

Stanford



Brian A. Hargreaves

Professor of Radiology (Radiological Sciences Laboratory) and, by courtesy, of Electrical Engineering and of Bioengineering

CONTACT INFORMATION

- **Alternate Contact**

Susan Hanlock - Administrative Assistant

Email shanlock@stanford.edu

Bio

BIO

Dr. Hargreaves is Professor of Radiology, focusing on body magnetic resonance imaging (MRI) technology development and application, especially breast, abdominal and musculoskeletal applications. He completed his PhD at Stanford University in Electrical Engineering before moving to the Radiology Department in 2005. He directs the Body MRI research group, and co-directs the IMMERS lab which applies mixed-reality visualization to medical applications. Current specific projects include non-contrast breast MRI screening, rapid quantitative knee MRI, and improved MRI near metallic implants, as well as interventional guidance for breast and orthopedic surgery. In addition to research, Dr. Hargreaves teaches two graduate level courses, and lectures in numerous other courses at Stanford. He is a Fellow of the International Society for Magnetic Resonance in Medicine and the American Institute for Medical and Biological Engineering (AIMBE).

ACADEMIC APPOINTMENTS

- Professor, Radiology
- Professor (By courtesy), Bioengineering
- Professor (By courtesy), Electrical Engineering
- Member, Bio-X
- Member, Wu Tsai Human Performance Alliance
- Member, Stanford Cancer Institute

ADMINISTRATIVE APPOINTMENTS

- Interim Vice Chair, Research, Radiology, (2020- present)

HONORS AND AWARDS

- Fellow of the American Institute for Medical and Biological Engineering, AIMBE (Mar 2019)
- Basic Scientist Faculty of the Year, Stanford Radiology (Dec 2018)
- Fellow of the Society of Breast MRI, SBMR (May 2018)
- Fellow of the International Society for Magnetic Resonance in Medicine, ISMRM (June 2015)
- Biodesign Mentorship Award, Stanford Biodesign (June 2015)
- Distinguished Investigator, Association of Radiology Research (Dec 2014)

- John Charnley Award, The Hip Society (Feb 2013)
- Outstanding Teacher Award, ISMRM (May 2013)
- Edward C. Nagy New Investigator, NIH / NIBIB (April 2011)
- Thought Leader Award, GE Healthcare (May 2010)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Editorial Board, Magnetic Resonance in Medicine (2014 - present)
- Board of Trustees, ISMRM (2013 - 2018)
- Chair, Web Editorial Board, ISMRM (2013 - 2018)

PROFESSIONAL EDUCATION

- Ph.D., Stanford University , Electrical Engineering (2001)
- M.S., Stanford University , Electrical Engineering (1997)
- B.A.Sc, Simon Fraser University , Engineering Science (1994)

LINKS

- Research Group: Body MRI: <http://med.stanford.edu/bmrgroup>
- IMMERS AR/VR Group: <http://immers.stanford.edu>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

I am interested in magnetic resonance imaging (MRI) applications and augmented reality applications in medicine. These include abdominal, breast and musculoskeletal imaging, which require development of faster, quantitative, and more efficient MRI methods that provide improved diagnostic contrast compared with current methods. My work includes novel excitation schemes, efficient imaging methods and reconstruction tools and augmented reality in medicine.

CLINICAL TRIALS

- Magnetic Resonance Imaging of Breast Cancer, Recruiting
- High Resolution 3D Diffusion-weighted Breast MRI, Not Recruiting

Teaching

COURSES

2024-25

- MRI Sequences and Signals: BMP 229, RAD 229 (Spr)

2023-24

- Mixed-Reality in Medicine: BIOE 206, BMP 206, RAD 206 (Aut)

2022-23

- MRI Sequences and Signals: BMP 229, RAD 229 (Spr)

2021-22

- Mixed-Reality in Medicine: RAD 206 (Aut)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Cagan Alkan, Ananya Goyal, Ariel Hannum, Julio Oscanoa Aida

Postdoctoral Faculty Sponsor

Judith Zimmermann

Doctoral Dissertation Advisor (AC)

Trishia El Chemaly, Jeremiah Hess, Wally Niu, Aizada Nurdinova, Alex Toews, Xuotong Zhou

Doctoral Dissertation Co-Advisor (AC)

Yuxuan Wu

Publications

PUBLICATIONS

- **From microscope to head-mounted display: integrating hand tracking into microsurgical augmented reality.** *International journal of computer assisted radiology and surgery*
El Chemaly, T., Athayde Neves, C., Fu, F., Hargreaves, B., Blevins, N. H.
2024
- **Distortion-free water-fat separated diffusion-weighted imaging using spatiotemporal joint reconstruction.** *Magnetic resonance in medicine*
Zhou, X., Daniel, B. L., Hargreaves, B. A., Lee, P. K.
2024
- **Comprehensive assessment of nonuniform image quality: Application to imaging near metal.** *Magnetic resonance in medicine*
Toews, A. R., Lee, P. K., Nayak, K. S., Hargreaves, B. A.
2024
- **ShapeMed-Knee: A Dataset and Neural Shape Model Benchmark for Modeling 3D Femurs.** *medRxiv : the preprint server for health sciences*
Gatti, A. A., Blankemeier, L., Van Veen, D., Hargreaves, B., Delp, S. L., Gold, G. E., Kogan, F., Chaudhari, A. S.
2024
- **Reproducibility of Quantitative Double-Echo Steady-State T2 Mapping of Knee Cartilage.** *Journal of magnetic resonance imaging : JMIR*
Williams, A. A., Asay, J. L., Asare, D., Desai, A. D., Gold, G. E., Hargreaves, B. A., Chaudhari, A. S., Chu, C. R.
2024
- **Distortionless, free-breathing, and respiratory resolved 3D diffusion weighted imaging of the abdomen.** *Magnetic resonance in medicine*
Lee, P. K., Zhou, X., Wang, N., Syed, A. B., Brunsing, R. L., Vasanaawala, S. S., Hargreaves, B. A.
2024
- **Robust multishot diffusion-weighted imaging of the abdomen with region-based shot rejection.** *Magnetic resonance in medicine*
Lee, P. K., Zhou, X., Hargreaves, B. A.
2024
- **Clinical evaluation of isotropic MAVRIC-SL for symptomatic hip arthroplasties at 3#T MRI.** *Magnetic resonance imaging*
Yoon, D., Doyle, Z., Lee, P., Hargreaves, B., Stevens, K.
2024
- **3D CLUSTERING OF T2 MAPS IDENTIFIES FOCAL CARTILAGE CHANGES FROM 3-WEEKS TO 2-YEARS FOLLOWING ACL RECONSTRUCTION**
Pai, A. S., Gatti, A. A., Black, M., Young, K., Asay, J., Kogan, F., Sherman, S., Gold, G. E., Hargreaves, B., Chaudhari, A.
ELSEVIER SCI LTD.2024: S360-S361
- **Stereoscopic calibration for augmented reality visualization in microscopic surgery.** *International journal of computer assisted radiology and surgery*
El Chemaly, T., Athayde Neves, C., Leuze, C., Hargreaves, B., H Blevins, N.
2023
- **Noise2Recon: Enabling SNR-robust MRI reconstruction with semi-supervised and self-supervised learning.** *Magnetic resonance in medicine*
Desai, A. D., Ozturkler, B. M., Sandino, C. M., Boutin, R., Willis, M., Vasanaawala, S., Hargreaves, B. A., Re, C., Pauly, J. M., Chaudhari, A. S.

2023

- **[Formula: see text] Field inhomogeneity correction for qDESS [Formula: see text] mapping: application to rapid bilateral knee imaging.** *Magma (New York, N.Y.)*
Barbieri, M., Watkins, L. E., Mazzoli, V., Desai, A. D., Rubin, E., Schmidt, A., Gold, G. E., Hargreaves, B. A., Chaudhari, A. S., Kogan, F.
2023
- **HIGHER KNEE LOADING CORRELATES TO GREATER CARTILAGE DEGENERATION 2 YEARS AFTER ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION**
Williams, A. A., He, J., Bansal, S., Wadsworth, A. L., Hargreaves, B. A., Chu, C. R.
ELSEVIER SCI LTD.2023: S128-S129
- **Towards Automatic Cartilage Quantification in Clinical Trials - Continuing from the 2019 IWOAI Knee Segmentation Challenge.** *Osteoarthritis imaging*
Dam, E. B., Desai, A. D., Deniz, C. M., Rajamohan, H. R., Regatte, R., Iriondo, C., Pedroia, V., Majumdar, S., Perslev, M., Igel, C., Pai, A., Gaj, S., Yang, et al
2023; 3 (1)
- **Improving Data-Efficiency and Robustness of Medical Imaging Segmentation Using inpainting-Based Self-Supervised Learning.** *Bioengineering (Basel, Switzerland)*
Dominic, J., Bhaskhar, N., Desai, A. D., Schmidt, A., Rubin, E., Gunel, B., Gold, G. E., Hargreaves, B. A., Lenchik, L., Boutin, R., Chaudhari, A. S.
2023; 10 (2)
- **Development of augmented reality technology for surgical resection accuracy via improved visualization**
Doan, A. T., Fischer, M. J., Walsh, T. M., Koire, S., Daniel, B. L., Hargreaves, B. A., Black, M. S., Kress, B. C., Peroz, C.
SPIE-INT SOC OPTICAL ENGINEERING.2023
- **The Impact of Occlusion on Depth Perception at Arm's Length.** *IEEE transactions on visualization and computer graphics*
Fischer, M., Rosenberg, J., Leuze, C., Hargreaves, B., Daniel, B.
2023; 29 (11): 4494-4502
- **Multishot Diffusion-Weighted MRI of the Breasts in the Supine vs. Prone Position.** *Journal of magnetic resonance imaging : JMRI*
Moran, C. J., Middione, M. J., Mazzoli, V., McKay-Nault, J. A., Guidon, A., Waheed, U., Rosen, E. L., Poplack, S. P., Rosenberg, J., Ennis, D. B., Hargreaves, B. A., Daniel, B. L.
2022
- **A method for measuring B0 field inhomogeneity using quantitative double-echo in steady-state.** *Magnetic resonance in medicine*
Barbieri, M., Chaudhari, A. S., Moran, C. J., Gold, G. E., Hargreaves, B. A., Kogan, F.
2022
- **A joint linear reconstruction for multishot diffusion weighted non-Carr-Purcell-Meiboom-Gill fast spin echo with full signal.** *Magnetic resonance in medicine*
Lee, P. K., Hargreaves, B. A.
2022
- **Generalizability of Deep Learning Segmentation Algorithms for Automated Assessment of Cartilage Morphology and MRI Relaxometry.** *Journal of magnetic resonance imaging : JMRI*
Schmidt, A. M., Desai, A. D., Watkins, L. E., Crowder, H. A., Black, M. S., Mazzoli, V., Rubin, E. B., Lu, Q., MacKay, J. W., Boutin, R. D., Kogan, F., Gold, G. E., Hargreaves, et al
2022
- **MULTI-INSTITUTIONAL LARGE-SCALE VALIDATION OF 8 METHODS FOR AUTOMATIC KNEE MRI SEGMENTATION FOR USE IN CLINICAL TRIALS**
Dam, E. B., Desai, A., Deniz, C., Rajamohan, H., Regatte, R., Iriondo, C., Pedroia, V., Majumdar, S., Perslev, M., Igel, C., Pai, A., Gaj, S., Yang, et al
ELSEVIER SCI LTD.2022: S291-S292
- **Circumventing the curse of dimensionality in magnetic resonance fingerprinting through a deep learning approach.** *NMR in biomedicine*
Barbieri, M., Lee, P. K., Brizi, L., Giampieri, E., Solera, F., Castellani, G., Hargreaves, B. A., Testa, C., Lodi, R., Remondini, D.
1800: e4670
- **Volumetric and multispectral DWI near metallic implants using a non-linear phase Carr-Purcell-Meiboom-Gill diffusion preparation.** *Magnetic resonance in medicine*
Lee, P. K., Yoon, D., Sandberg, J. K., Vasanawala, S. S., Hargreaves, B. A.

1800

- **Biopsy Marker Localization with Thermo-Acoustic Ultrasound for Lumpectomy Guidance.** *Medical physics*
Dixit, N., Daniel, B. L., Hargreaves, B. A., Pauly, J. M., Scott, G. C.
2021
- **Clinical utility of accelerated MAVRIC-SL with robust-PCA compared to conventional MAVRIC-SL in evaluation of total hip arthroplasties.** *Skeletal radiology*
Doyle, Z., Yoon, D., Lee, P. K., Rosenberg, J., Hargreaves, B. A., Beaulieu, C. F., Stevens, K. J.
2021
- **Zero echo time pediatric musculoskeletal magnetic resonance imaging: initial experience.** *Pediatric radiology*
Sandberg, J. K., Young, V. A., Yuan, J., Hargreaves, B. A., Wishah, F., Vasanaawala, S. S.
2021
- **Non-contrast MRI of synovitis in the knee using quantitative DESS.** *European radiology*
Thoenen, J., Stevens, K. J., Turmezei, T. D., Chaudhari, A., Watkins, L. E., McWalter, E. J., Hargreaves, B. A., Gold, G. E., MacKay, J. W., Kogan, F.
2021
- **The International Workshop on Osteoarthritis Imaging Knee MRI Segmentation Challenge: A Multi-Institute Evaluation and Analysis Framework on a Standardized Dataset.** *Radiology. Artificial intelligence*
Desai, A. D., Caliva, F., Iriondo, C., Mortazi, A., Jambawalikar, S., Bagci, U., Perslev, M., Igel, C., Dam, E. B., Gaj, S., Yang, M., Li, X., Deniz, et al
2021; 3 (3): e200078
- **Detection of knee synovitis using non-contrast-enhanced qDESS compared with contrast-enhanced MRI.** *Arthritis research & therapy*
de Vries, B. A., Breda, S. J., Sveinsson, B., McWalter, E. J., Meuffels, D. E., Krestin, G. P., Hargreaves, B. A., Gold, G. E., Oei, E. H.
2021; 23 (1): 55
- **Characterizing the transient response of knee cartilage to running: Decreases in cartilage T2 of female recreational runners.** *Journal of orthopaedic research : official publication of the Orthopaedic Research Society*
Crowder, H. A., Mazzoli, V. n., Black, M. S., Watkins, L. E., Kogan, F. n., Hargreaves, B. A., Levenston, M. E., Gold, G. E.
2021
- **Diffusion Tensor Imaging of Skeletal Muscle Contraction Using Oscillating Gradient Spin Echo.** *Frontiers in neurology*
Mazzoli, V. n., Moulin, K. n., Kogan, F. n., Hargreaves, B. A., Gold, G. E.
2021; 12: 608549
- **Multishot Diffusion-Weighted MRI of the Breast With Multiplexed Sensitivity Encoding (MUSE) and Shot Locally Low-Rank (Shot-LLR) Reconstructions.** *Journal of magnetic resonance imaging : JMRI*
Hu, Y., Ikeda, D. M., Pittman, S. M., Samarawickrama, D., Guidon, A., Rosenberg, J., Chen, S., Okamoto, S., Daniel, B. L., Hargreaves, B. A., Moran, C. J.
2020
- **A MULTI-INSTITUTE AUTOMATED SEGMENTATION EVALUATION ON A STANDARD DATASET: FINDINGS FROM THE INTERNATIONAL WORKSHOP ON OSTEOARTHRITIS IMAGING SEGMENTATION CHALLENGE**
Desai, A., Caliva, F., Iriondo, C., Khosravan, N., Mortazi, A., Jambawalikar, S., Torigian, D., Ellermann, J., Akcakaya, M., Bagci, U., Tibrewala, R., Flament, I., O'Brian, et al
ELSEVIER SCI LTD.2020: S304-S305
- **APPLICATIONS OF RAPID MRI, HOW TO IMPROVE PATIENT CARE**
Hargreaves, B. A.
ELSEVIER SCI LTD.2020: S15-S16
- **AN INTER-VENDOR STUDY OF SCAN-RESCAN AND LEFT-RIGHT KNEE ASYMMETRY VARIABILITY OF CARTILAGE T2 TRANSVERSE RELAXATION TIME AND MORPHOMETRY ASSESSED SIMULTANEOUSLY USING A SINGLE RAPID 4-MINUTE MRI SCAN**
Chaudhari, A. S., Lu, Q., Wisser, A., Wirth, W., Gold, G. E., Hargreaves, B. A., Eckstein, F.
ELSEVIER SCI LTD.2020: S269-S270
- **Diffusion-weighted double-echo steady-state with a three-dimensional cones trajectory for non-contrast-enhanced breast MRI.** *Journal of magnetic resonance imaging : JMRI*
Moran, C. J., Cheng, J. Y., Sandino, C. M., Carl, M. n., Alley, M. T., Rosenberg, J. n., Daniel, B. L., Pittman, S. M., Rosen, E. L., Hargreaves, B. A.
2020

- **Comparison of head pose tracking methods for mixed-reality neuronavigation for transcranial magnetic stimulation** *SPIE Medical Imaging*
Sathyanarayana, S., Leuze, C., Hargreaves, B., Daniel, B. L., Wetzstein, G., Etkin, A., Bhati, M. T., McNab, J. A.
2020
- **Diagnostic Accuracy of Quantitative Multi-Contrast 5-Minute Knee MRI Using Prospective Artificial Intelligence Image Quality Enhancement.** *AJR. American journal of roentgenology*
Chaudhari, A. S., Grissom, M. J., Fang, Z. n., Sveinsson, B. n., Lee, J. H., Gold, G. E., Hargreaves, B. A., Stevens, K. J.
2020
- **Near-Silent and Distortion-Free Diffusion MRI in Pediatric Musculoskeletal Disorders: Comparison With Echo Planar Imaging Diffusion.** *Journal of magnetic resonance imaging : JMRI*
Sandberg, J. K., Young, V. A., Syed, A. B., Yuan, J. n., Hu, Y. n., Sandino, C. n., Menini, A. n., Hargreaves, B. n., Vasawala, S. n.
2020
- **Diagnosis and Successful Management of an Unusual Presentation of Chronic Foot Pain Using Positron Emission Tomography/Magnetic Resonance Imaging and a Simple Surgical Procedure** *CLINICAL JOURNAL OF SPORT MEDICINE*
Cipriano, P., Yoon, D., Holley, D., Hargreaves, B., Carroll, I., Curtin, C., Biswal, S.
2020; 30 (1): E11–E14
- **A Patient-Specific Mixed-Reality Visualization Tool for Thoracic Surgical Planning.** *The Annals of thoracic surgery*
Perkins, S. L., Krajancich, B. n., Jeffrey Yang, C. F., Hargreaves, B. A., Daniel, B. L., Berry, M. F.
2020
- **Utilizing shared information between gradient-spoiled and RF-spoiled steady-state MRI signals.** *Physics in medicine and biology*
Sveinsson, B. n., Gold, G. E., Hargreaves, B. A., Yoon, D. n.
2020
- **Prospective Deployment of Deep Learning in MRI: A Framework for Important Considerations, Challenges, and Recommendations for Best Practices.** *Journal of magnetic resonance imaging : JMRI*
Chaudhari, A. S., Sandino, C. M., Cole, E. K., Larson, D. B., Gold, G. E., Vasawala, S. S., Lungren, M. P., Hargreaves, B. A., Langlotz, C. P.
2020
- **RUN-UP: Accelerated multishot diffusion-weighted MRI reconstruction using an unrolled network with U-Net as priors.** *Magnetic resonance in medicine*
Hu, Y. n., Xu, Y. n., Tian, Q. n., Chen, F. n., Shi, X. n., Moran, C. J., Daniel, B. L., Hargreaves, B. A.
2020
- **Time-saving opportunities in knee osteoarthritis: T2 mapping and structural imaging of the knee using a single 5-min MRI scan.** *European radiology*
Eijgenraam, S. M., Chaudhari, A. S., Reijman, M., Bierma-Zeinstra, S. M., Hargreaves, B. A., Runhaar, J., Heijboer, F. W., Gold, G. E., Oei, E. H.
2019
- **Rapid Knee MRI Acquisition and Analysis Techniques for Imaging Osteoarthritis.** *Journal of magnetic resonance imaging : JMRI*
Chaudhari, A. S., Kogan, F., Pedoia, V., Majumdar, S., Gold, G. E., Hargreaves, B. A.
2019
- **Does Injection of Hyaluronic Acid Protect Against Early Cartilage Injury Seen After Marathon Running? A Randomized Controlled Trial Utilizing High-Field Magnetic Resonance Imaging.** *The American journal of sports medicine*
Nathani, A., Gold, G. E., Monu, U., Hargreaves, B., Finlay, A. K., Rubin, E. B., Safran, M. R.
2019; 363546519879138
- **Utility of deep learning super-resolution in the context of osteoarthritis MRI biomarkers.** *Journal of magnetic resonance imaging : JMRI*
Chaudhari, A. S., Stevens, K. J., Wood, J. P., Chakraborty, A. K., Gibbons, E. K., Fang, Z., Desai, A. D., Lee, J. H., Gold, G. E., Hargreaves, B. A.
2019
- **Combined 5-minute double-echo in steady-state with separated echoes and 2-minute proton-density-weighted 2D FSE sequence for comprehensive whole-joint knee MRI assessment** *JOURNAL OF MAGNETIC RESONANCE IMAGING*
Chaudhari, A. S., Stevens, K. J., Sveinsson, B., Wood, J. P., Beaulieu, C. F., Oei, E. G., Rosenberg, J. K., Kogan, F., Alley, M. T., Gold, G. E., Hargreaves, B. A.
2019; 49 (7): E183–E194
- **Flexible and efficient optimization of quantitative sequences using automatic differentiation of Bloch simulations.** *Magnetic resonance in medicine*
Lee, P. K., Watkins, L. E., Anderson, T. I., Buonincontri, G., Hargreaves, B. A.

2019

- **Accelerated imaging of metallic implants using model-based nonlinear reconstruction** *MAGNETIC RESONANCE IN MEDICINE*
Shi, X., Levine, E., Weber, H., Hargreaves, B. A.
2019; 81 (4): 2247–63
- **Diagnosis and Successful Management of an Unusual Presentation of Chronic Foot Pain Using Positron Emission Tomography/Magnetic Resonance Imaging and a Simple Surgical Procedure.** *Clinical journal of sport medicine : official journal of the Canadian Academy of Sport Medicine*
Cipriano, P. W., Yoon, D., Holley, D., Hargreaves, B. A., Carroll, I. R., Curtin, C. M., Biswal, S.
2019
- **Motion-robust reconstruction of multishot diffusion-weighted images without phase estimation through locally low-rank regularization** *MAGNETIC RESONANCE IN MEDICINE*
Hu, Y., Levine, E. G., Tian, Q., Moran, C. J., Wang, X., Taviani, V., Vasanaawala, S. S., McNab, J. A., Daniel, B. L., Hargreaves, B. A.
2019; 81 (2): 1181–90
- **Breast dispersion imaging using undersampled rapid dynamic contrast-enhanced MRI**
Shi, L., Srinivasan, S., Hargreaves, B., Daniel, B., Mori, K., Hahn, H. K.
SPIE-INT SOC OPTICAL ENGINEERING.2019
- **Multi-shot diffusion-weighted MRI reconstruction with magnitude-based spatial-angular locally low-rank regularization (SPA-LLR).** *Magnetic resonance in medicine*
Hu, Y. n., Wang, X. n., Tian, Q. n., Yang, G. n., Daniel, B. n., McNab, J. n., Hargreaves, B. n.
2019
- **Near-silent distortionless DWI using magnetization-prepared RUFIS.** *Magnetic resonance in medicine*
Yuan, J. n., Hu, Y. n., Menini, A. n., Sandino, C. M., Sandberg, J. n., Sheth, V. n., Moran, C. J., Alley, M. n., Lustig, M. n., Hargreaves, B. n., Vasanaawala, S. n.
2019
- **Combined 5-minute double-echo in steady-state with separated echoes and 2-minute proton-density-weighted 2D FSE sequence for comprehensive whole-joint knee MRI assessment.** *Journal of magnetic resonance imaging : JMRI*
Chaudhari, A. S., Stevens, K. J., Sveinsson, B., Wood, J. P., Beaulieu, C. F., Oei, E. H., Rosenberg, J. K., Kogan, F., Alley, M. T., Gold, G. E., Hargreaves, B. A.
2018
- **Accelerated imaging of metallic implants using model-based nonlinear reconstruction.** *Magnetic resonance in medicine*
Shi, X., Levine, E., Weber, H., Hargreaves, B. A.
2018
- **View-Sharing Artifact Reduction With Retrospective Compressed Sensing Reconstruction in the Context of Contrast-Enhanced Liver MRI for Hepatocellular Carcinoma (HCC) Screening.** *Journal of magnetic resonance imaging : JMRI*
Shaikh, J., Stoddard, P. B., Levine, E. G., Roh, A. T., Saranathan, M., Chang, S. T., Muelly, M. C., Hargreaves, B. A., Vasanaawala, S. S., Loening, A. M.
2018
- **Motion-robust reconstruction of multishot diffusion-weighted images without phase estimation through locally low-rank regularization.** *Magnetic resonance in medicine*
Hu, Y., Levine, E. G., Tian, Q., Moran, C. J., Wang, X., Taviani, V., Vasanaawala, S. S., McNab, J. A., Daniel, B. A., Hargreaves, B. L.
2018
- **Fast Intensity Non-Uniformity Correction for MR Images Using Sparse Samples**
Shi, L., Perkins, S., Moran, C., Hargreaves, B., Daniel, B.
WILEY.2018: E360
- **Internal Breast Tumor Heterogeneity On T2-Weighted Imaging: Double Echo Steady State(DESS) Versus 3D Fast Spin Echo (CUBE)**
Shi, L., Alley, M., Hargreaves, B., Daniel, B., Moran, C.
WILEY.2018: E192
- **Super-resolution musculoskeletal MRI using deep learning.** *Magnetic resonance in medicine*
Chaudhari, A. S., Fang, Z., Kogan, F., Wood, J., Stevens, K. J., Gibbons, E. K., Lee, J. H., Gold, G. E., Hargreaves, B. A.
2018
- **Accelerated three-dimensional multispectral MRI with robust principal component analysis for separation of on- and off-resonance signals** *MAGNETIC RESONANCE IN MEDICINE*

- Levine, E., Stevens, K., Beaulieu, C., Hargreaves, B.
2018; 79 (3): 1495–1505
- **On-the-Fly Adaptive k-Space Sampling for Linear MRI Reconstruction Using Moment-Based Spectral Analysis** *IEEE TRANSACTIONS ON MEDICAL IMAGING*
Levine, E., Hargreaves, B.
2018; 37 (2): 557–67
 - **Fat-based registration of breast dynamic contrast enhanced water images.** *Magnetic resonance in medicine*
Srinivasan, S. n., Hargreaves, B. A., Daniel, B. L.
2018; 79 (4): 2408–14
 - **Deep Learning Super-Resolution Enables Rapid Simultaneous Morphological and Quantitative Magnetic Resonance Imaging**
Chaudhari, A., Fang, Z., Lee, J., Gold, G., Hargreaves, B., Knoll, F., Maier, A., Rueckert, D.
SPRINGER INTERNATIONAL PUBLISHING AG.2018: 3–11
 - **SNR-weighted regularization of ADC estimates from double-echo in steady-state (DESS).** *Magnetic resonance in medicine*
Sveinsson, B. n., Gold, G. E., Hargreaves, B. A., Yoon, D. n.
2018
 - **Mixed-reality guidance for brain stimulation treatment of depression**
Leuze, C., Yang, G., Hargreaves, B., Daniel, B., McNab, J. A., IEEE
IEEE.2018: 377–80
 - **Quantitative imaging of bone-cartilage interactions in ACL-injured patients with PET-MRI.** *Osteoarthritis and cartilage*
Kogan, F. n., Fan, A. P., Monu, U. n., Iagaru, A. n., Hargreaves, B. A., Gold, G. E.
2018
 - **Imaging of magnetic ink patterns via off-resonance sensitivity.** *Magnetic resonance in medicine*
Perkins, S. L., Daniel, B. L., Hargreaves, B. A.
2018
 - **The impact of computed high b-value images on the diagnostic accuracy of DWI for prostate cancer: A receiver operating characteristics analysis.** *Scientific reports*
Ning, P. n., Shi, D. n., Sonn, G. A., Vasanawala, S. S., Loening, A. M., Ghanouni, P. n., Obara, P. n., Shin, L. K., Fan, R. E., Hargreaves, B. A., Daniel, B. L.
2018; 8 (1): 3409
 - **Artifact-reduced imaging of biopsy needles with 2D multispectral imaging.** *Magnetic resonance in medicine*
Weber, H. n., Hargreaves, B. A., Daniel, B. L.
2018; 80 (2): 655–61
 - **Simultaneous bilateral-knee MR imaging.** *Magnetic resonance in medicine*
Kogan, F. n., Levine, E. n., Chaudhari, A. S., Monu, U. D., Epperson, K. n., Oei, E. H., Gold, G. E., Hargreaves, B. A.
2018; 80 (2): 529–37
 - **MRI monitoring of focused ultrasound sonications near metallic hardware.** *Magnetic resonance in medicine*
Weber, H. n., Ghanouni, P. n., Pascal-Tenorio, A. n., Pauly, K. B., Hargreaves, B. A.
2018; 80 (1): 259–71
 - **Anatomical Road Mapping Using CT and MR Enterography for Ultrasound Molecular Imaging of Small Bowel Inflammation in Swine.** *European radiology*
Wang, H. n., Felt, S. A., Guracar, I. n., Taviani, V. n., Zhou, J. n., Sigrist, R. M., Zhang, H. n., Liau, J. n., Vilches-Moure, J. G., Tian, L. n., Saenz, Y. n., Bettinger, T. n., Hargreaves, et al
2018; 28 (5): 2068–76
 - **Five-minute knee MRI for simultaneous morphometry and T2 relaxometry of cartilage and meniscus and for semiquantitative radiological assessment using double-echo in steady-state at 3T.** *Journal of magnetic resonance imaging : JMRI*
Chaudhari, A. S., Black, M. S., Eijgenraam, S. n., Wirth, W. n., Maschek, S. n., Sveinsson, B. n., Eckstein, F. n., Oei, E. H., Gold, G. E., Hargreaves, B. A.
2018; 47 (5): 1328–41
 - **Mitigation of near-band balanced steady-state free precession through-plane flow artifacts using partial dephasing.** *Magnetic resonance in medicine*

- Datta, A. n., Cheng, J. Y., Hargreaves, B. A., Baron, C. A., Nishimura, D. G.
2018; 79 (6): 2944–53
- **Self-Calibrating Wave-Encoded Variable-Density Single-Shot Fast Spin Echo Imaging.** *Journal of magnetic resonance imaging : JMRI*
Chen, F. n., Taviani, V. n., Tamir, J. I., Cheng, J. Y., Zhang, T. n., Song, Q. n., Hargreaves, B. A., Pauly, J. M., Vasawala, S. S.
2018; 47 (4): 954–66
 - **Automatic renal segmentation for MR urography using 3D-GrabCut and random forests.** *Magnetic resonance in medicine*
Yoruk, U. n., Hargreaves, B. A., Vasawala, S. S.
2018; 79 (3): 1696–1707
 - **Metallic Implant Geometry and Susceptibility Estimation Using Multispectral B-0 Field Maps** *MAGNETIC RESONANCE IN MEDICINE*
Shi, X., Yoon, D., Koch, K. M., Hargreaves, B. A.
2017; 77 (6): 2402-2413
 - **Multispectral diffusion-weighted imaging near metal implants.** *Magnetic resonance in medicine*
Koch, K. M., Bhave, S., Gaddipati, A., Hargreaves, B. A., Gui, D., Peters, R., Bedi, M., Mannem, R., Kaushik, S. S.
2017
 - **3D Cartesian MRI with compressed sensing and variable view sharing using complementary poisson-disc sampling** *MAGNETIC RESONANCE IN MEDICINE*
Levine, E., Daniel, B., Vasawala, S., Hargreaves, B., Saranathan, M.
2017; 77 (5): 1774-1785
 - **Resolving phase ambiguity in dual-echo dixon imaging using a projected power method** *MAGNETIC RESONANCE IN MEDICINE*
Zhang, T., Chen, Y., Bao, S., Alley, M. T., Pauly, J. M., Hargreaves, B. A., Vasawala, S. S.
2017; 77 (5): 2066-2076
 - **A simple analytic method for estimating T2 in the knee from DESS** *MAGNETIC RESONANCE IMAGING*
Sveinsson, B., Chaudhari, A. S., Gold, G. E., Hargreaves, B. A.
2017; 38: 63-70
 - **2D multi-spectral imaging for fast MRI near metal.** *Magnetic resonance in medicine*
Hargreaves, B. A., Taviani, V., Litwiller, D. V., Yoon, D.
2017
 - **Cluster analysis of quantitative MRI T-2 and T-1 rho relaxation times of cartilage identifies differences between healthy and ACL-injured individuals at 3T** *OSTEOARTHRITIS AND CARTILAGE*
Monu, U. D., Jordan, C. D., Samuelson, B. L., Hargreaves, B. A., Gold, G. E., McWalter, E. J.
2017; 25 (4): 513-520
 - **Improved field-mapping and artifact correction in multispectral imaging.** *Magnetic resonance in medicine*
Quist, B., Shi, X., Weber, H., Hargreaves, B. A.
2017
 - **Volumetric Multislice GagCEST Imaging of Articular Cartilage: Optimization and Comparison With T1rho** *MAGNETIC RESONANCE IN MEDICINE*
Kogan, F., Hargreaves, B. A., Gold, G. E.
2017; 77 (3): 1134-1141
 - **MR Thermometry Near Metallic Devices Using Multispectral Imaging** *MAGNETIC RESONANCE IN MEDICINE*
Weber, H., Taviani, V., Yoon, D., Ghanouni, P., Pauly, K. B., Hargreaves, B. A.
2017; 77 (3): 1162-1169
 - **connective tissues in the knee using ultrashort echo-time double-echo steady-state (UTEDESS).** *Magnetic resonance in medicine*
Chaudhari, A. S., Sveinsson, B., Moran, C. J., McWalter, E. J., Johnson, E. M., Zhang, T., Gold, G. E., Hargreaves, B. A.
2017
 - **High-resolution diffusion-weighted imaging of the breast with multiband 2D radiofrequency pulses and a generalized parallel imaging reconstruction** *MAGNETIC RESONANCE IN MEDICINE*
Taviani, V., Alley, M. T., Banerjee, S., Nishimura, D. G., Daniel, B. L., Vasawala, S. S., Hargreaves, B. A.
2017; 77 (1): 209-220

- **A Mixed-Reality System for Breast Surgical Planning**
Perkins, S. L., Lin, M. A., Srinivasan, S., Wheeler, A. J., Hargreaves, B. A., Daniel, B. L., Broll, W., Regenbrecht, H., Swan, J. E., Bruder, G., Servieres, M., Sugimoto, M.
IEEE.2017: 269–74
- **Feasibility of 7T MRI for Imaging Fascicular Structures of Peripheral Nerves.** *Muscle & nerve*
Yoon, D. n., Biswal, S. n., Rutt, B. n., Lutz, A. n., Hargreaves, B. n.
2017
- **18F-FDG PET/MRI in Chronic Sciatica: Early Results Revealing Spinal and Non-spinal Abnormalities.** *Journal of nuclear medicine : official publication, Society of Nuclear Medicine*
Cipriano, P. n., Yoon, D. n., Gandhi, H. n., Holley, D. n., Thakur, D. n., Ith, M. n., Hargreaves, B. n., Kennedy, D. n., Smuck, M. n., Cheng, I. n., Biswal, S. n.
2017
- **Relative value of three whole-body MR approaches for PET-MR, including gadofosveset-enhanced MR, in comparison to PET-CT.** *Clinical imaging*
Obara, P. n., Loening, A. n., Taviani, V. n., Iagaru, A. n., Hargreaves, B. A., Vasanaawala, S. n.
2017; 48: 62–68
- **Cluster analysis of quantitative MRI T2 and T1 ρ relaxation times of cartilage identifies differences between healthy and ACL-injured individuals at 3T.** *Osteoarthritis and cartilage*
Monu, U. D., JORDAN, C. D., Samuelson, B. L., Hargreaves, B. A., Gold, G. E., McWalter, E. J.
2016
- **A semiflexible 64-channel receive-only phased array for pediatric body MRI at 3T.** *Magnetic resonance in medicine*
Zhang, T., Grafendorfer, T., Cheng, J. Y., Ning, P., Rainey, B., Giancola, M., Ortman, S., Robb, F. J., Calderon, P. D., Hargreaves, B. A., Lustig, M., Scott, G. C., Pauly, et al
2016; 76 (3): 1015-1021
- **field maps.** *Magnetic resonance in medicine*
Shi, X., Yoon, D., Koch, K. M., Hargreaves, B. A.
2016
- **Resolving phase ambiguity in dual-echo dixon imaging using a projected power method.** *Magnetic resonance in medicine*
Zhang, T., Chen, Y., Bao, S., Alley, M. T., Pauly, J. M., Hargreaves, B. A., Vasanaawala, S. S.
2016
- **Combined parenchymal and vascular imaging: High spatiotemporal resolution arterial evaluation of hepatocellular carcinoma** *JOURNAL OF MAGNETIC RESONANCE IMAGING*
Hope, T. A., Petkovska, I., Saranathan, M., Hargreaves, B. A., Vasanaawala, S. S.
2016; 43 (4): 859-865
- **Combined parenchymal and vascular imaging: High spatiotemporal resolution arterial evaluation of hepatocellular carcinoma.** *Journal of magnetic resonance imaging*
Hope, T. A., Petkovska, I., Saranathan, M., Hargreaves, B. A., Vasanaawala, S. S.
2016; 43 (4): 859-865
- **MR thermometry near metallic devices using multispectral imaging.** *Magnetic resonance in medicine*
Weber, H., Taviani, V., Yoon, D., Ghanouni, P., Pauly, K. B., Hargreaves, B. A.
2016
- **High temporal resolution dynamic MRI and arterial input function for assessment of GFR in pediatric subjects.** *Magnetic resonance in medicine*
Yoruk, U., Saranathan, M., Loening, A. M., Hargreaves, B. A., Vasanaawala, S. S.
2016; 75 (3): 1301-1311
- **Volumetric multislice gagCEST imaging of articular cartilage: Optimization and comparison with T1 ρ .** *Magnetic resonance in medicine*
Kogan, F., Hargreaves, B. A., Gold, G. E.
2016
- **High-resolution diffusion-weighted imaging of the breast with multiband 2D radiofrequency pulses and a generalized parallel imaging reconstruction.** *Magnetic resonance in medicine*
Taviani, V., Alley, M. T., Banerjee, S., Nishimura, D. G., Daniel, B. L., Vasanaawala, S. S., Hargreaves, B. A.

2016

- **Assessment of Tumor Morphology on Diffusion- Weighted (DWI) Breast MRI: Diagnostic Value of Reduced Field of View DWI** *JOURNAL OF MAGNETIC RESONANCE IMAGING*
Barentsz, M. W., Taviani, V., Chang, J. M., Ikeda, D. M., Miyake, K. K., Banerjee, S., Van den Bosch, M. A., Hargreaves, B. A., Daniel, B. L.
2015; 42 (6): 1656-1665
- **Combined outer volume suppression and T2 preparation sequence for coronary angiography.** *Magnetic resonance in medicine*
Luo, J., Addy, N. O., Ingle, R. R., Hargreaves, B. A., Hu, B. S., Nishimura, D. G., Shin, T.
2015; 74 (6): 1632-9
- **Assessment of tumor morphology on diffusion-weighted (DWI) breast MRI: Diagnostic value of reduced field of view DWI.** *Journal of magnetic resonance imaging*
Barentsz, M. W., Taviani, V., Chang, J. M., Ikeda, D. M., Miyake, K. K., Banerjee, S., Van den Bosch, M. A., Hargreaves, B. A., Daniel, B. L.
2015; 42 (6): 1656-1665
- **[18F]FDG PET/MRI of patients with chronic pain alters management: early experience.** *EJNMMI physics*
Biswal, S., Behera, D., Yoon, D. H., Holley, D., Ith, M. A., Carroll, I., Smuck, M., Hargreaves, B.
2015; 2: A84-?
- **Combined Outer Volume Suppression and T-2 Preparation Sequence for Coronary Angiography** *MAGNETIC RESONANCE IN MEDICINE*
Luo, J., Addy, N. O., Ingle, R. R., Hargreaves, B. A., Hu, B. S., Nishimura, D. G., Shin, T.
2015; 74 (6): 1632-1639
- **Balanced SSFP Dixon imaging with banding-artifact reduction at 3 Tesla** *MAGNETIC RESONANCE IN MEDICINE*
Quist, B., Hargreaves, B. A., Daniel, B. L., Saranathan, M.
2015; 74 (3): 706-715
- **Improved multislice perfusion imaging with velocity-selective arterial spin labeling.** *Journal of magnetic resonance imaging*
Zun, Z., Hargreaves, B. A., Rosenberg, J., Zaharchuk, G.
2015; 41 (5): 1422-1431
- **AUTOMATED, NON-CONTRAST MRI FOR DETECTION OF SYNOVITIS USING DIFFUSION-WEIGHTED DESS**
Fan, A. P., Fong, G., Sveinsson, B., McWalter, E. J., Oei, E. H., Robinson, W. H., Genovese, M. C., Hargreaves, B. A., Gold, G. E.
ELSEVIER SCI LTD.2015: A240-A241
- **MR Imaging Near Metallic Implants Using MAVRIC SL: Initial Clinical Experience at 3T** *ACADEMIC RADIOLOGY*
Gutierrez, L. B., Do, B. H., Gold, G. E., Hargreaves, B. A., Koch, K. M., Worters, P. W., Stevens, K. J.
2015; 22 (3): 370-379
- **Improved Frequency Selective Fat Suppression in the Posterior Neck With Tissue Susceptibility Matched Pyrolytic Graphite Foam** *JOURNAL OF MAGNETIC RESONANCE IMAGING*
Lee, G., Jordan, C., Tiet, P., Ruiz, C., McCormick, J., Phuong, K., Hargreaves, B., Conolly, S.
2015; 41 (3): 684-693
- **Hexagonal Undersampling for Faster MRI Near Metallic Implants** *MAGNETIC RESONANCE IN MEDICINE*
Sveinsson, B., Worters, P. W., Gold, G. E., Hargreaves, B. A.
2015; 73 (2): 662-668
- **Metal Artifact Reduction With MAVRIC SL at 3-T MRI in Patients With Hip Arthroplasty** *AMERICAN JOURNAL OF ROENTGENOLOGY*
Choi, S., Koch, K. M., Hargreaves, B. A., Stevens, K. J., Gold, G. E.
2015; 204 (1): 140-147
- **High resolution multi-arterial phase MRI improves lesion contrast in chronic liver disease.** *Clinical and investigative medicine. Médecine clinique et expérimentale*
Clarke, S. E., Saranathan, M., Rettmann, D. W., Hargreaves, B. A., Vasanawala, S. S.
2015; 38 (3): E90-9
- **High resolution multi-arterial phase MRI improves lesion contrast in chronic liver disease.** *Clinical and investigative medicine. Me' decine clinique et expérimentale*
Clarke, S. E., Saranathan, M., Rettmann, D. W., Hargreaves, B. A., Vasanawala, S. S.

2015; 38 (3): E90-9

- **Variable Spatiotemporal Resolution Three-Dimensional Dixon Sequence for Rapid Dynamic Contrast-Enhanced Breast MRI** *JOURNAL OF MAGNETIC RESONANCE IMAGING*
Saranathan, M., Rettmann, D. W., Hargreaves, B. A., Lipson, J. A., Daniel, B. L.
2014; 40 (6): 1392-?
- **Variability of CubeQuant T-1 rho, quantitative DESS T-2, and cones sodium MRI in knee cartilage** *OSTEOARTHRITIS AND CARTILAGE*
Jordan, C. D., McWalter, E. J., Monu, U. D., Watkins, R. D., Chen, W., Bangerter, N. K., Hargreaves, B. A., Gold, G. E.
2014; 22 (10): 1559-1567
- **Variability of CubeQuant T1?, quantitative DESS T2, and cones sodium MRI in knee cartilage.** *Osteoarthritis and cartilage*
JORDAN, C. D., McWalter, E. J., Monu, U. D., Watkins, R. D., Chen, W., Bangerter, N. K., Hargreaves, B. A., Gold, G. E.
2014; 22 (10): 1559-1567
- **Balanced SSFP Dixon imaging with banding-artifact reduction at 3 Tesla.** *Magnetic resonance in medicine : official journal of the Society of Magnetic Resonance in Medicine / Society of Magnetic Resonance in Medicine*
Quist, B., Hargreaves, B. A., Daniel, B. L., Saranathan, M.
2014
- **Near-contiguous spin echo imaging using matched-phase RF and its application in velocity-selective arterial spin labeling.** *Magnetic resonance in medicine*
Zun, Z., Hargreaves, B. A., Pauly, J., Zaharchuk, G.
2014; 71 (6): 2043-2050
- **Optimizing isotropic three-dimensional fast spin-echo methods for imaging the knee.** *Journal of magnetic resonance imaging*
Li, C. Q., Chen, W., Rosenberg, J. K., Beatty, P. J., Kijowski, R., Hargreaves, B. A., Busse, R. F., Gold, G. E.
2014; 39 (6): 1417-1425
- **Imaging Near Metal: The Impact of Extreme Static Local Field Gradients on Frequency Encoding Processes** *MAGNETIC RESONANCE IN MEDICINE*
Koch, K. M., King, K. F., Carl, M., Hargreaves, B. A.
2014; 71 (6): 2024-2034
- **Mechanisms of osteoarthritis in the knee: MR imaging appearance.** *Journal of magnetic resonance imaging*
Shapiro, L. M., McWalter, E. J., Son, M., Levenston, M., Hargreaves, B. A., Gold, G. E.
2014; 39 (6): 1346-1356
- **Optimizing Isotropic Three-Dimensional Fast Spin-Echo Methods for Imaging the Knee** *JOURNAL OF MAGNETIC RESONANCE IMAGING*
Li, C. Q., Chen, W., Rosenberg, J. K., Beatty, P. J., Kijowski, R., Hargreaves, B. A., Busse, R. F., Gold, G. E.
2014; 39 (6): 1417-1425
- **High-resolution, three-dimensional diffusion-weighted breast imaging using DESS.** *Magnetic resonance imaging*
Granlund, K. L., Staroswiecki, E., Alley, M. T., Daniel, B. L., Hargreaves, B. A.
2014; 32 (4): 330-341
- **Homogenous Fat Suppression for Bilateral Breast Imaging Using Independent Shims** *MAGNETIC RESONANCE IN MEDICINE*
Han, M., Cunningham, C. H., Pauly, J. M., Daniel, B. L., Hargreaves, B. A.
2014; 71 (4): 1511-1517
- **NON-CONTRAST DIFFUSION WEIGHTED IMAGING FOR THE ASSESSMENT OF KNEE SYNOVITIS: A COMPARATIVE STUDY AGAINST CONTRAST-ENHANCED MRI**
Oei, E. H., McWalter, E. J., Sveinsson, B., Alley, M. T., Hargreaves, B. A., Gold, G. E.
ELSEVIER SCI LTD.2014: S252
- **3D T2-Weighted Spin Echo Imaging in the Breast** *JOURNAL OF MAGNETIC RESONANCE IMAGING*
Moran, C. J., Hargreaves, B. A., Saranathan, M., Lipson, J. A., Kao, J., Ikeda, D. M., Daniel, B. L.
2014; 39 (2): 332-338
- **The John Charnley Award: Diagnostic Accuracy of MRI Versus Ultrasound for Detecting Pseudotumors in Asymptomatic Metal-on-Metal THA** *Open Scientific Meeting of the Hip-Society in Conjunction with the Annual Meeting of the American-Academy-of-Orthopaedic-Surgeons (AAOS)*
Garbuz, D. S., Hargreaves, B. A., Duncan, C. P., Masri, B. A., Wilson, D. R., Forster, B. B.
SPRINGER.2014: 417-23

- **High-Frequency Subband Compressed Sensing MRI Using Quadruplet Sampling** *MAGNETIC RESONANCE IN MEDICINE*
Sung, K., Hargreaves, B. A.
2013; 70 (5): 1306-1318
- **Improvement of gadoxetate arterial phase capture with a high spatio-temporal resolution multiphase three-dimensional SPGR-dixon sequence.** *Journal of magnetic resonance imaging*
Hope, T. A., Saranathan, M., Petkovska, I., Hargreaves, B. A., Herfkens, R. J., Vasanawala, S. S.
2013; 38 (4): 938-945
- **Simultaneous T-1 and B-1(+) Mapping Using Reference Region Variable Flip Angle Imaging** *MAGNETIC RESONANCE IN MEDICINE*
Sung, K., Saranathan, M., Daniel, B. L., Hargreaves, B. A.
2013; 70 (4): 954-961
- **Location constrained approximate message passing for compressed sensing MRI** *MAGNETIC RESONANCE IN MEDICINE*
Sung, K., Daniel, B. L., Hargreaves, B. A.
2013; 70 (2): 370-381
- **Transmit B-1(+) Field Inhomogeneity and T-1 Estimation Errors in Breast DCE-MRI at 3 Tesla** *JOURNAL OF MAGNETIC RESONANCE IMAGING*
Sung, K., Daniel, B. L., Hargreaves, B. A.
2013; 38 (2): 454-459
- **Regional variation in T1? and T2 times in osteoarthritic human menisci: correlation with mechanical properties and matrix composition.** *Osteoarthritis and cartilage*
Son, M., Goodman, S. B., Chen, W., Hargreaves, B. A., Gold, G. E., Levenston, M. E.
2013; 21 (6): 796-805
- **Musculoskeletal MRI at 3.0 T and 7.0 T: A comparison of relaxation times and image contrast** *EUROPEAN JOURNAL OF RADIOLOGY*
Jordan, C. D., Saranathan, M., Bangerter, N. K., Hargreaves, B. A., Gold, G. E.
2013; 82 (5): 734-739
- **Application of advanced magnetic resonance imaging techniques in evaluation of the lower extremity.** *Radiologic clinics of North America*
Braun, H. J., Drago, J. L., Hargreaves, B. A., Levenston, M. E., Gold, G. E.
2013; 51 (3): 529-545
- **Application of advanced magnetic resonance imaging techniques in evaluation of the lower extremity.** *Radiologic clinics of North America*
Braun, H. J., Drago, J. L., Hargreaves, B. A., Levenston, M. E., Gold, G. E.
2013; 51 (3): 529-545
- **Subject-specific models of susceptibility-induced B0 field variations in breast MRI** *JOURNAL OF MAGNETIC RESONANCE IMAGING*
Jordan, C. D., Daniel, B. L., Koch, K. M., Yu, H., Conolly, S., Hargreaves, B. A.
2013; 37 (1): 227-232
- **Compressed-Sensing multispectral imaging of the postoperative spine** *JOURNAL OF MAGNETIC RESONANCE IMAGING*
Worters, P. W., Sung, K., Stevens, K. J., Koch, K. M., Hargreaves, B. A.
2013; 37 (1): 243-248
- **Evaluation of 3D T2-weighted Breast MRI**
Moran, C. J., Hargreaves, B. A., Saranathan, M., Daniel, B. L.
AMER ASSOC CANCER RESEARCH.2012
- **Rapid gradient-echo imaging** *JOURNAL OF MAGNETIC RESONANCE IMAGING*
Hargreaves, B. A.
2012; 36 (6): 1300-1313
- **Advances in musculoskeletal MRI: Technical considerations** *JOURNAL OF MAGNETIC RESONANCE IMAGING*
Shapiro, L., Harish, M., Hargreaves, B., Staroswiecki, E., Gold, G.
2012; 36 (4): 775-787
- **Metals in MR-mammography: how to deal with it?** *European journal of radiology*
Hargreaves, B. A., Daniel, B. L.

2012; 81: S56-8

- **Accelerated breast MRI with compressed sensing.** *European journal of radiology*
Hargreaves, B. A., Saranathan, M., Sung, K., Daniel, B. L.
2012; 81: S54-5
- **High resolution images of the breast.** *European journal of radiology*
Moran, C. J., Saranathan, M., Nnewihe, A. N., Granlund, K. L., Alley, M. T., Daniel, B. L., Hargreaves, B. A.
2012; 81: S101-3
- **Breast MRI without gadolinium: utility of 3D DESS, a new 3D diffusion weighted gradient-echo sequence.** *European journal of radiology*
Daniel, B. L., Granlund, K. L., Moran, C. J., Alley, M. T., Lipson, J., Ikeda, D. M., Kao, J., Hargreaves, B. A.
2012; 81: S24-6
- **Differential subsampling with cartesian ordering (DISCO): A high spatio-temporal resolution dixon imaging sequence for multiphase contrast enhanced abdominal imaging** *JOURNAL OF MAGNETIC RESONANCE IMAGING*
Saranathan, M., Rettmann, D. W., Hargreaves, B. A., Clarke, S. E., Vasanawala, S. S.
2012; 35 (6): 1484-1492
- **Simultaneous Fat Suppression and Band Reduction with Large-Angle Multiple-Acquisition Balanced Steady-State Free Precession** *MAGNETIC RESONANCE IN MEDICINE*
Quist, B., Hargreaves, B. A., Cukur, T., Morrell, G. R., Gold, G. E., Bangerter, N. K.
2012; 67 (4): 1004-1012
- **Simultaneous Estimation of T-2 and Apparent Diffusion Coefficient in Human Articular Cartilage In Vivo with a Modified Three-Dimensional Double Echo Steady State (DESS) Sequence at 3 T** *MAGNETIC RESONANCE IN MEDICINE*
Staroswiecki, E., Granlund, K. L., Alley, M. T., Gold, G. E., Hargreaves, B. A.
2012; 67 (4): 1086-1096
- **High Spatio-Temporal Resolution Dynamic Contrast-Enhanced MRI using Compressed Sensing** *Annual Summit and Conference of the Asia-Pacific-Signal-and-Information-Processing-Association (APSIPA)*
Sung, K., Saranathan, M., Daniel, B. L., Hargreaves, B. A.
IEEE.2012
- **Three-dimensional fluid-suppressed T2-prep flow-independent peripheral angiography using balanced SSFP** *MAGNETIC RESONANCE IMAGING*
Bangerter, N. K., Cukur, T., Hargreaves, B. A., Hu, B. S., Brittain, J. H., Park, D., Gold, G. E., Nishimura, D. G.
2011; 29 (8): 1119-1124
- **Metal-Induced Artifacts in MRI** *AMERICAN JOURNAL OF ROENTGENOLOGY*
Hargreaves, B. A., Worters, P. W., Pauly, K. B., Pauly, J. M., Koch, K. M., Gold, G. E.
2011; 197 (3): 547-555
- **Custom-Fitted 16-Channel Bilateral Breast Coil for Bidirectional Parallel Imaging** *MAGNETIC RESONANCE IN MEDICINE*
Nnewihe, A. N., Grafendorfer, T., Daniel, B. L., Calderon, P., Alley, M. T., Robb, F., Hargreaves, B. A.
2011; 66 (1): 281-289
- **Slice Encoding for Metal Artifact Correction With Noise Reduction** *MAGNETIC RESONANCE IN MEDICINE*
Lu, W., Pauly, K. B., Gold, G. E., Pauly, J. M., Hargreaves, B. A.
2011; 65 (5): 1352-1357
- **Reduction of Flow Artifacts by Using Partial Saturation in RF-Spoiled Gradient-Echo Imaging** *MAGNETIC RESONANCE IN MEDICINE*
Han, M., Hargreaves, B. A.
2011; 65 (5): 1326-1334
- **New MR Imaging Methods for Metallic Implants in the Knee: Artifact Correction and Clinical Impact** *JOURNAL OF MAGNETIC RESONANCE IMAGING*
Chen, C. A., Chen, W., Goodman, S. B., Hargreaves, B. A., Koch, K. M., Lu, W., Brau, A. C., Draper, C. E., Delp, S. L., Gold, G. E.
2011; 33 (5): 1121-1127
- **Magnetization-Prepared IDEAL bSSFP: A Flow-Independent Technique for Noncontrast-Enhanced Peripheral Angiography** *JOURNAL OF MAGNETIC RESONANCE IMAGING*
Cukur, T., Shimakawa, A., Yu, H., Hargreaves, B. A., Hu, B. S., Nishimura, D. G., Brittain, J. H.

2011; 33 (4): 931-939

- **MR Water Quantitative Priors Improves the Accuracy of Optical Breast Imaging** *IEEE TRANSACTIONS ON MEDICAL IMAGING*
Carpenter, C. M., Pogue, B. W., Jiang, S., Wang, J., Hargreaves, B. A., Rakow-Penner, R., Daniel, B. L., Paulsen, K. D.
2011; 30 (1): 159-168
- **Imaging Near Metal with a MAVRIC-SEMAC Hybrid** *MAGNETIC RESONANCE IN MEDICINE*
Koch, K. M., Brau, A. C., Chen, W., Gold, G. E., Hargreaves, B. A., Koff, M., McKinnon, G. C., Potter, H. G., King, K. F.
2011; 65 (1): 71-82
- **Balanced SSFP transient imaging using variable flip angles for a predefined signal profile.** *Magnetic resonance in medicine*
Worters, P. W., Hargreaves, B. A.
2010; 64 (5): 1404-1412
- **Balanced SSFP Transient Imaging Using Variable Flip Angles for a Predefined Signal Profile** *MAGNETIC RESONANCE IN MEDICINE*
Worters, P. W., Hargreaves, B. A.
2010; 64 (5): 1405-1413
- **Fabrication of custom-shaped grafts for cartilage regeneration** *INTERNATIONAL JOURNAL OF ARTIFICIAL ORGANS*
Koo, S., Hargreaves, B. A., Gold, G. E., Drago, J. L.
2010; 33 (10): 731-737
- **Advances in musculoskeletal magnetic resonance imaging.** *Topics in magnetic resonance imaging*
Gold, G., Shapiro, L., Hargreaves, B., Bangerter, N.
2010; 21 (5): 335-338
- **Magnetic Resonance Imaging Near Metal Implants** *JOURNAL OF MAGNETIC RESONANCE IMAGING*
Koch, K. M., Hargreaves, B. A., Pauly, K. B., Chen, W., Gold, G. E., King, K. F.
2010; 32 (4): 773-787
- **Pyrolytic Graphite Foam: A Passive Magnetic Susceptibility Matching Material** *JOURNAL OF MAGNETIC RESONANCE IMAGING*
Lee, G. C., Goodwill, P. W., Phuong, K., Inglis, B. A., Scott, G. C., Hargreaves, B. A., Li, L., Chen, A. C., Shah, R. N., Conolly, S. M.
2010; 32 (3): 684-691
- **Improved Pediatric MR Imaging with Compressed Sensing** *RADIOLOGY*
Vasanawala, S. S., Alley, M. T., Hargreaves, B. A., Barth, R. A., Pauly, J. M., Lustig, M.
2010; 256 (2): 607-616
- **In Vivo Sodium Imaging of Human Patellar Cartilage With a 3D Cones Sequence at 3 T and 7 T** *JOURNAL OF MAGNETIC RESONANCE IMAGING*
Staroswiecki, E., Bangerter, N. K., Gurney, P. T., Grafendorfer, T., Gold, G. E., Hargreaves, B. A.
2010; 32 (2): 446-451
- **Accelerated Slice Encoding for Metal Artifact Correction** *JOURNAL OF MAGNETIC RESONANCE IMAGING*
Hargreaves, B. A., Chen, W., Lu, W., Alley, M. T., Gold, G. E., Brau, A. C., Pauly, J. M., Pauly, K. B.
2010; 31 (4): 987-996
- **Independent Slab-Phase Modulation Combined With Parallel Imaging in Bilateral Breast MRI** *MAGNETIC RESONANCE IN MEDICINE*
Han, M., Beatty, P. J., Daniel, B. L., Hargreaves, B. A.
2009; 62 (5): 1221-1231
- **MRI GUIDANCE FOR ACCELERATED PARTIAL BREAST IRRADIATION IN PRONE POSITION: IMAGING PROTOCOL DESIGN AND EVALUATION** *50th Annual Meeting of the American-Society-for-Therapeutic-Radiology-and-Oncology (ASTRO)*
Ahn, K., Hargreaves, B. A., Alley, M. T., Horst, K. C., Luxton, G., Daniel, B. L., Hristov, D.
ELSEVIER SCIENCE INC.2009: 285-93
- **Recent Advances in MRI of Articular Cartilage** *AMERICAN JOURNAL OF ROENTGENOLOGY*
Gold, G. E., Chen, C. A., Koo, S., Hargreaves, B. A., Bangerter, N. K.
2009; 193 (3): 628-638
- **Multiecho IDEAL Gradient-Echo Water-Fat Separation for Rapid Assessment of Cartilage Volume at 1.5 T: Initial Experience** *RADIOLOGY*
Chen, C. A., Lu, W., John, C. T., Hargreaves, B. A., Reeder, S. B., Delp, S. L., Siston, R. A., Gold, G. E.

2009; 252 (2): 561-567

- **SEMAC: Slice Encoding for Metal Artifact Correction in MRI** *16th Annual Meeting of the International-Society-of-Magnetic-Resonance-in-Medicine*
Lu, W., Pauly, K. B., Gold, G. E., Pauly, J. M., Hargreaves, B. A.
WILEY-BLACKWELL.2009: 66-76
- **Non-contrast-Enhanced Flow-Independent Peripheral MR Angiography with Balanced SSFP** *MAGNETIC RESONANCE IN MEDICINE*
Cukur, T., Lee, J. H., Bangerter, N. K., Hargreaves, B. A., Nishimura, D. G.
2009; 61 (6): 1533-1539
- **Accelerated Bilateral Dynamic Contrast-Enhanced 3D Spiral Breast MRI Using TSENSE** *JOURNAL OF MAGNETIC RESONANCE IMAGING*
Han, M., Daniel, B. L., Hargreaves, B. A.
2008; 28 (6): 1425-1434
- **Water-fat separation with bipolar multiecho sequences** *MAGNETIC RESONANCE IN MEDICINE*
Lu, W., Yu, H., Shimakawa, A., Alley, M., Reeder, S. B., Hargreaves, B. A.
2008; 60 (1): 198-209
- **Pulse sequence for dynamic volumetric imaging of hyperpolarized metabolic products** *JOURNAL OF MAGNETIC RESONANCE*
Cunningham, C. H., Chen, A. P., Lustig, M., Hargreaves, B. A., Lupo, J., Xu, D., Kurhanewicz, J., Hurd, R. E., Pauly, J. M., Nelson, S. J., Vigneron, D. B.
2008; 193 (1): 139-146
- **Multiresolution field map estimation using golden section search for water-fat separation** *MAGNETIC RESONANCE IN MEDICINE*
Lu, W., Hargreaves, B. A.
2008; 60 (1): 236-244
- **Wideband SSFP: Alternating repetition time balanced steady state free precession with increased band spacing** *MAGNETIC RESONANCE IN MEDICINE*
Nayak, K. S., Lee, H., Hargreaves, B. A., Hu, B. S.
2007; 58 (5): 931-938
- **Independent phase modulation for efficient dual-band 3D imaging** *MAGNETIC RESONANCE IN MEDICINE*
Hargreaves, B. A., Cunningham, C. H., Pauly, J. M., Daniel, B. L.
2007; 57 (4): 798-802
- **Water-fat separation with IDEAL gradient-echo imaging** *JOURNAL OF MAGNETIC RESONANCE IMAGING*
Reeder, S. B., McKenzie, C. A., Pineda, A. R., Yu, H., Shimakawa, A., Brau, A. C., Hargreaves, B. A., Gold, G. E., Brittain, J. H.
2007; 25 (3): 644-652
- **Balanced SSFP imaging of the musculoskeletal system** *JOURNAL OF MAGNETIC RESONANCE IMAGING*
Gold, G. E., Hargreaves, B. A., Reeder, S. B., Block, W. F., Kijowski, R., Vasanawala, S. S., Kornaat, P. R., Bammer, R., Newbould, R., Bangerter, N. K., Beaulieu, C. F.
2007; 25 (2): 270-278
- **Fluid-attenuated inversion-recovery SSFP imaging** *JOURNAL OF MAGNETIC RESONANCE IMAGING*
Bangerter, N. K., Hargreaves, B. A., Gold, G. E., Stucker, D. T., Nishimura, D. G.
2006; 24 (6): 1426-1431
- **Advanced magnetic resonance imaging of articular cartilage** *ORTHOPEDIC CLINICS OF NORTH AMERICA*
Gold, G. E., Hargreaves, B. A., Stevens, K. J., Beaulieu, C. F.
2006; 37 (3): 331-?
- **Linear combination filtering for T-2-selective imaging of the knee** *MAGNETIC RESONANCE IN MEDICINE*
Vidarsson, L., Gold, G. E., Hargreaves, B., Pauly, J. M.
2006; 55 (5): 1191-1196
- **Respiration-induced B-0 field fluctuation compensation in balanced SSFP: Real-time approach for transition-band SSFP fMRI** *MAGNETIC RESONANCE IN MEDICINE*
Lee, J., Santos, J. M., Conolly, S. M., Miller, K. L., Hargreaves, B. A., Pauly, J. M.
2006; 55 (5): 1197-1201
- **Design and analysis of a practical 3D cones trajectory** *MAGNETIC RESONANCE IN MEDICINE*

- Gurney, P. T., Hargreaves, B. A., Nishimura, D. G.
2006; 55 (3): 575-582
- **Dual-acquisition phase-sensitive fat-water separation using balanced steady-state free precession** *MAGNETIC RESONANCE IMAGING*
Hargreaves, B. A., Bangerter, N. K., Shimakawa, A., Vasanawala, S. S., Brittain, J. H., Nishimura, D. G.
2006; 24 (2): 113-122
 - **Single breath-hold whole-heart MRA using variable-density spirals at 3T** *MAGNETIC RESONANCE IN MEDICINE*
Santos, J. M., Cunningham, C. H., Lustig, M., Hargreaves, B. A., Hu, B. S., Nishimura, D. G., Pauly, J. M.
2006; 55 (2): 371-379
 - **Articular cartilage of the knee: Evaluation with fluctuating equilibrium MR imaging - Initial experience in healthy volunteers** *RADIOLOGY*
Gold, G. E., Hargreaves, B. A., Vasanawala, S. S., Webb, J. D., Shimakawa, A. S., Brittain, J. H., Beaulieu, C. F.
2006; 238 (2): 712-718
 - **Automatic tuning of flexible interventional RF receiver coils** *MAGNETIC RESONANCE IN MEDICINE*
Venook, R. D., Hargreaves, B. A., Gold, G. E., Conolly, S. M., Scott, G. C.
2005; 54 (4): 983-993
 - **Variable-density one-shot Fourier velocity encoding** *MAGNETIC RESONANCE IN MEDICINE*
DiCarlo, J. C., Hargreaves, B. A., Nayak, K. S., Hu, B. S., Pauly, J. M., Nishimura, D. G.
2005; 54 (3): 645-655
 - **Controversies in protocol selection in the Imaging of articular cartilage** *SEMINARS IN MUSCULOSKELETAL RADIOLOGY*
Gold, G. E., Hargreaves, B. A., Reeder, S. B., Vasanawala, S. S., Beaulieu, C. F.
2005; 9 (2): 161-172
 - **Spiral balanced steady-state free precession cardiac imaging** *MAGNETIC RESONANCE IN MEDICINE*
Nayak, K. S., Hargreaves, B. A., Hu, B. S., Nishimura, D. G., Pauly, J. M., Meyer, C. H.
2005; 53 (6): 1468-1473
 - **Rapid musculoskeletal MRI with phase-sensitive steady-state free precession: Comparison with routine knee MRI** *AMERICAN JOURNAL OF ROENTGENOLOGY*
Vasanawala, S. S., Hargreaves, B. A., Pauly, J. M., Nishimura, D. G., Beaulieu, C. F., Gold, G. E.
2005; 184 (5): 1450-1455
 - **Rapid measurement of renal artery blood flow with ungated spiral phase-contrast MRI** *10th Annual Meeting of the International-Society-for-Magnetic-Resonance-in-Medicine (ISMRM)*
Park, J. B., Santos, J. M., Hargreaves, B. A., Nayak, K. S., Sommer, G., Hu, B. S., Nishimura, D. G.
JOHN WILEY & SONS INC.2005: 590-595
 - **Driven equilibrium magnetic resonance imaging of articular cartilage: Initial clinical experience** *JOURNAL OF MAGNETIC RESONANCE IMAGING*
Gold, G. E., Fuller, S. E., Hargreaves, B. A., Stevens, K. J., Beaulieu, C. F.
2005; 21 (4): 476-481
 - **Magnetic resonance imaging of articular cartilage of the knee: Comparison between fat-suppressed three-dimensional SPGR imaging, fat-suppressed FSE imaging, and fat-suppressed three-dimensional DEFT imaging, and correlation with arthroscopy** *JOURNAL OF MAGNETIC RESONANCE IMAGING*
Yoshioka, H., Stevens, K., Hargreaves, B. A., Steines, D., Genovese, M., Dillingham, M. F., Winalski, C. S., Lang, P.
2004; 20 (5): 857-864
 - **Variable-rate selective excitation for rapid MRI sequences** *MAGNETIC RESONANCE IN MEDICINE*
Hargreaves, B. A., Cunningham, C. H., Nishimura, D. G., Conolly, S. M.
2004; 52 (3): 590-597
 - **Analysis of multiple-acquisition SSFP** *MAGNETIC RESONANCE IN MEDICINE*
Bangerter, N. K., Hargreaves, B. A., Vasanawala, S. S., Pauly, J. M., Gold, G. E., Nishimura, D. G.
2004; 51 (5): 1038-1047
 - **Steady-state diffusion-weighted imaging of in vivo knee cartilage** *MAGNETIC RESONANCE IN MEDICINE*
Miller, K. L., Hargreaves, B. A., Gold, G. E., Pauly, J. M.
2004; 51 (2): 394-398

- **Functional brain imaging with BOSSFMRI** *26th Annual International Conference of the IEEE-Engineering-in-Medicine-and-Biology-Society*
Miller, K. L., Hargreaves, B. A., Lee, J. H., Ress, D., deCharms, R. C., Pauly, J. M.
IEEE.2004: 5234–5237
- **Functional brain imaging with BOSS FMRI.** *Conference proceedings : ... Annual International Conference of the IEEE Engineering in Medicine and Biology Society. IEEE Engineering in Medicine and Biology Society. Conference*
Miller, K. L., Hargreaves, B. A., Lee, J., Ress, D., deCharms, R. C., Pauly, J. M.
2004; 7: 5234-5237
- **Time-optimal multidimensional gradient waveform design for rapid imaging** *MAGNETIC RESONANCE IN MEDICINE*
Hargreaves, B. A., Nishimura, D. G., Conolly, S. M.
2004; 51 (1): 81-92
- **Fast 3D imaging using variable-density spiral trajectories with applications to limb perfusion** *MAGNETIC RESONANCE IN MEDICINE*
Lee, J. H., Hargreaves, B. A., Hu, B. S., Nishimura, D. G.
2003; 50 (6): 1276-1285
- **Helical MR: Continuously moving table axial imaging with radial acquisitions** *MAGNETIC RESONANCE IN MEDICINE*
Shankaranarayanan, A., Herfkens, R., Hargreaves, B. M., Polzin, J. A., Santos, J. M., Brittain, J. H.
2003; 50 (5): 1053-1060
- **Functional brain Imaging using a blood oxygenation sensitive steady state** *MAGNETIC RESONANCE IN MEDICINE*
Miller, K. L., Hargreaves, B. A., Lee, J., Ress, D., deCharms, R. C., Pauly, J. M.
2003; 50 (4): 675-683
- **Fat-suppressed steady-state free precession imaging using phase detection** *MAGNETIC RESONANCE IN MEDICINE*
Hargreaves, B. A., Vasanaawala, S. S., Nayak, K. S., Hu, B. S., Nishimura, D. G.
2003; 50 (1): 210-213
- **Comparison of new sequences for high-resolution cartilage imaging** *MAGNETIC RESONANCE IN MEDICINE*
Hargreaves, B. A., Gold, G. E., Beaulieu, C. F., Vasanaawala, S. S., Nishimura, D. G., Pauly, J. M.
2003; 49 (4): 700-709
- **Protocols in sports magnetic resonance imaging.** *Topics in magnetic resonance imaging*
Gold, G. E., Hargreaves, B. A., Beaulieu, C. F.
2003; 14 (1): 3-23
- **Characterization and reduction of the transient response in steady-state MR imaging** *MAGNETIC RESONANCE IN MEDICINE*
Hargreaves, B. A., Vasanaawala, S. S., Pauly, J. M., Nishimura, D. G.
2001; 46 (1): 149-158
- **MR imaging of articular cartilage using driven equilibrium** *Scientific Meeting of the International-Society-for-Magnetic-Resonance-in-Medicine*
Hargreaves, B. A., Gold, G. E., Lang, P. K., Conolly, S. M., Pauly, J. M., Bergman, G., Vandevenne, J., Nishimura, D. G.
JOHN WILEY & SONS INC.1999: 695–703
- **Magnetic resonance imaging of knee cartilage repair.** *Topics in magnetic resonance imaging*
Gold, G. E., Bergman, A. G., Pauly, J. M., Lang, P., Butts, R. K., Beaulieu, C. F., Hargreaves, B., Frank, L., Boutin, R. D., Macovski, A., Resnick, D.
1998; 9 (6): 377-392