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, abodominal 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

Teaching

COURSES

2026-27

- MRI Sequences and Signals: BMP 229, RAD 229 (Spr)
- Medical Imaging Systems II: BMP 269B, EE 369B (Win)

2025-26

- Medical Imaging Systems II: BMP 269B, EE 369B (Win)

2024-25

- MRI Sequences and Signals: BMP 229, RAD 229 (Spr)
- Medical Imaging Systems II: BMP 269B, EE 369B (Win)

2023-24

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

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Mengze Gao, Xitong Wang, Yixin Wang

Doctoral Dissertation Advisor (AC)

Onat Dalmaz, Wally Niu, Aizada Nurdinova, Alex Toews, Xuetong Zhou

Doctoral Dissertation Co-Advisor (AC)

Yuxuan Wu

Publications

PUBLICATIONS

- **Clinical quality of breath-held T1-weighted breast MRI in the supine position.** *European journal of radiology*
  Zimmermann, J., Vincent, J., Poplack, S. P., Pittman, S. M., Dashevsky, B. Z., Zhou, X., Robb, F., Daniel, B. L., Hargreaves, B. A.
  2026; 202: 112938
- **Diffusion-weighted Imaging of the Liver: Primed for New Business.** *Radiology*
  Brunsing, R. L., Syed, A. B., Hargreaves, B. A., Ennis, D. B.
  2026; 319 (2): e250157
- **T 2 $$ {\boldsymbol{T}}_{\mathbf{2}} $$ -Weighted Imaging of Water, Fat and Silicone.** *Magnetic resonance in medicine*
  Nurdinova, A., Zhou, X., Oscanoa, J. A., Shah, P., Setsompop, K., Daniel, B. L., Hargreaves, B. A.
  2026
- **Relative SNR Measurements in Supine vs. Prone Breast MRI.** *Magnetic resonance in medicine*
  Hess, J. J., Moran, C. J., Shah, P., Vincent, J., Robb, F. J., Daniel, B. L., Hargreaves, B. A.
  2025
- **Distortion correction in TSE near titanium implants at 0.55 T using reversed frequency-encoding and model-based reconstruction.** *Magma (New York, N.Y.)*
  Li, B., Lee, N. G., Yoon, D., Keskin, K., Toews, A. R., Acharya, J., Gross, J. S., Hargreaves, B. A., Nayak, K. S.
  2025
- **Characterizing the imaging environment for supine breast MRI.** *Magnetic resonance in medicine*
  Zimmermann, J., Vincent, J., Robb, F., Daniel, B. L., Hargreaves, B. A., Moran, C. J.
  2025
- **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
- **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., Vasanawala, 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

- **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

- **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

- **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

- **Imaging Near Spinal Fixation Hardware at 0.55 T Compared With 3 T.** *Journal of magnetic resonance imaging : JMRI*
  Barlas, B. A., Keskin, K., Li, B., Acharya, J., Gross, J. S., Cui, S. X., Buser, Z., Wang, J. C., Hargreaves, B. A., Nayak, K. S.
  2026

- **Markerless augmented reality registration for surgical guidance: a multi-anatomy clinical accuracy study.** *International journal of computer assisted radiology and surgery*
  Yang, Y., Necker, F., Leuze, C., Chen, M., Finegersh, A., Lee, J., Divi, V., Daniel, B., Hargreaves, B., Wu, J. Y., Baik, F. M.
  2026

- **Perception-first digital twin for augmented reality microsurgery.** *International journal of computer assisted radiology and surgery*
  El Chemaly, T., Fan, Y., Fu, F., Leuze, C., Daniel, B., Hargreaves, B., Blevins, N. H.
  2026

- **EasyREG: Easy Depth-Based Markerless Registration and Tracking using Augmented Reality Device for Surgical Guidance** *IEEE TRANSACTIONS ON VISUALIZATION AND COMPUTER GRAPHICS*
  Yang, Y., Leuze, C., Hargreaves, B., Daniel, B., Baik, F.
  2026; 32 (5): 4647-4656

- **Multimodal Feedback for Handheld Tool Guidance: Combining Wrist-Based Haptics with Augmented Reality** *IEEE TRANSACTIONS ON VISUALIZATION AND COMPUTER GRAPHICS*
  Yang, Y., Leuze, C., Hargreaves, B., Daniel, B., Baik, F.
  2026; 32 (5): 4637-4646

- **NEURAL SHAPE MODEL-BASED SCORE OUTPERFORMS CONVENTIONAL MEASURES IN QUANTIFYING EARLY AND PROGRESSIVE JOINT REMODELING IN ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTED KNEES**
  Pai, S., White, M. S., Black, M. S., Young, K., Sherman, S., Chu, C., Williams, A., Gold, G., Kogan, F., Hargreaves, B., Chaudhari, A., Gatti, A.
  ELSEVIER SCI LTD.2026: S271-S272

- **Neural Space-Time Modeling for Motion-Corrected MR Reconstruction**
  Nurdinova, A., Huang, W., Abraham, D., Bae, J., Lin, Y., Setsompop, K., Hargreaves, B.
  edited by Felsner, L., Kustner, T., Maier, A., Qin, C., Ahmadi, S. A., Kazi, A., Hu
  SPRINGER INTERNATIONAL PUBLISHING AG.2026: 118-128

- **Open-Source Simulator of Imaging Near Metal at Arbitrary Magnetic Field Strengths.** *Magnetic resonance in medicine*
  Keskin, K., Sanson, A. R., Hargreaves, B. A., Nayak, K. S.
  2025

- **Acceleration of slice encoding for metal artifact correction at 0.55 T using hexagonal sampling.** *Magnetic resonance in medicine*
  Barlas, B. A., Keskin, K., Li, B., Hargreaves, B. A., Nayak, K. S.
  2025

- **Imaging near titanium total hip arthroplasty at 0.55 T compared with 3 T.** *Magnetic resonance in medicine*
  Keskin, K., Cui, S. X., Li, B., Gross, J. S., Acharya, J., Buser, Z., Lieberman, J. R., Hargreaves, B. A., Nayak, K. S.

2025

- **Diffusion-prepared imaging with amplitude navigation for correction of motion-induced signal loss.** *Magnetic resonance in medicine*
  Lee, P. K., Zhou, X., Hargreaves, B. A.
  2025

- **Efficient Noise Calculation in Deep Learning-based MRI Reconstructions**
  Dalmaz, O., Desai, A. D., Heckel, R., Cukur, T., Chaudhari, A. S., Hargreaves, B.
  edited by Singh, A., Fazel, M., Hsu, D., Lacoste-Julien, S., Berkenkamp, F., Maharaj, T., Wagstaff, K., Zhu, J.
  JMLR-JOURNAL MACHINE LEARNING RESEARCH.2025: 12280-12313

- **T2 Clusters Are More Sensitive Than Mean T2 Change to Detect Early and Longitudinal Changes in Anterior Cruciate Ligament Reconstructed and Healthy Knees.** *Journal of magnetic resonance imaging : JMRI*
  Pai S, A., Gatti, A. A., Black, M. S., Young, K. A., Desai, A. D., Barbieri, M., Asay, J. L., Sherman, S. L., Gold, G. E., Kogan, F., Hargreaves, B. A., Chaudhari, A. S.
  2024

- **Blip-up blip-down circular EPI (BUDA-cEPI) for distortion-free dMRI with rapid unrolled deep learning reconstruction.** *Magnetic resonance imaging*
  Yarach, U., Chatnuntawech, I., Liao, C., Teerapittayanon, S., Iyer, S. S., Kim, T. H., Haldar, J., Cho, J., Bilgic, B., Hu, Y., Hargreaves, B., Setsompop, K.
  2024: 110277

- **ShapeMed-Knee: A Dataset and Neural Shape Model Benchmark for Modeling 3D Femurs.** *IEEE transactions on medical imaging*
  Gatti, A. A., Blankemeier, L., Veen, D. V., Hargreaves, B., Delp, S. L., Gold, G. E., Kogan, F., Chaudhari, A. S.
  2024; PP

- **A diffusion-prepared reduced FOV sequence for prostate MRI near metallic implants.** *Magnetic resonance in medicine*
  Lee, P. K., Hess, J. J., Gomella, A. A., Loening, A. M., Hargreaves, B. A.
  2024

- **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

- **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 : JMRI*
  Williams, A. A., Asay, J. L., Asare, D., Desai, A. D., Gold, G. E., Hargreaves, B. A., Chaudhari, A. S., Chu, C. R.
  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., Vasanawala, 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., Pedoia, 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.
  edited by 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
- **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., Pedoia, 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., Vasanawala, 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

- **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., Vasanawala, 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., Vasanawala, 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.
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- **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*
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