiroishi, D Hwang, **KS Nayak**. "Improved Glioma Grading using Deep Convolutional Neural Networks." *American Journal of Neuroradiology*. 42(2):233-239, January 2021.
22. Y Lim, Y Bliesener, SS Narayanan, **KS Nayak**. Deblurring for Spiral Real-Time MRI using Convolutional Neural Networks. *Magnetic Resonance in Medicine*. 84(6):3438-3452, December 2020.
23. NG Lee, A Javed, TR Jao, **KS Nayak**. Numerical Approximation to the General Kinetic Model for ASL Quantification. *Magnetic Resonance in Medicine*. 84(5):2846-2857, November 2020.
24. V Landes, A Javed, TR Jao, Q Qin, **KS Nayak**. Improved Velocity-Selective Labeling Pulses for Myocardial ASL. *Magnetic Resonance in Medicine*. 84(4):1909-1918, October 2020.
25. A Javed, **KS Nayak**. Single-shot EPI for ASL-CMR. *Magnetic Resonance in Medicine*. 84(2):738-750, August 2020.
26. W Chen, NG Lee, D Byrd, S Narayanan, **KS Nayak**. Improved real-time tagged MRI using REALTAG. *Magnetic Resonance in Medicine*. 84(2):838-846, August 2020.
27. HP Do, Y Guo, AJ Yoon, **KS Nayak**. Accuracy, Uncertainty, and Adaptability of Automatic Myocardial ASL Segmentation using Deep CNN. *Magnetic Resonance in Medicine*. 83(5):1863-1874, May 2020.
28. Y Bliesener, J Acharya, **KS Nayak**. Efficient DCE-MRI parameter and uncertainty estimation using a Neural Network. *IEEE Transactions on Medical Imaging*. 39(5):1712-1723, May 2020.
29. Y Bliesener, SG Lingala, JP Haldar, **KS Nayak**. Impact of (k,t) sampling on DCE MRI tracer kinetic parameter estimation in digital reference objects. *Magnetic Resonance in Medicine*. 83(5):1625-1639, May 2020.
30. T Shin, **KS Nayak**. Perceived dark rim artifact in first-pass myocardial perfusion MRI due to visual illusion. *Korean Journal of Radiology*. 21(4):462-469. April 2020.
31. A Javed, AJ Yoon, S Cen, **KS Nayak**, P Garg. Feasibility of Coronary Endothelial Function Assessment using Arterial Spin Labeled CMR. *NMR in Biomedicine*. 33(2):e4183, February 2020.

32. SG Lingala, Y Guo, Y Bliesener, Y Zhu, RM Lebel, M Law, **KS Nayak**. Tracer kinetic models as temporal constraints during brain tumor DCE-MRI reconstruction. *Medical Physics*. 47(1):37-51, January 2020.
33. VL Landes, **KS Nayak**. Iterative correction of RF envelope distortion with GRATER-measured waveforms. *Magnetic Resonance in Medicine*. 83(1):188-194, January 2020.
34. X Miao, **KS Nayak**, JC Wood. In-vivo validation of T2- and susceptibility-based SvO2 measurements with jugular vein catheterization under hypoxia and hypercapnia. *Magnetic Resonance in Medicine*. 82(6):2188-2198, December 2019.
35. K Jiang, CM Ferguson, JR Woollard, VL Landes, JD Krier, X Zhu, **KS Nayak**, LO Lerman. Magnetization Transfer Imaging is Unaffected by Decreases in Renal Perfusion in Swine. *Investigative Radiology*. 54(11):681-688, November 2019.
36. CB Shaw, BH Foster, M Borgese, RD Boutin, C Bateni, P Boonsri, CO Bayne, RM Szabo, **KS Nayak**, AJ Chaudhari. Real-time three-dimensional MRI for the assessment of dynamic carpal instability. *PLOS-ONE*. 14(9): e0222704, September 2019.
37. TR Jao, **KS Nayak**. Analysis of physiological noise in quantitative cardiac magnetic resonance. *PLOS ONE*. 14(8): e0214566, August 2019.
38. W Chen, D Byrd, S Narayanan, **KS Nayak**. Intermittently Tagged Real-Time MRI Reveals Internal Tongue Motion during Speech Production. *Magnetic Resonance in Medicine*. 82(2):600–613, August 2019.
39. **KS Nayak**. Response to Letter to the Editor: Nomenclature for real-time magnetic resonance imaging. *Magnetic Resonance in Medicine*. 82(2):525–526, August 2019.
40. Y Bliesener, X Zhong, Y Guo, M Boss, R Bosca, H Laue, C Chung, K Sung, **KS Nayak**. RF Transmit Calibration: A multi-center evaluation of vendor-provided RF transmit mapping methods. *Medical Physics*. 46(6):2629-2637. June 2019.
41. EAH Warnert, **KS Nayak**, R Menon, C Rice, J Port, EA Morris, D Sodickson, P Sundgren, K Miller, UC Anazodo. Resonate: Reflections and recommendations on implicit biases within the ISMRM. *Journal of Magnetic Resonance Imaging*. 49(6):1509-1511, June 2019.
42. Y Lim, Y Zhu, SG Lingala, D Byrd, S Narayanan, **KS Nayak**. 3D dynamic MRI of the vocal tract during natural speech. *Magnetic Resonance in Medicine*. 81(3):1511-1520. March 2019.
43. W Foltz, B Driscoll, SL Lee, **KS Nayak**, N Nallapareddy, A Fatemi, C Ménard, C Coolens, C Chung. Phantom Validation of DCE-MRI Magnitude and Phase-Based Vascular Input Function Measurements. *Tomography* (special issue: Quantitative Imaging Network). 5(1):77-89, March 2019.
44. Y Lim, SG Lingala, SS Narayanan, **KS Nayak**. Dynamic off-resonance correction for spiral real-time MRI of speech. *Magnetic Resonance in Medicine*. 81(1):234-246. January 2019.
45. AH Xiang, E Trigo, MP Martinez, N Katkhouda, E Beale, X Wang, J Wu, T Chow, C Montgomery, **KS Nayak**, F Hendee, TA Buchanan (for the RISE Consortium). Impact of gastric banding versus metformin on beta-cell function in adults with impaired glucose tolerance or mild type 2 diabetes. *Diabetes Care*. 41(12):2544-2551, December 2018
46. RM Kato, YC Kim, B Joshi, S Loloyan, CP Wee, Z Wu, W Tran, TG Keens, MCK Khoo, **KS Nayak**, SLD Ward. Upper airway narrowing during central apnea in obese adolescents. *Annals of the American Thoracic Society*. 15(12):1465-1471. December 2018.
47. X Zhong, T Martin, HH Wu, **KS Nayak**, KH Sung. Prostate DCE-MRI with B1+ Correction using an Approximated Analytical Approach. *Magnetic Resonance in Medicine*. 80(6):2525-2537, December 2018.
48. V Ramanarayanan, S Tilsen, M Proctor, J Töger, L Goldstein, **KS Nayak**, S Narayanan. Analysis of Speech Production Real-Time MRI. *Computer Speech and Language*. 52:1-22, November 2018.

49. HP Do, V Ramanan, X Qi, J Barry, GA Wright, NR Ghugre, **KS Nayak**. Non-contrast Assessment of Microvascular Integrity using Arterial Spin Labeled CMR in a Porcine Model of Acute Myocardial Infarction. *Journal of Cardiovascular Magnetic Resonance*. 20:45. July 2018.
50. TR Jao, **KS Nayak**. Demonstration of Velocity Selective Myocardial Arterial Spin Labeling Perfusion Imaging in Humans. *Magnetic Resonance in Medicine*. 80(1):272-278. July 2018.
51. Y Guo, SG Lingala, Y Bliesener, RM Lebel, Y Zhu, **KS Nayak**. Joint arterial input function and tracker kinetic parameter estimation from under-sampled DCE-MRI using a model consistency constraint. *Magnetic Resonance in Medicine*. 79(5):2804-2815. May 2018.
52. V Landes, **KS Nayak**. Simple Method for RF Pulse Measurement using Gradient Reversal. *Magnetic Resonance in Medicine*. 79(5):2642-2651. May 2018.
53. SG Lingala, Y Zhu, Y Lim, A Toutios, Y Ji, W-C Lo, N Seiberlich, S Narayanan, **KS Nayak**. Feasibility of spiral through-time GRAPPA for low latency accelerated real-time MRI of speech. *Magnetic Resonance in Medicine*. 78(6):2275-2282. December 2017.
54. W Chen, E Gillett, MCK Khoo, SL Davidson Ward, **KS Nayak**. Real-time Multi-slice MRI during Continuous Positive Airway Pressure Reveals Upper Airway Response to Pressure Change. *Journal of Magnetic Resonance Imaging*. 46(5):1400-1408. November 2017.
55. Y Guo, SG Lingala, Y Zhu, RM Lebel, **KS Nayak**. Direct Estimation of Tracer-Kinetic Parameter Maps from Highly Undersampled Brain Dynamic Contrast Enhanced MRI. *Magnetic Resonance in Medicine*. 78(4):1566-1578. October 2017.
56. AJ Yoon, HP Do, S Cen, MW Fong, F Saremi, ML Barr, **KS Nayak**. Assessment of segmental myocardial blood flow and myocardial perfusion reserve by adenosine-stress myocardial arterial spin labeling perfusion imaging. *Journal of Magnetic Resonance Imaging*. 46(2):413-420. August 2017.
57. HP Do, AJ Yoon, MW Fong, F Saremi, ML Barr, **KS Nayak**. Double-gated Myocardial ASL Perfusion Imaging is Robust to Heart Rate Variation. *Magnetic Resonance in Medicine*. 77(5):1975-1980. May 2017.
58. J Töger, T Sorensen, K Somandepalli, A Toutios, SG Lingala, S Narayanan, **KS Nayak**. Test-retest repeatability of human speech biomarkers from static and real-time dynamic magnetic resonance imaging. *Journal of the Acoustical Society of America*. 141(5): 3323. May 2017.
59. SG Lingala, Y Zhu, YC Kim, A Toutios, S Narayanan, **KS Nayak**. A Fast and Flexible MRI System for the Study of Dynamic Vocal Tract Shaping. *Magnetic Resonance in Medicine*. 77:112-125. January 2017.
60. Y Zhu, Y Guo, SG Lingala, RM Lebel, M Law, **KS Nayak**. GOCART: GOlden-angle CArtesian Randomized Time-resolved 3D MRI. *Magnetic Resonance Imaging*. 34(7):940-950. September 2016.
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18. Y Tian, S Cui, Y Lim, NG Lee, Z Zhao, **KS Nayak**. “High-Performance 0.55T Supports Contrast-Optimal SMS bSSFP Cardiac Imaging”. Proc. ISMRM 30th Scientific Session, London, May 2022, p4448.
19. NG Lee, K Keskin, Z Zhao, **KS Nayak**. “Higher-order image reconstruction with integrated gradient nonlinearity correction using a low-rank encoding operator”. Proc. ISMRM 30th Scientific Session, London, May 2022, p5050.

<u>ISMRM Workshop on Low Field MRI 2022</u>

20. K Keskin, BA Hargreaves, **KS Nayak**. “Imaging near metal at 0.55T using gradient-echo based sequences: feasibility and opportunities”. ISMRM Workshop on Low Field MRI, Virtual, March 2022.
21. P Kumar, Y Lim, **KS Nayak**. “Low Latency Real-time MRI at 0.55T using Self-Calibrating Through-Time GRAPPA”. ISMRM Workshop on Low Field MRI, Virtual, March 2022.
22. H-T Kung, SX Cui, JT Kaplan, AA Joshi, RM Leahy, **KS Nayak**, J Acharya, JP Haldar. “SNR-enhancing Image Reconstruction for Diffusion Tensor Imaging on a Prototype 0.55T System”. ISMRM Workshop on Low Field MRI, Virtual, March 2022.
23. NG Lee, K Keskin, Z Zhao, **KS Nayak**. “Higher-order image reconstruction with gradient nonlinearity correction using a low-rank encoding operator”. ISMRM Workshop on Low Field MRI, Virtual, March 2022.
24. B Li, NG Lee, SX Cui, **KS Nayak**. “Estimation of Lung Parenchyma Transverse Relaxation Rates at 0.55T”. ISMRM Workshop on Low Field MRI, Virtual, March 2022.

25. F Munoz, Y Lim, SX Cui, H Stark, **KS Nayak**. “Evaluation of a Novel 8-Channel RX coil for Speech Production MRI at 0.55T”. ISMRM Workshop on Low Field MRI, Virtual, March 2022.
26. **KS Nayak**, SX Cui, B Tasdelen, E Yagiz, S Weston, A Ahlgren. “Body Composition Profiling at 0.55 Tesla: Feasibility and Protocol Optimization”. ISMRM Workshop on Low Field MRI, Virtual, March 2022.
27. S-F Shih, SX Cui, X Zhong, B Tasdelen, E Yagiz, **KS Nayak**, HH Wu. “Self-Gated Free-Breathing Liver Fat and R2* Quantification on a High-Performance 0.55T MRI System using Radial Acquisition and Compressed Sensing Reconstruction”. ISMRM Workshop on Low Field MRI, Virtual, March 2022.
28. B Tasdelen, E Yagiz, SX Cui, **KS Nayak**. “Ultra-Fast Water/Fat Imaging of the Abdomen at 0.55T”. ISMRM Workshop on Low Field MRI, Virtual, March 2022.
29. Y Tian, SX Cui, Y Lim, NG Lee, Z Zhao, **KS Nayak**. “High-Performance 0.55T Supports Contrast-Optimal SMS bSSFP Cardiac CINE Imaging”. ISMRM Workshop on Low Field MRI, Virtual, March 2022.
30. Y Tian, Y Lim, **KS Nayak**. “Real-Time Water Fat Imaging at 0.55T with Spiral Out-In-Out-In Sampling”. ISMRM Workshop on Low Field MRI, Virtual, March 2022.
31. E Yagiz, SX Cui, NG Lee, B Tasdelen, Y Tian, **KS Nayak**. “Realistic Simulation of Body Composition MRI and Field-Strength Dependence”. ISMRM Workshop on Low Field MRI, Virtual, March 2022.
32. Z Zhu, NG Lee, Y Tian, A Javed, M Griswold, A Campbell-Washburn, **KS Nayak**. “Evaluation of MR Fingerprinting at 0.55T”. ISMRM Workshop on Low Field MRI, Virtual, March 2022.
33. W Wang, H Luo, X Chen, Y Zhao, R Lu, **KS Nayak**, Z Wu. “A low-field portable MR system for in-vivo liver measurement”. ISMRM Workshop on Low Field MRI, Virtual, March 2022.

<u>ISMRM Workshop on Perfusion MRI: Head to Toe 2022</u>

34. Z Zhao, NG Lee, SX Cui, **KS Nayak**. “Lung Perfusion at 0.55T using ASL: Feasibility and Initial Results”. ISMRM Workshop on Perfusion MRI: From Head to Toe, Los Angeles, CA, March 2022. Poster #30.

<u>Orthopaedic Research Society Annual Meeting 2022</u>

35. AJ Chaudhari, Y Lim, SX Cui, RM Szabo, RD Boutin, **KS Nayak**. “Real-time MRI of the moving wrist at 0.55 Tesla”. Proc. Orthopaedic Research Society Annual Meeting, Feb 4-8, 2022, Tampa.

<u>ISMRM Scientific Sessions 2021</u>

36. Z Zhu, J Acharya, Y Bliesener, RM Lebel, R Frayne, **KS Nayak**. “High-Resolution T1 mapping of High-Grade Glioma”. Proc. ISMRM 29th Scientific Session, Online, May 2021, p11.
37. D Kim, S Cauley, **KS Nayak**, RM Leahy, JP Haldar. “Region-Optimized Virtual (ROVir) Coils: Application of Sensor-Domain Beamforming for Localizing and/or Suppressing Spatial Regions” Proc. ISMRM 29th Scientific Session, Online, May 2021, p64.
38. Y Lim, A Toutios, Y Bliesener, Y Tian, **KS Nayak**, S Narayanan “An open dataset for speech real-time MRI: raw data, synchronized audio, and images”. Proc. ISMRM 29th Scientific Session, Online, May 2021, p438.
39. NG Lee, R Ramasawmy, A Campbell-Washburn, **KS Nayak**, “MaxGIRF: Image Reconstruction incorporating Maxwell Fields and Gradient Impulse Response Function Distortion”. Proc. ISMRM 29th Scientific Session, Online, May 2021, p624.

40. D Yoon, P Lee, **KS Nayak**, BA Hargreaves. “Spectrally-Encoded multi-spectral imaging (SEMSI) for off-resonance correction near metallic implants” Proc. ISMRM 29th Scientific Session, Online, May 2021, p669.
41. P Kumar, Y Lim, **KS Nayak**. “Feasibility of Super Resolution Speech RT-MRI using Deep Learning” Proc. ISMRM 29th Scientific Session, Online, May 2021, p1782.
42. Y Tian, NG Lee, **KS Nayak**. “Realistic Simulation of Real-Time Cardiac Cine and First-Pass Perfusion on High Performance 0.55T System” Proc. ISMRM 29th Scientific Session, Online, May 2021, p2888.
43. B Li, NG Lee, **KS Nayak**. “Simulation of Lung Parenchyma MRI and Field-Strength Dependence” Proc. ISMRM 29th Scientific Session, Online, May 2021, p3229.
44. Y Tian, Y Lim, Z Zhao, D Byrd, S Narayanan, **KS Nayak**, “Aliasing Artifact Reduction in Spiral Real-Time MRI” Proc. ISMRM 29th Scientific Session, Online, May 2021, p3522.
45. K Keskin, BA Hargreaves, **KS Nayak**. “Realistic Simulation of MRI Metal Artifact and Field Strength Dependence” Proc. ISMRM 29th Scientific Session, Online, May 2021, p3539.
46. Z Zhao, NG Lee, **KS Nayak**. “Multidimensional RF Pulse Design with Known Spatial Encoding Imperfections” Proc. ISMRM 29th Scientific Session, Online, May 2021, p3954.
47. Z Zhao, NG Lee, **KS Nayak**. “RF Pulse Designs for Velocity-Selective MRA at Low Field Strengths” Proc. ISMRM 29th Scientific Session, Online, May 2021, p3961.

<u>Imaging Network Ontario 2021</u>

48. JJ Weyers, V Ramanan, J Barry, M Larsen, **KS Nayak**, GA Wright, NR Ghugre. “An Exploration of Myocardial Blood Flow, Blood Volume, and Oxygen Consumption at Varying Levels of Hyperemic Stress Reveals Blood Flow as the Dominant Influence on T2 Relaxation Time”. Imaging Network Ontario, Online, March 2021.

<u>ISMRM Scientific Sessions 2020</u>

49. Y Bliesener, RM Lebel, J Acharya, R Frayne, **KS Nayak**. “Pseudo Test-Retest Evaluation of Sparse DCE-MRI of Brain Tumor”. Proc. ISMRM 28th Scientific Session, Online, August 2020, p11.
50. Z Zhao, Y Lim, D Byrd, SS Narayanan, **KS Nayak**. “Improved 3D real-time MRI with Stack-of-Spiral (SOSP) trajectory and variable density randomized encoding of speech production”. Proc. ISMRM 28th Scientific Session, Online, August 2020, p617.
51. Y Lim, SS Narayanan, **KS Nayak**. “Attention-Gated Convolutional Neural Networks for Off-Resonance Correction of Spiral Real-Time Magnetic Resonance Imaging”. Proc. ISMRM 28th Scientific Session, Online, August 2020, p1005.
52. A Javed, **KS Nayak**. “Multi-slice Arterial Spin Labeled Myocardial Perfusion Imaging with single-shot EPI”. Proc. ISMRM 28th Scientific Session, Online, August 2020, p1309.
53. V Landes, A Javed, TR Jao, Q Qin, KS Nayak. “Fourier Transform based Velocity-selective Labeling Pulses for Myocardial ASL”. Proc. ISMRM 28th Scientific Session, Online, August 2020, p2097.
54. X Wang, NG Lee, AE Campbell-Washburn, **KS Nayak**. “Realistic Simulation of High-Performance Low Field Cardiac Cine Imaging”. Proc. ISMRM 28th Scientific Session, Online, August 2020, p2181.
55. NG Lee, **KS Nayak**. “Parameter estimation with matrix-based signal models using VARPRO for transient- and steady-state imaging”. Proc. ISMRM 28th Scientific Session, Online, August 2020, p3236.
56. NG Lee, A Javed, TR Jao, **KS Nayak**. “Numerical Approximation to the General Kinetic Model for ASL Quantification”. Proc. ISMRM 28th Scientific Session, Online, August 2020, p3291.
57. Z Zhu, Y Bliesener, RM Lebel, **KS Nayak**. “Direct Estimation of pre-contrast T1 for DCE-MRI”. Proc. ISMRM 28th Scientific Session, Online, August 2020, p3468.

58. E Mushtaq, A Javed, **KS Nayak**. “Optimal data sampling and image reconstruction for Cartesian bSSFP ASL-CMR”. Proc. ISMRM 28th Scientific Session, Online, August 2020, p3476.
59. NG Lee, Z Zhu, **KS Nayak**. “Variable flip angle T1 mapping with MT-balanced RF pulses”. Proc. ISMRM 28th Scientific Session, Online, August 2020, p3793.

MIDL 2020

60. Y Lim, SS Narayanan, **KS Nayak**. “Deblurring for spiral real-time MRI using convolutional neural networks.” Medical Imaging with Deep Learning, July 2020. paper #47.

SCMR 2020

61. JJ Weyers, A Javed, J Barry, M Larsen, GA Wright, **KS Nayak**, N Ghugre. “Optimizing vasodilator dose to induce hyperemic stress during myocardial perfusion assessment in a porcine model.” Proc. SCMR 23rd Scientific Sessions, Orlando, February 2020. QF1-003.

ISMRM Workshop on Data Sampling and Image Reconstruction 2020

62. Z Zhao, Y Lim, D Byrd, S Narayanan, **KS Nayak**. "Improved 3D Real-Time MRI With Stack-of-Spiral Trajectory & Variable Density Randomized Encoding of Speech Production." ISMRM Workshop on Data Sampling and Image Reconstruction, Sedona, Arizona, January 2020.
63. Y Bliesener, RM Lebel, J Acharya, R Frayne, **KS Nayak**. "Pseudo Test-Retest Evaluation of Sparse DCE-MRI of Brain Tumor." ISMRM Workshop on Data Sampling and Image Reconstruction, Sedona, Arizona, January 2020.

ISMRM Scientific Sessions 2019

64. X Miao, **KS Nayak**, JC Wood. “In-vivo validation of T2- and susceptibility-based SvO2 measurements with jugular vein catheterization under hypoxia and hypercapnia”. Proc. ISMRM 27th Scientific Session, Montreal, May 2019, p296.
65. S Lingala, Y Lim, S Kruger, **KS Nayak**. “Improved spiral dynamic MRI of vocal tract shaping at 3 Tesla using dynamic off-resonance artifact correction”. Proc. ISMRM 27th Scientific Session, Montreal, May 2019, p441.
66. Y Lim, Y Bliesener, S Narayanan, **KS Nayak**. “Calibrationless Deblurring of Spiral RT-MRI of Speech Production Using Convolutional Neural Networks”. Proc. ISMRM 27th Scientific Session, Montreal, May 2019, p673.
67. V Landes, **KS Nayak**. “GRATER-based RF pulse predistortion improves multiband bSSFP imaging”. Proc. ISMRM 27th Scientific Session, Montreal, May 2019, p921.
68. W Chen, D Byrd, S Narayanan, **KS Nayak**. “Intermittently Tagged Real-Time MRI Reveals Internal Tongue Motion during Speech Production”. Proc. ISMRM 27th Scientific Session, Montreal, May 2019, p940.
69. N Lee, A Javed, TR Jao, **KS Nayak**. “Quantification for Steady-Pulsed ASL Perfusion Imaging”. Proc. ISMRM 27th Scientific Session, Montreal, May 2019, p2191.
70. A Javed, NG Lee, HP Do, N Ghugre, G Wright, EC Wong, **KS Nayak**. “Optimization of Steady-Pulsed Arterial Spin Labeling for Myocardial Perfusion Imaging”. Proc. ISMRM 27th Scientific Session, Montreal, May 2019, p2210.
71. S Sudhakara, Y Lim, W Chen, S Narayanan, **KS Nayak**. “Low-Latency Reconstruction for Real-Time Speech MRI”. Proc. ISMRM 27th Scientific Session, Montreal, May 2019, p2403.
72. Z Zhu, Y Bliesener, RM Lebel, **KS Nayak**. “Sparse Pre-Contrast T1 Mapping for DCE-MRI Calibration”. Proc. ISMRM 27th Scientific Session, Montreal, May 2019, p4544.
73. S Gutta, Y Bliesener, J Acharya, M Law, **KS Nayak**. “Sparse DCE-MRI using a Temporal Constraint Learned from Clinical Data”. Proc. ISMRM 27th Scientific Session, Montreal, May 2019, p4749.

74. V Landes, TR Jao, A Javed, **KS Nayak**. “Improved Velocity-Selective Labeling Pulses for Myocardial ASL”. Proc. ISMRM 27th Scientific Session, Montreal, May 2019, p4967.

SCMR 2019

75. HP Do, AJ Yoon, **KS Nayak**. “dnoiseNET: Deep Convolutional Neural Network for Image Denoising.” Proc. SCMR/ISMRM Workshop on Machine Learning in CMR, Seattle, February 2019. #6.
76. A Javed, T Jao, N Ghugre, GA Wright, EC Wong, **KS Nayak**. “Saturation-based Steady-Pulsed Myocardial ASL Perfusion Imaging.” Proc. SCMR 22nd Scientific Sessions, Seattle, February 2019. P012

Orthopaedic Research Society Annual Meeting, 2019

77. BH Foster, CB Shaw, RD Boutin, CO Bayne, RM Szabo, **KS Nayak**, AJ Chaudhari. “Quantification of Wrist Instability Using Real-Time 3D MRI”. Orthopaedic Research Society Annual Meeting, Austin, TX, February 2019. #304 (oral presentation).

ISMRM Workshop on Machine Learning, Part II 2018

78. Y Bliesener, **KS Nayak**. “Posterior Approximation for simultaneous DCE-MRI pharmaco-kinetic parameter and uncertainty estimation”. ISMRM Workshop on Machine Learning Part II, Washington DC, October 2018.
79. S Gutta, M Law, **KS Nayak**. “Deep Convolutional Residual Network for Denoising Brain Tumor DCE-MRI Tracer-Kinetic Maps”. ISMRM Workshop on Machine Learning Part II, Washington DC, October 2018.
80. HP Do, Y Guo, AJ Yoon, **KS Nayak**. “Deep Convolutional Neural Networks for Segmentation of Myocardial ASL Short-Axis Data: Accuracy, Uncertainty, and Adaptability” ISMRM Workshop on Machine Learning Part II, Washington DC, October 2018.

ISMRM Scientific Sessions 2018

81. VL Landes, **KS Nayak**. “Improved multi-band RF performance using GRATER-based predistortion”. Proc. ISMRM 26th Scientific Session, Paris, June 2018, p171.
82. Y Bliesener, SG Lingala, JP Haldar, and **KS Nayak** ,"Influence of whole-brain DCE-MRI (k,t) sampling strategies on variance of pharmacokinetic parameter estimates," Proc. ISMRM 26th Scientific Session, Paris, June 2018. p555.
83. X Zhong, T Martin, S Raman, H Wu, **KS Nayak**, K Sung. “Assessment of Approximated Analytical B1+ Correction Method for Prostate DCE-MRI with Multiple Noise Levels and in 3.0T Systems,” Proc. ISMRM 26th Scientific Session, Paris, June 2018. p1519.
84. Y Bliesener, Y Guo, X Zhong, R Bosca, KH Sung, **KS Nayak**. “RF Transmit Calibration for DCE-MRI“. Proc. ISMRM 26th Scientific Session, Paris, June 2018. p2183.
85. X Miao X, **KS Nayak**, JC Wood. " Fast Brain Iron Quantification Using QSM with Low Spatial Resolution." Proc. ISMRM 26th Scientific Sessions, Paris, June 2018, p2216.
86. X Miao, S Choi, **KS Nayak**, JC Wood. " QSM-MRI Reveals Increased Brain Iron Deposition in Anemia Patients with Blood Transfusion." Proc. ISMRM 26th Scientific Sessions, Paris, June 2018, p2217.
87. W Chen, Y Lim, Y Bliesener, SS Narayanan, **KS Nayak**. “Comparison of leading reconstruction techniques for real-time speech MRI.” Proc. ISMRM 26th Scientific Session, Paris, June 2018. p3516.
88. R Lobos, A Javed, **KS Nayak**, WS Hoge, JP Haldar. “Robust Autocalibrated LORAKS for Improved EPI Ghost Correction with Structured Low-Rank Matrix Models,” Proc. ISMRM 26th Scientific Session, Paris, June 2018. p3533.
89. Y Lim, Y Zhu, SG Lingala, D Byrd, SS Narayanan, **KS Nayak**. “3D Real-Time MRI of Vocal Tract Shaping”. Proc. ISMRM 26th Scientific Session, Paris, June 2018. p3541.

90. A Javed, TR Jao, **KS Nayak**. “Velocity Sensitivity of Inner-Volume Cardiac Echo Planar Imaging”. Proc. ISMRM 26th Scientific Session, Paris, June 2018. p4240.
91. VL Landes, TR Jao, **KS Nayak**. “Practical implementation of SMS bSSFP in the Heart.” Proc. ISMRM 26th Scientific Session, Paris, June 2018. p4760.

IEEE International Symposium on Biomedical Imaging 2018

92. RA Lobos, A Javed, **KS Nayak**, WS Hoge, JP Haldar. “Robust Auto-calibrated LORAKS for EPI Ghost Correction.” IEEE International Symposium on Biomedical Imaging, Washington DC, April 2018.

Orthopaedic Research Society 2018

93. CB Shaw, BH Foster, RD Boutin, CP Bateni, CO Bayne, RM Szabo, **KS Nayak**, and AJ Chaudhari. “Four-dimensional Real-time MRI For Assessment Of Dynamic Wrist Instability.” Orthopaedic Research Society 2018 Annual Meeting, New Orleans, March 2018.

SCMR/EuroCMR 2018

94. A Javed, HP Do, AJ Yoon, **KS Nayak**, P Garg. “Coronary Endothelial Function Testing using Continuous Cardiac ASL-CMR.” Proc. SCMR/ISMRM Workshop on CMR in Ischemic Heart Disease, Barcelona, February 2018. WP02
95. HP Do, TR Jao, V Ramanan, GA Wright, NR Ghugre, **KS Nayak**. “Optimal flip-angle for steady-pulsed arterial spin labeled CMR.” Proc. SCMR/ISMRM Workshop on CMR in Ischemic Heart Disease, Barcelona, February 2018. WP05
96. V Landes, TR Jao, **KS Nayak**. “Simultaneous Multi-slice bSSFP CMR: Is it feasible?.” Proc. SCMR 21st Scientific Sessions, Barcelona, February 2018. P333
97. A Javed, **KS Nayak**. “Velocity sensitivity of inner-volume echo-planar imaging.” Proc. SCMR 21st Scientific Sessions, Barcelona, February 2018. P334

CHEST 2017

98. P Parikh, W Chou, E Valladares, W Chen, T Hammond, **KS Nayak**. “Dynamic MRI Evaluation of Moderate to Severe Obstructive Sleep Apnea across the Obesity Spectrum.” American lege of Chest Physicians 2017, Toronto, October 2017.

ISMRM Scientific Sessions 2017

99. VL Landes, **KS Nayak**. "Measurement of Small-Tip RF Pulses Using Gradient Reversal." Proc. ISMRM 25th Scientific Sessions, Honolulu, April 2017, p78. ISMRM Merit Awards: Magna Cum Laude.
100. Y Guo, SG Lingala, RM Lebel, **KS Nayak**. "Joint estimation of arterial input function and tracer kinetic parameters from under-sampled DCE-MRI." Proc. ISMRM 25th Scientific Sessions, Honolulu, April 2017, p137. ISMRM Merit Awards: Magna Cum Laude.
101. RM Lebel, Y Guo, SG Lingala, R Frayne, **KS Nayak**. “Highly Accelerated DCE imaging with integrated T1 mapping." Proc. ISMRM 25th Scientific Sessions, Honolulu, April 2017, p138.
102. NR Ghugre, HP Do, K Chu, V Ramanan, **KS Nayak**, and GA Wright. "Non-contrast assessment of vasodilator response using native myocardial T1 and T2 mapping and Arterial Spin Labeled CMR." Proc. ISMRM 25th Scientific Sessions, Honolulu, April 2017, p544.
103. Y Guo, SG Lingala, **KS Nayak**. . "Reconstruction of DCE tracer kinetic parameters from under-sampled data with a flexible model consistency constraint." Proc. ISMRM 25th Scientific Sessions, Honolulu, April 2017, p1206.
104. J Chen, SG Lingala, Y Lim, A Toutios, S Narayanan, **KS Nayak** "Task-based Optimization of Regularization in Highly Accelerated Speech RT-MRI." Proc. ISMRM 25th Scientific Sessions, Honolulu, April 2017, p1409.

105. HP Do, **KS Nayak** "Physiologically synchronized multi-module pulsed arterial spin labeled (SymPASL) MRI." Proc. ISMRM 25th Scientific Sessions, Honolulu, April 2017, p1878.
106. TR Jao, **KS Nayak** "Simultaneous Multi-slice Cardiac ASL." Proc. ISMRM 25th Scientific Sessions, Honolulu, April 2017, p1888.
107. Y Bliesener, SG Lingala, JP Haldar, **KS Nayak** "Comparison of (k,t) sampling schemes for DCE MRI pharmacokinetic parameter estimation." Proc. ISMRM 25th Scientific Sessions, Honolulu, April 2017, p1909.
108. A Javed, **KS Nayak** "Cardiac ASL using Single-Shot EPI at 3T." Proc. ISMRM 25th Scientific Sessions, Honolulu, April 2017, p3237.
109. X Miao, Y Guo, **KS Nayak**, JC Wood. "Accelerated B0 mapping Using X-sampling in k-TE space." Proc. ISMRM 25th Scientific Sessions, Honolulu, April 2017, p3667.
110. W Chen, E Gillett, S Davidson Ward, MCL Khoo, **KS Nayak**. "Evaluation of upper airway neuromuscular reflex and passive collapsibility using real-time multi-slice MRI during CPAP." Proc. ISMRM 25th Scientific Sessions, Honolulu, April 2017, p3846.
111. Y Lim, SG Lingala, S Narayanan, **KS Nayak**. "Correction of dynamic off-resonance in spiral 2D real-time MRI of speech." Proc. ISMRM 25th Scientific Sessions, Honolulu, April 2017, p4017.
112. VL Landes, CM Ferguson, HP Do, JR Woollard, LO Lerman, **KS Nayak**. "Comparison of Renal Blood Flow Measurements Obtained using ASL-MRI and CT Perfusion." Proc. ISMRM 25th Scientific Sessions, Honolulu, April 2017, p4856.
113. J Töger, T Sorensen, K Somandepalli, A Toutios, SG Lingala, S Narayanan, **KS Nayak**. "Test-retest repeatability of human speech biomarkers from static and real-time dynamic magnetic resonance imaging." Proc. ISMRM 25th Scientific Sessions, Honolulu, April 2017, p5084.

<u>American Society for Neuroradiology 2017</u>

114. S Bergamaschi, R Correia, N Calixto, K Bezerra, P Kim, M Kim-Tenser, N Sanossian, A Amar, **KS Nayak**, M Law. “Automated CT perfusion software is challenging in evaluating posterior circulation strokes”, ASNR 55th Annual meeting, Long Beach, April 2017.
115. S Bergamaschi, R Correia, N Calixto, **KS Nayak**, P Kim, A Amar, M Kim, N Sanossian, S Cen, M Law. “Measurement of Infarct Core Volume Using Automated CT Perfusion Processing Software and Comparison with DWI in Stroke Patients in a Daily Practice Population”, ASNR 55th Annual meeting, Long Beach, April 2017.

<u>Society for Cardiovascular Magnetic Resonance 2017</u>

116. HP Do, AJ Yoon, MW Fong, L Grazette, F Saremi, ML Barr, **KS Nayak**. “Vasodilator Response in Heart Transplant Recipients using T1-based Myocardial Blood Volume Mapping.” SCMR/ISMRM Co-provided Workshop on CMR for Probing Mechanisms of Heart Disease: Micro to Macro to Model, Washington DC, February 2017.
117. NR Ghugre, HP Do, V Ramanan, **KS Nayak**, GA Wright. “Contrast Free Assessment of Vasodilator Response using Myocardial T2 BOLD and Arterial Spin Labeled CMR.” Proc. SCMR 20th Scientific Sessions, Washington DC, February 2017.

<u>MR Angio Club 2016</u>

118. RM Lebel, N Nallapareddy, SG Lingala, LB Andersen, R Frayne, **KS Nayak**. “Automatic Bolus Detection for Dynamic Contrast Enhanced Imaging with Sparse Sampling,” Proc. MR Angio Club 28$^{th}$ Meeting, Chicago, September 2016.

<u>InterSpeech 2016</u>

119. J Töger, Y Lim, SG Lingala, S Narayanan, **KS Nayak**. "Sensitivity of quantitative RT-MRI metrics of vocal tract dynamics to image reconstruction settings." InterSpeech, San Francisco, Sep 2016.

120. SG Lingala, A Toutios, J Töger, Y Lim, Y Zhu, YC Kim, C Vaz, S Narayanan, **KS Nayak**. "State-of-the-art MRI Protocol for Comprehensive Assessment of Vocal Tract Structure and Function." InterSpeech, San Francisco, Sep 2016.
121. A Toutios, SG Lingala, C Vaz, J Kim, J Esling, P Keating M Gordon, D Byrd, L Goldstein, **KS Nayak**, S Narayanan. "Illustrating the Production of the International Phonetic Alphabet Sounds using Fast Real-Time Magnetic Resonance Imaging." InterSpeech, San Francisco, Sep 2016.
122. Y Lim, SG Lingala, A Toutios, S Narayanan, **KS Nayak**. "Improved Depiction of Tissue Boundaries in Vocal Tract Real-time MRI using Automatic Off-resonance Correction." InterSpeech, San Francisco, Sep 2016.

ISMRM Scientific Sessions 2016

123. Z Wu, W Chen, MCK Khoo, SLD Ward, **KS Nayak**, "Evaluation of Upper Airway Collapsibility using Simultaneous Multi-slice Real-Time MRI," Proc. ISMRM 24rd Scientific Sessions, Singapore, May 2016. p39. **W.S. Moore Young Investigator Award**.
124. T Jao, **KS Nayak**. "The Physiological Noise Contribution to Temporal Signal-to-Noise Increases with Decreasing Resolution and Acceleration in Quantitative CMR." Proc. ISMRM 24rd Scientific Sessions, Singapore, May 2016. p414. ISMRM Merit Awards: Magna Cum Laude.
125. SG Lingala, Y Guo, Y Zhu, N Nallapareddy, RM Lebel, M Law, **KS Nayak**. "Accelerated brain DCE-MRI using Contrast Agent Kinetic Models as Temporal Constraints." Proc. ISMRM 24rd Scientific Sessions, Singapore, May 2016. p651.
126. W Chen, Z Wu, SLD Ward, MCK Khoo, **KS Nayak**. "Real-time Multi-slice MRI during CPAP reveals dynamic changes in upper airway in response to pressure change." Proc. ISMRM 24rd Scientific Sessions, Singapore, May 2016. p698.
127. Y Guo, SG Lingala, Y Zhu, RM Lebel, **KS Nayak**. "Direct Reconstruction of Kinetic Parameter Maps in Accelerated Brain DCE-MRI using the Extended-Tofts Model." Proc. ISMRM 24rd Scientific Sessions, Singapore, May 2016. p868.
128. HP Do, V Ramanan, GA Wright, NR Ghugre, **KS Nayak**. "Non-contrast vasodilator response assessment in a porcine model of acute myocardial infarction using arterial spin labeled CMR." Proc. ISMRM 24rd Scientific Sessions, Singapore, May 2016. p999.
129. VL Landes, EK Doyle, PJ Prado, JC Wood, **KS Nayak**. "Feasibility of Non-invasive Proton-Density Fat Fraction Evaluation using a Single-sided MR device." Proc. ISMRM 24rd Scientific Sessions, Singapore, May 2016. p2206
130. EK Doyle, JM Chia, **KS Nayak**, JC Wood. "R2* estimation with CSI: a pilot and feasibility study." Proc. ISMRM 24rd Scientific Sessions, Singapore, May 2016. p2790.
131. HP Do, **KS Nayak**. "Myocardial ASL Perfusion Imaging using MOLLI." Proc. ISMRM 24rd Scientific Sessions, Singapore, May 2016. p3142.
132. HP Do, AJ Yoon, MW Fong, F Saremi, ML Barr, **KS Nayak**. "Double-gated Myocardial ASL Perfusion Imaging provides insensitivity to heart rate variation." Proc. ISMRM 24rd Scientific Sessions, Singapore, May 2016. p3145.
133. T Jao, **KS Nayak**. "Demonstration of Velocity Selective Myocardial Arterial Spin Labeling." Proc. ISMRM 24rd Scientific Sessions, Singapore, May 2016. p3146.
134. SG Lingala, Y Zhu, Y Ji, A Toutios, W-C Lo, N Sieberlich, S Narayanan, **KS Nayak**. "Accelerating Real-time MRI of speech using spiral through-time GRAPPA." Proc. ISMRM 24rd Scientific Sessions, Singapore, May 2016. p3228.
135. SG Lingala, S Bhave, Y Zhu, **KS Nayak**, M Jacob. "Temporal point spread function interpretation of low-rank, dictionary learning models in dynamic MRI." Proc. ISMRM 24rd Scientific Sessions, Singapore, May 2016. p4233.

American Society for Neuroradiology 2016

136. A Kammen, B Morkin, S Cen, SG Lingala, J Arevalo-Perez, A Thomas, K Peck, T Kaley, M Law, R Young, **KS Nayak.** “Multi-Center Study demonstrates Dynamic Contrast Enhanced Permeability MRI differentiates pseudo progression from true disease progression in primary high-grade gliomas and metastatic melanoma”, ASNR 54th Annual meeting, Washington, May 2016.
137. A Kammen, B Morkin, S Cen, SG Lingala, M Law, **KS Nayak.** “High Resolution DCE MRI permeability differentiates pseudo progression from true disease progression in primary high-grade gliomas and metastatic melanoma”, ASNR 54th Annual meeting, Washington, May 2016.

Society for Cardiovascular Magnetic Resonance 2016

138. HP Do, V Ramanan, TR Jao, GA Wright, **KS Nayak**, NR Ghugre. "Non-contrast Myocardial Perfusion Assessment in Porcine Acute Myocardial Infarction using Arterial Spin Labeled CMR." SCMR 19th Scientific Sessions, Los Angeles, January 2016 O007.
139. Z Wu, F Han, P Hu, **KS Nayak**. "Improved Scan Efficiency for Golden-Angle Radial CMR with Anisotropic Field-of-View." SCMR 19th Scientific Sessions, Los Angeles, January 2016 O108.
140. TR Jao, **KS Nayak**. "Demonstration of Velocity Selective Myocardial Arterial Spin Labeling Perfusion CMR." SCMR 19th Scientific Sessions, Los Angeles, January 2016 P098.
141. TR Jao, HP Do, **KS Nayak**. "Myocardial ASL-CMR Perfusion Imaging with Improved Sensitivity using GRAPPA." SCMR 19th Scientific Sessions, Los Angeles, January 2016 P100.

ISMRM Workshop on Data Sampling and Image Reconstruction 2016

142. Z Wu, W Chen, **KS Nayak**. "Low-Field Simulation and Minimum Field Strength Requirements." ISMRM Workshop on Data Sampling and Image Reconstruction, Sedona, Arizona, Jan 2016.
143. SG Lingala, Y Guo, Y Zhu, N Nallapareddy, RM Lebel, M Law, **KS 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.
144. Y Guo, Y Zhu, SG Lingala, RM Lebel, **KS 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.
145. SG Lingala, Y Mohsin, S Bhave, X Miao, Y Guo, **KS 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.
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Radiological Society of North America 2015

147. **KS Nayak**, Y Guo, Y Zhu, SG Lingala, RM Lebel, N Nallapareddy, MS Shiroishi, M Law. "Improved clinical DCE-MRI pipeline for high resolution, whole brain imaging: application to brain tumor patients." RSNA, Chicago, November 2015.

ISMRM Workshop on Simultaneous Multislice Imaging 2015

148. VL Landes, TR Jao, **KS Nayak**. “CAIPIRINHA-SSFP with improved banding artifact performance,” ISMRM Workshop on Simultaneous Multi-slice Imaging 2015, July 2015.
149. VL Landes, TH Kim, JP Haldar, **KS Nayak**. “Experimental Validation of SMS-LORAKS,” ISMRM Workshop on Simultaneous Multi-slice Imaging 2015, July 2015.

ISMRM Scientific Sessions 2015

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151. Z Wu, MCK Khoo, **KS Nayak**. "Simultaneous Multi-slice Airway Compliance Measurement using Sparse Golden-angle Radial CAIPIRINHA." Proc. ISMRM 23rd Scientific Sessions, Toronto, June 2015, p242. ISMRM Merit Awards: Summa Cum Laude.
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157. Z Wu, **KS Nayak**. "Anisotropic Field-of-View Support for Golden Angle Radial Imaging." Proc. ISMRM 23rd Scientific Sessions, Toronto, June 2015, p2437.
158. Y Zhu, Y Guo, SG Lingala, RM Lebel, M Law, **KS Nayak**. "Evaluation of GLACIER Sampling for 3D DCE-MRI." Proc. ISMRM 23rd Scientific Sessions, Toronto, June 2015, p2535.
159. V Rispoli, JF Nielsen, **KS Nayak**, JL Carvalho “Computational fluid dynamics simulations guided by Fourier velocity encoded MRI." Proc. ISMRM 23rd Scientific Sessions, Toronto, June 2015, p2720.
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163. W Chen, **KS Nayak**. "Thermal Noise Propagation in Water-fat Imaging and Fat Fraction Measurement." Proc. ISMRM 23rd Scientific Sessions, Toronto, June 2015, p3663.
164. RM Lebel, Y Guo, Y Zhu, SG Lingala, R Frayne, LB Anderson, J Easaw, **KS Nayak**. "The Comprehensive Contrast-Enhanced Neuro Exam." Proc. ISMRM 23rd Scientific Sessions, Toronto, June 2015, p3705.

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170. Z Wu, YC Kim, MCK Khoo, **KS Nayak**. “Novel Upper Airway Compliance Measurement using Dynamic Golden-Angle Radial FLASH.” Proc. ISMRM 22nd Scientific Sessions, Milano, Italy, May 2014, p4323.
171. YC Kim, **KS Nayak**. “Free-breathing cardiac 3D cine MRI at 3T using golden-ratio Cartesian radial sampling and variable flip angle.” Proc. ISMRM 22nd Scientific Sessions, Milano, Italy, May 2014, p4364.
172. Y Zhu, Y Guo, RM Lebel, M Law, **KS Nayak**. “Randomized Golden Ratio Sampling for Highly Accelerated Dynamic Imaging.” Proc. ISMRM 22nd Scientific Sessions, Milano, Italy, May 2014, p4365.
173. YC Kim, B Joshi, S Loloyan, R Kato, MCK Khoo, SLD Ward, **KS Nayak**. “Investigations of upper airway obstruction pattern in sleep apnea benefit from real-time 3D MRI.” Proc. ISMRM 22nd Scientific Sessions, Milano, Italy, May 2014, p4387.

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MR Angio Club 2012

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187. TB Smith, **KS Nayak**. “Automatic off-resonance correction with piecewise linear autofocus,” Proc. ISMRM 20th Scientific Sessions, Melbourne, May 2012, p218.
188. Y Zhu, YC Kim, M Proctor, S Narayanan, **KS Nayak**. “Towards Dynamic 3D MRI of Speech,” Proc. ISMRM 20th Scientific Sessions, Melbourne, May 2012, p294.
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203. SD Sharma, HH Hu, **KS Nayak**. "Accelerated Water-Fat Imaging using Restricted Subspace Field Map Estimation," Proc. ISMRM 19th Scientific Sessions, Montreal, May 2011, p2704.
204. HP Do, RM Lebel, **KS Nayak**. "Magnetization Transfer Effects in Wideband SSFP," Proc. ISMRM 19th Scientific Sessions, Montreal, May 2011, p2787.
205. G Danagoulian, RR Colen, **KS Nayak**, S Mukundan, F Jolesz, EJ Schmidt "Detection of Nerve Injury with Diffusion Weighted Wide Band Steady State Free Precession (DW-WBSSFP) in the Lumbar Spine," Proc. ISMRM 19th Scientific Sessions, Montreal, May 2011, p4294.
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ISMRM Workshop on Data Sampling and Image Reconstruction 2009

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MR Angio Club 2008

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International Body Composition Symposium 2009

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ISMRM Scientific Sessions 2008

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384. PA Rivas, **KS Nayak**, AB Kerr, PC Yang, JM Pauly, DG Nishimura, and BS Hu, “Real-Time Interactive Cardiac MRI System with Color Flow Mapping,” Proc. ACC, New Orleans, 1999, p. 1238.
385. **KS Nayak**, PA Rivas, AB Kerr, JM Pauly, BS Hu, and DG Nishimura, “Applications of Real-Time MRI with Color Flow Mapping: Fast and Slow Flow,” Proc. SCMR 2nd Scientific Session, Atlanta, 1999, p. 54.
386. **KS Nayak**, AB Kerr, BS Hu, JM Pauly, and DG Nishimura, “Real-Time Cardiac MRI with Color Flow Mapping,” Proc. AHA, November 1998, p. I-513.
387. **KS Nayak**, and DG Nishimura, “Randomized Trajectories for Reduced Aliasing Artifact,” Proc. ISMRM 6th Scientific Session, Sydney, 1998, p. 670.
388. **KS Nayak**, AB Kerr, BS Hu, JM Pauly, and DG Nishimura. “Real-Time Interactive MRI with Color Flow Mapping,” Proc. ISMRM 6th Scientific Session. Sydney, 1998, p. 1969.
389. **KS Nayak**, and DG Nishimura, “Automatic Field Map Generation and Off-resonance Correction for PR Imaging,” Proc. ISMRM 5th Scientific Session, Vancouver, 1997, p. 1985.

## BOOK

1. GM Pohost and **KS Nayak**, “Handbook of Cardiovascular Magnetic Resonance Imaging,” Informa Healthcare, New York, 2006. ISBN: 0824758412.

## BOOK CHAPTERS

1. R Vliegenthart, M Jerosch-Herold, **KS Nayak**, T Leiner, S Plein. “Myocardial Perfusion and Permeability,” in MR and CT Perfusion Imaging: Clinical Applications and Theoretical Principles, Ed: Roland Bammer, Wolters-Kluwer, 2015. ISBN: 9781451147155.
2. VC Rispoli, JLA Carvalho, JF Nielsen, **KS Nayak**. “Assessment of Carotid Flow Using Magnetic Resonance Imaging and Computational Fluid Dynamics,” in Fluid Dynamics, Computational Modeling and Applications, Ed: L. Hector Juarez, InTech, 2012. ISBN: 978-953-51-0052-2.
3. JLA Carvalho and **KS Nayak**. “Rapid Quantitation of Aortic Valve Flow Using Spiral Fourier Velocity Encoded MRI,” in Aortic Valve, Eds: Ying-Fu Chen and Chwan-Yao Luo, InTech, 2011. ISBN: 978-953-307-561-7.
4. HH Hu, MI Goran, **KS Nayak**, “Assessment of Abdominal Adiposity and Organ Fat with Magnetic Resonance Imaging,” in Role of the Adipocyte in Development of Type 2 Diabetes, Ed: Coleen Croniger, InTech, 2011. ISBN: 978-953-307-598-3.
5. **KS Nayak**, JF Nielsen, “CMR Imaging Methods,” in Atlas of Cardiovascular Magnetic Resonance, Eds: W Manning and E Braunwald, Springer—Current Medicine, 2009. ISBN: 1573402990.
6. **KS Nayak**, GM Pohost, “Ischemic Heart Disease: Myocardial Perfusion Imaging,” in Handbook of Cardiovascular Magnetic Resonance Imaging, Eds: GM Pohost and KS Nayak, Informa Healthcare, 2006, p179–194.
7. GM Pohost, **KS Nayak**, “The Future of CMR,” in Handbook of Cardiovascular Magnetic Resonance Imaging, Eds: GM Pohost and KS Nayak, Informa Healthcare, 2006, p425–434.
8. P Varadarajan, K Souibri, **KS Nayak**, GM Pohost, “Cardiovascular magnetic resonance: Evaluation of myocardial function, perfusion and viability,” in Cardiac CT, PET and MR, Eds: V Dilsizian and GM Pohost, Blackwell Futura, 2006, p155–191.

## PATENTS

1. NG Lee, **KS Nayak**, "Image Reconstruction incorporating Maxwell Fields and Gradient Impulse Response Function Distortion," US Provisional Application. April 2021.
2. Y Guo, RM Lebel, Y Zhu, SG Lingala, **KS Nayak**, "Method for improved dynamic contrast enhanced imaging using tracer-kinetic models as constraints," U.S. Patent #11,412,948. Issued Aug 16, 2022.
3. Y Bliesener, **KS Nayak**, "Method for Joint Arterial-Input-Function and Tracer-Kinetic Parameter Estimation in Accelerated DCE-MRI using a Model Consistency Constraint," US Patent Applied. April 2019.
4. **KS Nayak**, "Magnetic Measurement of Fat Fraction," US Provisional Application 62/440,294, December 2016.
5. HP Do, TR Jao, **KS Nayak**, "Multi-Pulsed Arterial Spin Labeled Magnetic Resonance Imaging," USC Disclosure #D2014-0072. April 2014.
6. Y Zhu, Y Guo, RM Lebel, **KS Nayak**, "Method for Dynamic 3D MRI Data Sampling," USC File #2014-227. US Provisional Application 61/980,462. April 2014.
7. **KS Nayak** and Y Chai, "Alignment Indicator for Dental Radiography," USC File #2014-187. February 2014.
8. T Smith and **KS Nayak**, "Method for Reduced Field-of-View MRI in an inhomogeneous field with rapid Outer Volume Suppression," U.S. Patent #9,739,861. Issued August 2017.
9. T Jao, Z Zun, and **KS Nayak**, "Efficient Mapping of Tissue Properties for Unregistered Data with Low Signal-to-Noise Ratio," (under review) U.S. Patent Application #13/231,741. March 2012.
10. K Sung and **KS Nayak**, "Tailored radiofrequency pulses for uniform saturation in magnetic resonance imaging," U.S. Patent #8,324,898. issued Dec. 2012.
11. JF Nielsen and **KS Nayak**, "Eddy-current artifact reduction in balanced steady-state free precession magnetic resonance imaging," U.S. Patent #8,283,924. issued Oct. 2012.
12. HL Lee and **KS Nayak**, "Preparing the magnetization state of a sample for alternating repetition time steady state free precession magnetic resonance imaging," U.S. Patent #8,269,494, issued September 2012.
13. JF Nielsen and **KS Nayak**, "Fast velocity measurements using balanced SSFP magnetic resonance imaging," U.S. Patent #8,212,561. issued July 2012.
14. CH Cunningham, **KS Nayak**, JM Pauly, "RF field mapping for magnetic resonance imaging," U.S. Patent #7,446,526. issued Nov. 2008. Licensed to GE, Siemens, and Philips.
15. K Sung and **KS Nayak**, "Compensating for non-uniformity of excitation field in MRI," U.S. Patent #7,372,270. issued May 2008.
16. **KS Nayak** and BA Hargreaves, "Steady-State Free-Precession MRI with Increased Signal Bandwidth," U.S. Patent #7,332,908. issued Feb. 2008. Licensed to GE, Siemens, and Philips.
17. **KS Nayak** "Ultra-short T2 Imaging Pulse Sequence," 2003, software licensed to GE.
18. KI Iourcha, **KS Nayak**, Z Hong, "System and Method for Fixed-rate Block-based Image Compression with Inferred Pixel Values," U.S. Patent #5,956,431, issued Sept. 1999. Continuation: "Fixed-rate Block-based Image Compression with Inferred Pixel Values," U.S. Patent #6,658,146, issued Dec. 2003. Continuation: "Fixed-rate Block-based Image Compression with Inferred Pixel Values," U.S. Patent #6,683,978, issued Jan. 2004. Continuation: "Fixed-rate Block-based Image Compression with Inferred Pixel Values," U.S. Patent #6,775,417, issued Aug. 2004. Continuation: "Fixed-rate Block-based Image Compression," U.S. Patent #7,039,244, issued May 2006. Continuation: "Image

Processing System," U.S. Patent #7,043,087, issued May 2006. Continuation: "Imaging CODEC Engine," U.S. Patent #7,801,363, issued Sept. 2010.

## INVITED TALKS

INVITED CONFERENCE TALKS

1. Low Field Cardiovascular MR, Society for Magnetic Resonance Angiography (MRA Club), August 2022.
2. Body Composition Assessment using Novel 0.55 Tesla MRI, USC Diabetes and Obesity Research Institute 9th Annual Symposium, April 2022.
3. Opportunities at 0.55 Tesla, Siemens Healthineers Lunchtime Symposium, ISMRM 2021 Virtual Meeting, May 2021.
4. High Performance Low Field MRI at USC, Southern California Hi-Lo Field Workshop, Los Angeles, October 2019.
5. High Performance Low Field MRI, NIST Workshop on Low-Field Magnetic Resonance, Boulder Colorado, August 2019.
6. Myocardial Arterial Spin Labeled (ASL) Perfusion Imaging, Non-Contrast CMR Assessment of Ischemic Heart Disease, ISMRM Scientific Sessions, Montreal, May 2019.
7. Journal to Awareness of Social Bias in Science, RESONATE: Discussion of Scientific and Social Biases within ISMRM. ISMRM/ESMRMB Scientific Sessions, Paris, June 2018.
8. Acquisition Strategies: CE and NCE Approaches, Sunrise Course: Advanced Techniques in Cardiovascular MR: Tissue Perfusion, ISMRM/ESMRMB Scientific Sessions, Paris, June 2018.
9. Advanced Reconstruction Techniques for DCE/DSC, Weekend Course: Advanced Topics in Perfusion MRI, ISMRM/ESMRMB Scientific Sessions, Paris, June 2018.
10. Arterial Spin Labeling, Session: Non-contrast Methods, SCMR/ISMRM Co-Provided Workshop on CMR in Ischemic Heart Disease, Barcelona, February 2018.
11. Diagnostic Real-Time MRI, Plenary Session "Dynamic Real-Time MRI", ISMRM 2017 Scientific Sessions, Honolulu, HI, April 2017.
12. MR Phase Imaging, ISMRM Workshop on Quantitative MR Flow: Innovation & Implementation for Clinical & Physiological Insights, San Francisco, CA, October 2016.
13. MRI at Multiple Spatial Scales, daVinci Convergence Symposium - Imaging Across Scales, Santa Monica, CA, February 2016.
14. Myocardial ASL Perfusion, ISMRM Workshop on Non-Contrast Cardiovascular MRI, Long Beach, CA, March 2015.
15. Real-Time Imaging and Compressed Sensing, Gordon Research Conference on In-Vivo NMR, Proctor Academy, Andover, NH, July 2014.
16. Imaging Challenges at 3T and Above, ISMRM 2014, Course: Cardiovascular MRI at 3T and Beyond, Milano, Italy, May 2014.
17. Real-Time MRI of Speech Production, Speech MRI Summit, Los Angeles, CA, February 2014.
18. How to Quantify Blood Flow, SCMR 16th Scientific Sessions, Physician Pre-conference Course, January 2014.
19. What is Compressed Sensing and How Can We Use It? ASFNR-ISMRM Session on Ultrafast MR Imaging, ASNR 51st Annual Meeting, San Diego, CA, May 2013.
20. New CMR Sequences and Techniques. ISMRM 2013 Weekend Course, Recent Innovations in Cardiovascular MR, Recent Developments in Hardware and Software Relevant to CMR. Salt Lake City, April 2013.
21. Towards myocardial perfusion imaging using arterial spin labeling at high fields. SCMR-ISMRM Joint Workshop: New Horizons in High-Field Cardiovascular MR: Promise and Progress. San Francisco, CA, January 2013.

22. New CMR Sequences and Techniques. ISMRM 2012 Weekend Course, Recent Advances in Cardiovascular MR, Recent Developments in Hardware and Software. Melbourne, Australia, May 2012.
23. Non-contrast perfusion methods: Ready for prime time? SCMR 14th Scientific Sessions, Orlando, FL, February 2012.
24. CMR Perfusion using Arterial Spin Labeling. GE Lunchtime Symposium at the SCMR 14th Scientific Sessions, Nice, France, February 2011.
25. Novel Myocardial Perfusion Techniques: Arterial Spin Labeling. SCMR 14th Scientific Sessions, Basic Science Pre-conference Course. Nice, France, February 2011.
26. Advanced Pulse Sequences for 3 Tesla CMR. ISMRM 18th Scientific Sessions, Sunrise Course: Cardiovascular MR Imaging, Stockholm, May 2010.
27. Tools for Mapping and Quantitative Imaging. ISMRM 18th Scientific Sessions, Educational Course: Imaging Strategies, Stockholm, May 2010.
28. Update on Myocardial Perfusion using Arterial Spin Labeling. SCMR 13th Scientific Sessions, Phoenix, AZ, January 2010.
29. Technical Challenges and Solutions for CMR at 3 Tesla. SCMR High-Field and Basic Science Pre-conference workshop. Phoenix, AZ, January 2010.
30. Real-Time Measurement of Cardiac Function and Flow. ISMRM Workshop on Cardiovascular Function, Flow, and Tissue Mechanics. Sintra, Portugal, September 2009.
31. Quantitative MRI of Abdominal Fat: Recent Developments. NCI Transdisciplinary Research on Energetics and Cancer (TREC) Scientific Meeting. Cleveland, OH, May 2009.
32. Myocardial Perfusion using Arterial Spin Labeling. SCMR 12th Scientific Sessions, Orlando, FL, January 2009.
33. Real-Time Imaging at 3T. SCMR 11th Scientific Sessions, Los Angeles, CA, February 2008.
34. Handling RF Variation at 3T. Workshop on High-Field Cardiovascular MR: An Update, Los Angeles, CA, January 2008.
35. Real-Time Imaging at 3T. ISMRM 15th Scientific Sessions, Clinical Categorical Course: Cardiovascular Imaging at High Field, Berlin, May 2007.
36. Strategies for collecting temporally-resolved physiological data. ISMRM 15th Scientific Sessions, Educational Course: MR Physics for Physicists, Berlin, May 2007.
37. Spiral and Real-Time Imaging. SCMR 10th Scientific Sessions, Rome, February 2007.
38. The Current Cutting-Edge in Rapid CMR Imaging, SCMR 10th Scientific Sessions, Rome, February 2007.
39. Spiral and Real-Time Imaging. NIH/NIBIB Workshop on High-Field Cardiovascular Magnetic Resonance, Washington, DC, September 2006.
40. EPI Artifact Correction using Parallel Imaging. IEEE-EMBS, Special Session on Cardiac Imaging, September 2006.
41. Real-Time Flow Imaging. ISMRM Workshop on Flow and Motion: Imaging Assessment of Cardiovascular and Tissue Mechanics, New York, July 2006.
42. Recent Advances in the Diagnosis of Coronary Artery Disease. North American Konkani Association Medical Symposium, Hamilton, Ontario, July 2006.
43. Real-Time Color Flow MRI. ISMRM 14th Scientific Sessions, Flow and Motion Study Group Meeting, Seattle, May 2006.
44. Spirals at High Field. SCMR 9th Scientific Sessions, Basic Science Plenary Session: Parallel and Other Novel Imaging Techniques, Miami, January 2006.
45. Identification, Modeling and Correction of Image Artifacts. ISMRM 13th Scientific Sessions, Educational Course: MR Physics for Physicists, Miami, May 2005.

46. Real-Time Cardiac Imaging. GE-Asia Seminar Series (five locations): Sydney, New Delhi, Mumbai, Beijing, and Shanghai, March 2005.
47. How to Transition to the Real World. SCMR 8th Scientific Sessions, Trainee and Students Hour, San Francisco, January 2005.
48. Non-cooperative Patients and Arrhythmia: Real-Time and Single Shot Imaging. SCMR 8th Scientific Sessions, Pre-Conference Workshop, San Francisco, January 2005.
49. Cardiovascular 3T Imaging. NASCI 32nd Annual Meeting, Next Generation Cardiac MR Session, Amelia Island, October 2004.
50. Hemodynamic Visualization with Real-Time MRI. University of Toronto Real-Time MRI Workshop, Toronto, July 2003.

## COLLOQUIA

USC Neurorestoration Center (virtual), July 2022
UCSF Lung Imaging Seminar (virtual), June 2022
UT Southwestern, Radiology and AIRC Grand Rounds (virtual), April 2021
California Institute of Technology, Medical Engineering Department, February 2020
Long Beach Memorial Medical Center, Cardiology Grand Rounds, May 2019
University of Southern California, BRIDGE institute seminar, March 2019
University of Southern California, Brain Tumor Consortium, March 2019
AIX-Marseille, MRI Seminar, June 2018
University of California at Berkeley, Bioengineering Seminar, May 2018
University of Southern California, Cardiology Grand Rounds, March 2018
Axilor Ventures, December 2017
GE John F. Welch Technology Center, December 2017
Dayananda Sagar College of Engineering, November 2017
ISMRM India Chapter, Bangalore, November 2017
Indian Institute of Sciences, Computational and Data Sciences, November 2017
University of Wisconsin-Madison, Medical Physics, October 2017
Arizona State University, Biomedical Engineering, September 2017
University of California, San Diego, Physiology & Medicine, June 2017
Case Western Reserve University, Case Center for Imaging Research, October 2016
University of California, Davis, Radiology Grand Rounds, October 2016
Cincinnati Children's Hospital, Radiology Grand Rounds, October 2014
University of California, Los Angeles, Department of Radiology, June 2014
University of Calgary, Alberta, Canada, June 2013
University of California, San Diego, Center for Functional MRI, May 2013
University of Southern California, Center for Excellence in Teaching, May 2013
Cedars-Sinai Medical Center, Biomedical Imaging Research Institute, January 2013
Seoul National University Hospital, Seoul, South Korea, August 2012
Neuroscience Research Institue, Gachon University, Incheon, South Korea, August 2012
NIH / NHLBI Laboratory for Cardiac Energetics, Bethesda, June 2010.
Linköping University Hospital, Linköping, Sweden, February 2010.
University of Louisville, Electrical Engineering, Louisville, November 2009
University of California, San Diego, Penner Biomechanics Seminar, October 2009
Brigham and Women's Hospital, Department of Radiology, October 2009
FAMU/FSU College of Engineering, May 2009
Loma Linda University Medical Center, May 2008
Yale University, Bioimaging Science Lecture Series, November 2006.

University of California, San Diego, Center for Functional MRI, August 2006.
GE Global Research Center, Niskayuna, July 2006.
University of Virginia, Biomedical Engineering, Charlottesville, April 2006.
Johns Hopkins University, Radiology, Baltimore, April 2006.
Florida State University, Computer Science, Tallahassee, November 2004.
NIH / NHLBI Laboratory for Cardiac Energetics, Bethesda, February 2004.
Medtronic AVE Inc., Santa Rosa, June 2003.
Linköping University Hospital, Linköping, Sweden, October 2002.
Guidant Inc., Santa Clara, September 2001.
Agilent Labs, Palo Alto, April 2001.
Kawasaki Medical College, Okayama, Japan, July 2000.

# TEACHING & MENTORING

## TEACHING and MENTORING GRANTS

- **Principal Investigator**, NSF/DGE, "New GK-12: Body Engineering Los Angeles," Grant #1045595. August 2011-July 2016. $1.4M. (with $1M matching funds from the USC Viterbi School of Engineering)
- **Principal Investigator**, SAMPE Foundation, "GK-12: Body Engineering Los Angeles,". August 2014. $10,000.
- **Principal Investigator**, Stevens Institute for Innovation, Innovation Inside Curriculum Grant, "Commercialization of Magnetic Resonance Imaging Technology," December 2007. $2,000.
- **Principal Investigator**, Viterbi New Initiatives Request, "Development of a Tabletop MRI Design-Build Course," July 2019, $25,000.

## DIRECT TRAINEES (PhD and Postdoc)

| Name | Degrees, Years | Current Position |
|---|---|---|
| Joao Luiz Carvalho | PhD, 2004-08 | Professor of Electrical Engineering, Universidade de Brasilia (Brazil) |
| Kyunghyun Sung | PhD, 2004-08 | Associate Professor of Radiology, University of California, Los Angeles |
| Hsu-Lei Lee | PhD, 2004-08 | MR Physicist, Cedars-Sinai Medical Center |
| Taehoon Shin | PhD, 2004-09<br>Postdoc, 2009-10 | Associate Professor of Biomedical Engieneering, Ewha Womans University (Korea) |
| Chia-Ying Liu | Postdoc, 2004-06 | Research Associate, University of Wisconsin, Madison |
| Jon-Fredrik Nielsen | Postdoc, 2005-08 | Associate Research Scientist, Biomedical Engineering, University of Michigan, Ann Arbor |
| Yoonchul Kim | PhD, 2005-10<br>Postdoc, 2010-14 | Scientist, Samsung Medical Center (Korea) |
| Zungho Zun | PhD, 2005-10 | Assistant Professor, Electrical Engineering and Radiology, Cornell University |
| Mahender Makhijani | PhD, 2005-12 | Senior Engineer, Continuum Analytics |
| Houchun Hu | Postdoc, 2006-09 | Professor of Radiology, University of Colorado, Denver |
| Samir Sharma | PhD, 2007-12 | Engineer, Canon Medical Systems, |
| Travis Smith | PhD, 2007-12 | Research Assistant Professor, Oregon Health Sciences University |
| Marc Lebel | Postdoc, 2010-12 | Scientist, GE Applied Sciences Laboratory (Canada) |
| Yinghua Zhu | PhD, 2010-15 | Software Engineer, Google |
| Ziyue Wu | PhD, 2011-15 | CEO, Wuxi Marvelstone Healthcare (China) |
| Johannes Töger | Postdoc, 2015-16 | Associate Senior Lecturer, Physiology, Lund University (Sweden) |
| Sajan Lingala | Postdoc, 2014-17 | Assistant Professor, Biomedical Engineering, University of Iowa |
| Hung Phi Do | PhD, 2010-2017<br>Postdoc, 2017 | MR Clinical Collaborations Manager<br>Canon Medical Systems |

| Name | Degrees, Years | Current Position |
|---|---|---|
| Yi Guo | PhD, 2012-2017 | Software Engineer, SnapChat |
| Terrence Jao | PhD, 2011-2017 | Radiology Resident, Stanford University |
| Xin Miao | PhD, 2013-2018 | MR Research Scientist, Siemens Healthineers & Dana Farber Cancer Institute |
| Weiyi Chen | PhD, 2013-2019 | Display Algorithm Engineer, Apple |
| Vanessa Landes | PhD, 2012-2019 | Clinical Scientist, PET/CT/MR, GE Healthcare & Massachusetts General Hospital |
| Ahsan Javed | PhD, 2012-2019 | Postdoctoral Fellow, Intramural Division, NIH/ NHLBI |
| Yongwan Lim | PhD, 2015-2020<br>Postdoc 2020-2021 | Display Engineer, Apple |
| Yannick Bliesener | PhD, 2015-2020 | Scientist, Samsung |
| Sreedevi Gutta | Postdoc, 2018-2020 | Assistant Professor, California State University San Marcos |
| Namgyun Lee | PhD, 2018- | |
| Zhibo Zhu | PhD, 2018- | |
| Ziwei Zhao | PhD, 2019- | |
| Kübra Keskin | PhD, 2019- | |
| Bochao Li | PhD, 2019- | |
| Ye Tian | Postdoc, 2019- | |
| Prakash Kumar | PhD, 2020- | |
| Jose Felix | PhD, 2020- | |
| Eçrin Yagiz | PhD, 2020- | |
| Bilal Tasdelen | PhD, 2021- | |
| Bahadir Alp Barlas | PhD, 2022- | |
| Nejat Can | PhD, 2022- | |
| Sarina Kapai | PhD, 2022- | |

**INDIRECT TRAINEES** (not the primary advisor)

| Name | Degrees, Years | Current Position |
|---|---|---|
| Erik Bresch | PhD, 2005-2010 | Scientist,<br>Philips Research Laboratories (Netherlands) |
| Taehyun Rhee | PhD, 2005-2010 | Associate Professor,<br>Victoria University of Wellington (New Zealand) |
| Eamon Doyle | PhD, 2011-2017 | Assistant Professor,<br>USC Keck School of Medicine, Children's Hospital Los Angeles |
| Adam Bush | PhD, 2011-2017 | Assistant Professor,<br>University of Texas, Austin |

## TRAINEE AWARDS

| | |
|---|---|
| Ye Tian, American Heart Association Postdoctoral Fellowship | 2022- |
| Ziyue Wu, W.S. Moore Young Investigator Award, ISMRM | 2016 |
| Sajan Lingala, USC Provost's Postdoctoral Scholar Research Grant | 2015 |
| Ziyue Wu, Grodins Graduate Award (#1 PhD student in the BME department) | 2015 |

| | |
|---|---|
| Ziyue Wu, Coulter Award, BME Department | 2015 |
| Yoon-chul Kim, American Heart Association Postdoctoral Fellowship | 2013-15 |
| Christopher Sandino, USC McNair Scholar | 2013 |
| Travis Smith, Ming Hsieh Institute Best PhD Dissertation Award | 2013 |
| Samir Sharma, Best Research "Fast Pitch", USC EE Research Festival | 2012 |
| Travis Smith, American Heart Association Predoctoral Fellowship | 2011-12 |
| Samir Sharma, Ming Hsieh Institute Ph.D. Scholar (one of five) | 2011-12 |
| Taehoon Shin, American Heart Association Postdoctoral Fellowship | 2009-11 |
| Hsu-Lei Lee, USC Women in Science and Engineering, Merit Award | 2008 |
| Taehoon Shin, Best Student Paper Honorable Mention, USC EE Department | 2008 |
| Joao Carvalho, Best Student Paper Award, USC EE Dept. | 2007 |
| Joao Carvalho, USC Dissertation Completion Fellowship | 2007-08 |
| Jon-Fredrik Nielsen, American Heart Association Postdoctoral Fellowship | 2006-08 |
| | |
| Numerous conference travel grants (not practical to list individually) | 2005- |
| Numerous conference paper awards (listed above under Publications) | 2005- |

## DISSERTATION COMMITTEES

- **Ph.D. External Examiner / Opponent**: Petter Dyverfeldt (2010, Linköping University, Sweden, Advisor: Tino Ebbers), Jérôme Yerly (2013, University of Calgary, Canada, Advisor: Richard Frayne), Ronal Coronado (2021 dissertation, 2022 defense, Pontificia Universidad Católica de Chile, Advisor: Pablo Irarrazaval)
- **Ph.D. Thesis Defense and Qualifying Exam**: Dimitrios Pantazis (EE), Manjiang Zhang (Physics), Hsiao-Fen Chou (Civil), Ismail Sebe (EE), Fariba Ariei (EE), Bei Wang (EE), Yuriy Brun (CS), Nilesh Ghugre (BME), Taehyun Rhee (CS), Anand Joshi (EE), Ramakrishnan Iyer (BME), Matthew Behrend (EE), Alec Wong (BME), Kenneth Hayworth (Neuroscience), Jonghye Woo (EE), Sangeetha Somayajula (EE), Hua Hui (EE), Erik Bresch (EE), Jay Mung (BME), Vikram Ramanarayanan (EE), Samantha Cunningham (BME), Wentao Zhu (EE), Seth Nfonoyim-Hara (BME), Chitresh Bhushan (EE), Brian Hsu (Linguistics), Yi Lao (BME), Eamon Doyle (BME), Adam Bush (BME), Xin Miao (BME), Yuxiao Yang (EE), Samantha Ma (BME), Tanner Sorensen (Linguistics), Chau Vu (BME).
- **Ph.D. Qualifying Exam Only:** Changsung Kim (EE), Jingliang Peng (EE), Dahua Xie (EE), Esen Kucukaltun-Yildirim (EE), Belma Dogdas (EE), Abhijit Chaudhari (EE), Yousef Al-Rjoub (Civil), Pankaj Mishra (EE), Chiao Wang (EE), Jong Dae Oh (EE), Sanghee Cho (EE), Sundeep Pattem (EE), Joyita Dutta (EE), Juan Soto (EE), Dongwoo Kang (EE), Matthew Borzage (BME), Wentao Zhu (EE), Yanguang Lin (EE), Adam Bush (BME), Joseph Crew (BME), Eamon Doyle (BME), Yi Lao (BME), Yang Li (BME), Chi Tat Chiu (BME), Yu Ryan Chen (BME), Zhaojun Yang (EE), Niharika Gajawelli (BME), Azarang Golmohammadi (EE), Divya Varadarajan (EE), Daeun Kim (EE), Minqi Chong (EE), Yunhua Ji (BME), Tae Hyung Kim (EE), Han-Lin Hsieh (EE), Omid Ghasem-Sani (EE), Krishna Somandepalli (EE), Wen Shi (BME), Christian Song (ECE), Zalan Fabian (ECE), Mozhdeh Rouhsedaghat (ECE), Parima Ahmadipour-Anari (ECE), Zohreh Azizi (ECE).
- **M.S. Thesis Committees:** Abhijit Kher (BME), Amrita Rajagopalan (BME), Naren Nallapareddy (EE), Grant Haskins (BME).

## DIRECTED RESEARCH

- **Medical Students:** Terrence Jao (USC MD/PhD), Gabriel Rudd-Barnard (Drexel MD)

- **Ph.D. Students:** Barry Vanek (EE), Zihong Fan (EE), Firooz Aflatouni (EE), Stephen Tobin (Linguistics), Ximing Wang (BME), Eric Sohn (BME), Adam Bush (BME), Yunhua Ji (BME).
- **M.S. Students:** Kyunghyun Sung (EE), Antonio Ordonez (EE), Aditya Sane (EE), Taek-yoon Nam (EE), Vishwanath Kottignahal (EE), Ashish Medewar (EE), Peter Shin (EE), Vikram Ramanarayanan (EE), Niharika Gajawelli (EE), Jack Chang (EE), Ziyue Wu (BME), Yinghua Zhu (EE), Divya Varadarajan (EE), Cecilie Anker (Informatics, TU-Denmark), Josephine Jensen (Informatics, TU-Denmark), Naren Nallapareddy (EE), Siyuan Meng (EE), Shayan Farzad (EE), Jieshen Chen (EE), Xitong Wang (ECE), Yuheng Huang (ECE), Jeffery Wong (ECE).
- **Undergraduates:** Eamon Doyle (Olin College), Sameer Chopra (UC-Riverside), David Chartash (U Western Ontario), Tim Brochier (USC), Melanie Houselog (USC), Samantha Kaplan (USC), Sheldon Cheng (USC), Christopher Sandino (USC), Sam Thornton (USC), Andriana Ayiotis (USC), Natasha Goran (University of Leeds, UK), Octavio Marin Pardo (UNAM, Mexico), Jieshen Chen (USC), Andrew Yock (USC), Samarth Kamle (USC), Kameran Mody (BME), Antonina Mintcheva (BME), Ana Sanson Leon (ECE), Pooja Kowshik (ECE).
- **High School Students:** Arjun Viswanathan (Minnetonka High School, Minnesota), Nikhil Rajulapati (Trinity Preparatory School, Florida).

## CLASSROOM TEACHING @ USC (student evals: *1.00 is poor, 5.00 is excellent)*

Magnetic Resonance Imaging and Reconstruction (EE 591)
Spring 2004 (4.65), Fall 2004 (4.71), Fall 2005 (5.00), Fall 2007 (4.78), Fall 2009 (4.79), Spring 2012 (4.79), Spring 2015, Spring 2019 (4.94), Spring 2020 (5.00), Spring 2021 (TBD), Spring 2022 (TBD)

Advanced Topics in Magnetic Resonance Imaging (EE 691)
Fall 2008 (4.44), Fall 2012 (4.70).

Electrical Engineering Research Seminar (EE 598)
Fall 2012 (4.75), Fall 2013 (4.75)

Engineering Freshman Academy (ENGR 102)
Fall 2011 (4.86 & 4.42), Fall 2012 (4.57 & 4.62), Fall 2013 (4.44 & 4.69), Fall 2014 (4.42 & 4.25), Fall 2018 (4.71 & 4.84), Fall 2020 (4.83 & 4.91).

Digital Signal Processing (EE 483)
Spring 2005 (4.32).

Introduction to Linear Systems (EE 301)
Spring 2007 (4.12), Spring 2009 (4.45), Spring 2014 (3.58), Spring 2016 (4.40), Spring 2017 (4.40).

Real-Time DSP Laboratory (EE 434L)
Spring 2008 (3.86).

Advanced Real-Time DSP Laboratory (EE 586L)
Spring 2008 (4.44).

Introduction to Electrical Engineering Systems (EE 200L)
Spring 2010 (4.17).

EPIC Programming (programming language for GE MRI scanners, informal course)
Oct-Dec 2004, June-Aug 2005, Feb-April 2006, May-June 2008, July-Aug 2010.

## CLASSROOM TEACHING @ Stanford (student evals: *5.00 is poor, 1.00 is excellent)*

Introductory Digital Signal Processing (EE 103)

Summer 2001 (1.43), Summer 2002 (1.25)
Statistical Signal Processing (EE 278)
Summer 2003 (unknown)

## OTHER MENTORING

- Society for Cardiovascular Magnetic Resonance Mentoring Program 2011-
- Stanford Alumni Mentoring 2009-15

## OTHER OUTREACH

- Prepared a teaching unit on Medical Imaging appropriate for a high-school physics course, for the USC Physics Instant Update, a workshop for LA-area high-school physics teachers run by Prof. Stephan Haas (Physics).
- Introductory Medical Imaging - USC Mission Science program, 2019

# SERVICE

## WORKSHOP ORGANIZATION

| | |
|---|---|
| Member of Organizing Committee, ISMRM Workshop on Low Field MRI (Virtual) | 2022 |
| Member of Organizing Committee, ISMRM Workshop on Perfusion MRI: From Head to Toe. Los Angeles, CA | 2022 |
| **Chair**, Southern California Hi-Field Lo-Field Workshop, Los Angeles, CA | 2022 |
| **Annual Meeting Program Committee**, ISMRM | 2018-21 |
| **Co-Chair**, Southern California Hi-Field Lo-Field Workshop, Los Angeles, CA | 2019 |
| Program Committee, SCMR Scientific Sessions. Barcelona, Spain | 2018 |
| **Co-Chair**, SCMR/ISMRM Co-Provided Workshop Probing Mechanisms of Heart Disease: Micro to Macro to Model. Washington DC | 2017 |
| Program Committee, SCMR Scientific Sessions. Washington DC | 2017 |
| Member of Organizing Committee, ISMRM Workshop on Flow and Motion Quantification. San Francisco, CA | 2016 |
| Program Committee, SCMR Scientific Sessions. Nice, France | 2015 |
| Member of Organizing Committee, ISMRM Workshop on Non-Contrast Cardiovascular MRI. Long Beach, CA | 2015 |
| **Chair**, USC Speech MRI Summit. Los Angeles, CA | 2014 |
| Member of Organizing Committee, SCMR/ISMRM Joint Workshop on High-Field Cardiovascular Magnetic Resonance. San Francisco, CA | 2013 |
| Program Committee, SCMR Scientific Sessions. Orlando, FL | 2012 |
| **Co-Chair**, SCMR Pre-conference Session on High-Field Cardiovascular Imaging and Basic Science. Phoenix, AZ | 2010 |
| Member of Organizing Committee, ISMRM Workshop on Data Sampling and Image Reconstruction. Sedona, AZ | 2009 |
| **Co-Chair**, Workshop on High-Field Cardiovascular MR: An Update. Beverly Hills, CA | 2008 |
| Member of Organizing Committee, ISMRM Workshop on Non-Cartesian MRI. Sedona, AZ | 2007 |
| Member of Organizing Committee, NIH/NIBIB Workshop on High-Field Cardiovascular MR: the promise, the problems, the potential solutions. Washington DC | 2006 |
| **Chair**, ISMRM Workshop on Real-Time MRI: Dynamic Interactive Imaging and its Applications. Santa Monica, CA | 2006 |

## GRANT REVIEW

- National Institutes of Health:
  - CTIS June 2022.
  - CTIS June 2021.
  - ZDK1 GRB-9 (O1), June 2021.
  - ZRG1 DTCS-A (81) S, Mail Reviewer, Feb 2015.
  - ZHL1 CCT-Q C1 Wireless Physiologic Telemetry for Interventional MRI, Sept 2013.
  - ZHL1 CCT-H C4 NHLBI SBIR Phase I/II Contract Review, Feb 2013.
  - ZHL1 CCT-N C2 B Wireless Physiologic Telemetry for Interventional MRI, Feb 2012.
  - ZRG SBIBU55 Academic-Industry Partnerships Panel, Jun 2010.
  - ZHL1 K99/R00 Panel, Feb 2010.

- SBIB L30 Special Emphasis Panel, High End Shared Instruments Panel, Nov 2009.

- American Heart Association:
  - Western States Bioengineering Panel, Spring 2010.
  - Radiology, Imaging, and Surgery Panel, Fall 2007, Spring 2008, Fall 2008.

- USC Internal Grants:
  - SC-CTSI, Pilot and Translational Research Grants, 2013.
    - "Cardiovascular, Metabolism, and Neuroscience", "Systems Biology and Bioengineering"
  - SC-CTSI, Pilot and Translational Research Grants, 2012.
    - "Biology, Bioengineering, Molecular Medicine", "Diabetes, Obesity, Metabolic Diseases"
  - Clinical Translational Science Initiative, Pilot and Feasibility Grants, 2008.
  - James H. Zumberge Research and Innovation Fund, 2007.
  - Saban Research Institute, Career Development Fellowships, 2006.

- Other:
  - Technology Foundation STW (Netherlands), Innovation Research Incentive Grants, May 2010.
  - Instituto de Telecomunicações (Portugal), Information Technology Grants, April 2014.

## JOURNAL REVIEW

- Reviewer:

| | |
|---|---|
| Magnetic Resonance in Medicine | 2000- |
| Journal of Magnetic Resonance Imaging | 2001- |
| Journal of Cardiovascular Magnetic Resonance | 2002- |
| IEEE Transactions on Medical Imaging | 2007- |
| MAGMA – Magnetic Resonance Materials in Physics, Biology, and Medicine | 2008- |
| Journal of the American College of Cardiology – Cardiovascular Imaging | 2008- |
| Circulation – Cardiovascular Imaging | 2009- |
| Concepts in Magnetic Resonance Part A | 2009- |
| Radiology | 2010- |
| Investigative Radiology | 2010- |
| PLOS ONE | 2013- |

- Editorial Board Member:

| | |
|---|---|
| Journal of Cardiovascular Magnetic Resonance | 2002-10 |
| Current Cardiology Reviews | 2004-11 |

- Conference Paper/Abstract Reviewer:

| | |
|---|---|
| ISMRM Scientific Sessions | 2005- |
| SCMR Scientific Sessions | 2012 |
| ISMRM Workshops (several years) | 2006- |
| ISBI | 2005-09 |

## OTHER PROFESSIONAL SERVICE

- International Society for Magnetic Resonance in Medicine

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|---|---|
| Board of Trustees (elected by the membership) | 2019-22 |
| Annual Meeting Program Committee | 2018-21 |
| Equity Diversity and Inclusiveness Task Force | 2018- |
| Young Investigator Awards Committee, Member | 2012-14 |
| Nominating Committee, Member | 2016 |

- Society for Cardiovascular Magnetic Resonance,

| | |
|---|---|
| Science Committee, Member | 2006-12 |
| Science Committee, Chair | 2010-12 |
| Election Committee, Member | 2011 |
| Annual Meeting Program Committee, Member | 11,16,17 |

- External Review Board, National Institutes of Health, "Training in Cardiac Magnetic Resonance Imaging," T32 Training Grant (T32HL007846) to Stanford University.

## UNIVERSITY SERVICE

<u>University of Southern California</u>

| | |
|---|---|
| USC Keck School of Medicine, MRI Safety Committee | 2020- |
| University Research Committee | 2019-20 |
| Center for Excellence in Teaching, Faculty Fellow | 2013-16 |
| Center for Excellence in Teaching, Academic Careers Week, Session Staff | 2009-13 |
| 3TMRI for Cardiovascular and Neuroimaging, Technical Advisory Board | 2006- |
| Keck Hospital and HCC-2 MRI Unit, Technical Advisory Board | 2004- |
| Dornsife Neuroimaging Center, Technical Advisory Board | 2004-12 |

<u>Viterbi School of Engineering</u>

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|---|---|
| Appointment, Promotion, and Tenure (APT) Committee Member | 2011-13 |
| Viterbi Research Awards Committee | 2012 |
| Electrical Engineering Department Unification, Committee Member | 2009 |
| Interviewer, Presidential and Trustee Scholars | 2006-07 |

<u>Ming Hsieh Department of Electrical and Computer Engineering</u>

| | |
|---|---|
| Signal and Image Processing Group | |
| Group Director | 2018-24 |
| Screening Exam Coordinator | 2003-12 |
| Admissions and Fellowship Nomination Committee | 2008-12 |
| Faculty Recruitment Committee - Chair, Systems Design Integration | 2018-19 |
| Faculty Recruitment Committee | 2014-16 |
| Ming Hsieh Institute | |
| Advisory Board | 2013- |
| Educational Talks on NSF & NIH Funding | 2013,19 |
| MHI Scholars Selection Committee | 2011 |
| Annual Faculty Merit Review, Committee Member | 2010, 2012, 2017 |
| Faculty Candidate Evaluation (several short appointments) | 2006- |

Dynamic Imaging Science Center
Director 2021-