



Bilkent EEE



Bilkent EEE Distinguished Seminar Series

Bilkent University - Department of Electrical and Electronics Engineering



Joint Optimization of Learning-Based Image Reconstruction and Sampling for MRI

Prof. Jeffrey A. Fessler

University of Michigan

Nov. 6, 2023 – 17:30 (online)

<https://bit.ly/BilEEESem231106>



Machine learning approaches to medical image reconstruction are of considerable recent interest, such as supervised approaches that use a corpus of training data. Accelerated MRI scanning, where fewer k-space points than image voxels are acquired, is a natural setting for such reconstruction methods. Recently, machine learning methods for optimizing k-space sampling have also had growing interest in MRI. This talk will summarize recent work where we jointly optimize non-Cartesian k-space sampling, heeding physical constraints like gradient slew rate, and a learning-based image reconstruction method.

Bio: Jeff Fessler is the William L. Root Professor of EECS at the University of Michigan. He was a National Science Foundation Graduate Fellow at Stanford, where he earned a Ph.D. in electrical engineering in 1990. He has worked at the University of Michigan since then, he is now a Professor in the Departments of Electrical Engineering and Computer Science, Radiology, and Biomedical Engineering. He is an IEEE fellow, and he received numerous awards including the Francois Erbsmann award, Edward Hoffman Medical Imaging Scientist Award, IEEE EMBS Technical Achievement Award, and Steven S. Attwood Award. He has served as an associate editor for the IEEE TMI, IEEE SPL, IEEE TIP, IEEE TCI, and is currently serving as an associate editor for SIAM J. on Imaging Science and a Senior AE for TCI. He has chaired the IEEE TMI Steering Committee and the ISBI Steering Committee. His research interests are in statistical aspects of PET, SPECT, X-ray CT, MRI, and optical imaging problems.

