

CSDS 500 and ECSE 500

Fall 2020 Colloquium

11:30AM to 12:30PM
Tuesday, October 13, 2020

Zoom Webinar ID: 862 815 806
Passcode: 914464

“Multi-Regularization Reconstruction of One-Dimensional T_2 Distributions in Magnetic Resonance Relaxometry”

Tikhonov regularization and related methods are widely used in recovering relaxation time distributions in magnetic resonance relaxometry. Regularization optimization methods such as the L-curve and generalized cross-validation (GCV) identify a single optimized solution as the best approximation to the underlying distribution. In contrast, we propose a new reconstruction method, Multi-Reg, incorporating a range of regularized solutions. Multi-Reg is based on a dictionary of noise-corrupted regularized reconstructions of distribution basis functions. We demonstrate that Multi-Reg can out-perform L-curve or GCV analyses in simulation analyses of Gaussian distribution components, and with experimental results on mouse spinal cord and human muscle.



Chuan Bi, National Institute of Health

Dr. Chuan Bi is a postdoctoral fellow in the Laboratory of Clinical Investigation (LCI) of National Institute on Aging (NIA), National Institute of Health (NIH). Chuan received his Ph.D. degree in applied mathematics from the University of Delaware in 2019, M.S. and B.S. degrees in Mathematics from the University of Utah in 2014 and 2012. His research interests involve computational methods to inverse problems and elliptic PDE theories.

This is to certify that _____ attended this seminar. Certified by _____.
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