

Eric Gibbons

CONTACT INFORMATION	Department of Electrical and Computer Engineering Weber State University 1447 Edvalson St. Dept. 1803 Ogden, Utah 84408	WWW: faculty.weber.edu/ericgibbons Cell: (801) 916-2620 E-mail: ericgibbons@weber.edu E-mail: ekgibbons@gmail.com
RESEARCH INTERESTS	My research interests are in magnetic resonance physics and image formation with the aim of improving the quality of magnetic resonance imaging (MRI). This work spans MR physics, biophysics, RF pulse design, image reconstruction algorithms, machine learning, and clinical implementation, all with the purpose of advancing human health care.	
EDUCATION	Stanford University , Stanford, California, USA Ph.D., Bioengineering, June 2017 <ul style="list-style-type: none">• Minor: Electrical Engineering• Advisor: John Pauly• Thesis: Robust body diffusion-weighted magnetic resonance imaging M.S., Bioengineering, June 2013 <ul style="list-style-type: none">• Concentration: Medical imaging and signal processing University of Utah , Salt Lake City, Utah, USA B.S., Biomedical Engineering, May 2011 <ul style="list-style-type: none">• Concentration: Medical imaging and signal processing• Minor: Mathematics• Thesis: Correlation-based retrospective concatenation of multi-volume 3D microCT data	
ACADEMIC POSITIONS	Weber State University , Ogden, Utah USA Assistant Professor, Department of Electrical and Computer Engineering, 2019–Present University of Utah , Salt Lake City, Utah USA Adjunct Assistant Professor, Department of Radiology, 2019–Present Postdoctoral Research Associate, Department of Radiology, 2017–2019	
AWARDS	<ul style="list-style-type: none">• NIH T32 Cardiovascular Imaging Training Grant, 2017• ISMRM Educational Stipend Award, 2013, 2014, 2015, 2016• National Science Foundation Graduate Fellowship, 2012• Stanford University School of Engineering Dean's Doctoral Diversity Fellowship, 2011• University of Utah College of Engineering Arel Berrier Scholarship, 2010• University of Utah Barry M. Goldwater Scholar Nominee, 2010• University of Utah Presidential Scholarship, 2005 - 2011• Member of Tau Beta Pi, 2009 - Present• Eagle Scout, 2003	
PUBLICATIONS	<ol style="list-style-type: none">[1] E. K. Gibbons, Y. Tian, A. S. Chaudhari, and E. V. R. DiBella, "Rapid STCR cardiac perfusion reconstruction using convolutional neural networks," <i>Magnetic Resonance in Medicine</i>, in preparation for submission in January 2019.[2] A. S. Chaudhari, J. Wood, , K. J. Stevens, E. K. Gibbons, A. D. Desai, Z. Fang, J. H. Lee, G. E. Gold, and B. A. Hargreaves, "Super-resolution musculoskeletal MRI using deep learning," <i>Journal of Magnetic Resonance Imaging</i>, in preparation for submission in December 2018.[3] E. K. Gibbons, K. K. Hodgson, A. S. Chaudhari, L. G. Richards, J. J. Majersik, G. Adluru, and E. V. R. DiBella, "Simultaneous cross parameter map generation from subsampled q-space imaging using deep learning," <i>Magnetic Resonance in Medicine</i>, vol. 00, no. 1, pp. 1–13, 2018.[4] A. S. Chaudhari, Z. Fang, F. Kogan, J. Wood, K. J. Stevens, E. K. Gibbons, J. H. Lee, G. E. Gold, and B. A. Hargreaves, "Super-resolution musculoskeletal MRI using deep learning," <i>Magnetic Resonance in Medicine</i>, vol. 80, no. 5, pp. 2139–2154, 2018.	

- [5] **E. K. Gibbons**, S. S. Vasanaawala, J. M. Pauly, and A. B. Kerr, “Body diffusion-weighted imaging using magnetization prepared single-shot fast spin echo and extended parallel imaging signal averaging,” *Magnetic Resonance in Medicine*, vol. 79, no. 6, pp. 3032–3044, 2018.
- [6] **E. K. Gibbons**, P. Le Roux, S. S. Vasanaawala, J. M. Pauly, and A. B. Kerr, “Robust self-calibrating nCPMG aquisition: Application to body diffusion-weighted imaging,” *IEEE Transactions on Medical Imaging*, vol. 37, no. 1, pp. 200–209, 2018.
- [7] **E. K. Gibbons**, P. Le Roux, J. M. Pauly, and A. B. Kerr, “Slice profile effects on nCPMG SS-FSE,” *Magnetic Resonance in Medicine*, vol. 79, no. 1, pp. 430–438, 2018.
- [8] **E. K. Gibbons**, P. Le Roux, S. S. Vasanaawala, J. M. Pauly, and A. B. Kerr, “Body diffusion weighted imaging using non-CPMG fast spin echo,” *IEEE Transactions on Medical Imaging*, vol. 36, no. 2, pp. 549–559, 2017.

CONFERENCE
PROCEEDINGS

- [1] **E. K. Gibbons**, K. K. Hodgson, A. S. Chaudhari, L. G. Richards, J. J. Majersik, G. Adluru, and E. V. R. DiBella, “Using CNNs for computing diffusion spectrum imaging parameters without image preprocessing,” in *Proceedings of International Society for Magnetic Resonance in Medicine, 27th Annual Meeting, Montreal, Canada*, in submission.
- [2] A. S. Chaudhari, Z. Fang, **E. K. Gibbons**, J. H. Lee, G. E. Gold, and B. A. Hargreaves, “Super-resolution enhances morphological and quantitative MRI on prospectively-sampled low-resolution data,” in *Proceedings of Medical Imaging Meets NIPS, 32nd Conference on Neural Information Processing Systems, Montreal, Canada*, in submission.
- [3] A. S. Chaudhari, Z. Fang, F. Kogan, J. Wood, K. J. Stevens, **E. K. Gibbons**, J. H. Lee, G. E. Gold, and B. A. Hargreaves, “Using artificial intelligence to enhance MRI efficiency for imaging OA,” in *International Workshop on Osteoarthritis Imaging, Menton, France*, 2018.
- [4] E. V. R. DiBella, **E. K. Gibbons**, J. Mendes, Y. Tian, and G. Adluru, “Using artificial intelligence to transform cardiac MRI reconstruction methods,” in *Engineering in Medicine and Biology Society (EMBC), 2018 Annual International Conference of the IEEE*, invited.
- [5] **E. K. Gibbons**, A. S. Chaudhari, and E. V. DiBella, “Deep slice: expanding cardiac SMS coverage through deep learning slice interpolation,” in *Proceedings of International Society for Magnetic Resonance in Medicine, 26th Annual Meeting, Paris, France*, 2018, p. 3514.
- [6] A. S. Chaudhari, Z. Fang, F. Kogan, J. Wood, K. J. Stevens, **E. K. Gibbons**, J. H. Lee, G. E. Gold, and B. A. Hargreaves, “Enhancing MRI resolution and fully-automating tissue segmentation using deep learning,” in *Proceedings of the Nvidia GPU Technology Conference (GTC), San Jose, California, USA*, *Best poster award.
- [7] **E. K. Gibbons**, A. S. Chaudhari, and E. V. R. DiBella, “Expanding SMS coverage in cardiac perfusion MRI through deep learning for temporal interpolation,” in *Proceedings of the ISMRM Workshop on Machine Learning, Pacific Grove, California, USA*, 2018.
- [8] A. S. Chaudhari, Z. Fang, F. Kogan, J. Wood, K. J. Stevens, **E. K. Gibbons**, J. H. Lee, G. E. Gold, and B. A. Hargreaves, “Deep-learning-based super-resolution and segmentation for clinical and research musculoskeletal MRI,” in *Proceedings of the ISMRM Workshop on Machine Learning, Pacific Grove, California, USA*, 2018.
- [9] **E. K. Gibbons**, P. LeRoux, S. Vasanaawala, J. M. Pauly, and A. B. Kerr, “Robust nCPMG SS-FSE with accelerated acquisition and reconstruction,” in *Proceedings of International Society for Magnetic Resonance in Medicine, 25th Annual Meeting, Honolulu, Hawaii*, 2017, p. 3514.
- [10] **E. K. Gibbons**, J. M. Pauly, and A. B. Kerr, “Slice profile effects on non-CPMG SS-FSE acquisitions,” in *Proceedings of International Society for Magnetic Resonance in Medicine, 24rd Annual Meeting, Singapore, Singapore*, 2016, p. 1894.
- [11] **E. K. Gibbons**, S. S. Vasanaawala, J. M. Pauly, and A. B. Kerr, “Body DWI using nCPMG FSE,” in *Proceedings of International Society for Magnetic Resonance in Medicine, 23rd Annual Meeting, Toronto, Canada*, 2015, p. 2540.

- [12] **E. K. Gibbons**, J. M. Pauly, and A. B. Kerr, "Single-shot isotropic diffusion weighting with eddy current compensation," in *Proceedings of International Society for Magnetic Resonance in Medicine, 22nd Annual Meeting, Milan, Italy*, 2014, p. 2559.
- [13] **E. K. Gibbons**, J. M. Pauly, M. Saranathan, B. Rutt, and A. B. Kerr, "A T2-diffusion-prepared cube sequence for brain lesion detection at 7T," in *Proceedings of International Society for Magnetic Resonance in Medicine, 21st Annual Meeting, Salt Lake City, Utah, USA*, 2013, p. 2512.
- [14] **E. K. Gibbons**, S. J. Holdsworth, M. Aksoy, M. B. Ooi, and R. Bammer, "Analysis of ghosting artifacts for real-time motion correction using EPI," in *Proceedings of International Society for Magnetic Resonance in Medicine, 20th Annual Meeting, Melbourne, Australia*, 2012, p. 3431.
- [15] C. Petty, **E. K. Gibbons**, R. A. Normann, and G. A. Clark, "Containment for the Utah Slanted Electrode Array," in *5th Annual Mountain West Biomedical Engineering Conference*, 2009.

INVITED TALKS

- *Reviewing LTI systems and convolution*, Department of Engineering, Weber State University, February 5, 2019
- *Deep learning applications for MRI data acquisition and reconstruction*, NIH Biomedical Data Science Summer School, University of Utah, July 31, 2018

TEACHING EXPERIENCE

Weber State University, Department of Electrical and Computer Engineering

ECE 3210: Signals and Systems

Fall 2019

Stanford University, Department of Electrical Engineering

EE 102A: Signals and Systems,

Summer 2015, Summer 2016

EE 102A: Signals and Systems,

Winter 2013, Winter 2014, Winter 2016

EE 369B: Medical Imaging Systems II,

Spring 2016

EE 369C: Medical Imaging Reconstruction,

Fall 2015

EFS/Lang 688: Writing for Engineering and Sciences,

Summer 2014

University of Utah, Department of Bioengineering

BIOEN 3900: Biosignals Analysis,

Spring 2011

BIOEN 5101: Bioinstrumentation,

Fall 2009, Fall 2010

TECHNICAL SKILLS

Proficient in MRI pulse programming within the Siemens IDEA and General Electric EPIC environments, Matlab, Python, C/C++

LANGUAGES

English, native language

Mandarin Chinese, conversational spoken and basic reading/writing skills

ACADEMIC SERVICE

Organizer, University of Utah Department of Radiology Machine Learning Working Group

Reviewer, IEEE Transactions on Biomedical Engineering

Reviewer, International Society of Magnetic Resonance in Medicine

Reviewer, Magnetic Resonance in Medicine

PROFESSIONAL MEMBERSHIPS

International Society for Magnetic Resonance in Medicine

IEEE

INTERESTS

Cycling, skiing, fly fishing, backpacking, analog stereo equipment