Claire Yilin Lin

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Research Interests

Large-scale inverse problems, accelerated optimization algorithms, computational modeling and simulations, image and signal processing, machine learning, computer vision

Education

Ph.D., Applied and Interdisciplinary Mathematics, University of Michigan, 2016 - 2021.
Advisors: Jeffrey A. Fessler and Anna C. Gilbert
Thesis: *Efficient Model-Based Reconstruction for Dynamic MRI*.

B.S., Applied Mathematics (*summa cum laude*), Emory University, 2012 - 2016.
Advisor: Lars Ruthotto
Thesis: *Line-to-Point Registration with Applications in Geometric Reconstruction of Coronary Stents*.

Research Experience

Algorithm Engineer Intern on *Fast Template Matching* and *Deep Learning Based Reticle Inspection*, Reticle and Photomask Inspection Division, KLA, Summer 2020

Research Fellow on *Deep Learning Based Low-dose Computed Tomography Denoising*, Center for Devices and Radiological Health, FDA, Summer 2019

Graduate Student Research Assistant on *Magnetic Resonance Image Reconstruction and Optimization Algorithms*, Electrical Engineering and Computer Science, University of Michigan, 2016 - 2021

Undergraduate Research Fellow on *Mathematical Modeling of Renal Physiology*, National Institute for Mathematical and Biological Synthesis, University of Tennessee, Summer 2015

Undergraduate Research Assistant on *Computational Fluid Dynamics and Numerical Modeling of the Cardiovascular System*, Department of Mathematics and Computer Science, Emory University, Spring 2015

Teaching Experience

Teaching Assistant, EECS 505 *Computational Data Science and Machine Learning*, Electrical Engineering and Computer Science, University of Michigan (Fall 2019)

Instructor, Math 115 *Calculus I*, Department of Mathematics, University of Michigan (Winter 2017, Fall 2017, Fall 2018)

Instructor, Math 105 *Data, Functions and Graphs*, Department of Mathematics, University of Michigan (Fall 2016)

Teaching Assistant, Math 351 *Numerical Analysis*, Department of Mathematics and Computer Science, Emory University (Fall 2015, Spring 2016)

Journal Publications

C. Y. Lin and J. A. Fessler, **Efficient Regularized Field Map Estimation in 3D Parallel MRI**, *IEEE Transactions on Computational Imaging*, 6 (2020), 1451-1458

C. Y. Lin and J. A. Fessler, **Efficient Dynamic Parallel MRI Reconstruction for the Low-Rank Plus Sparse Model**, *IEEE Transactions on Computational Imaging*, 5.1 (2019), 17-26

C. Y. Lin, A. Veneziani, and L. Ruthotto, **Numerical Methods for Polyline-to-Point-Cloud Registration with Applications to Patient-Specific Stent Reconstruction**, *International Journal for Numerical Methods in Biomedical Engineering*, 34.3 (2018).

M. Bedell, C. Y. Lin, E. Roman-Melendez, and I. Sgouralis, **Global Sensitivity Analysis in a Mathematical Model of the Renal Interstitium**, *Involve, a Journal of Mathematics*, 10.4 (2017), 625–649.

Conference Proceedings

R. Zeng, C. Y. Lin, Q. Li, J. Lu, J. A. Fessler, and K. J. Myers, **Generalizability Test of a Deep Learning-based CT Image Denoising Method**, 6^{th} *International Conference on Image Formation in X-Ray Computed Tomography*, 2020, p. 224-227.

C. Y. Lin, D. C. Noll and J. A. Fessler, **A Temporal Model for Task-based Functional MR Images**, *IEEE International Symposium on Biomedical Imaging*, 2020, pp. 1035–1038.

M. Karker, C. Y. Lin, J. A. Fessler, and D. C. Noll, **Evaluation of Sparse Sampling Approaches for 3D Functional MRI**, *International Society for Magnetic Resonance in Medicine* , 2019, p. 0370.

C. Y. Lin and J. A. Fessler, **Accelerated Methods for Low-Rank Plus Sparse Image Reconstruction**, *IEEE International Symposium on Biomedical Imaging*, 2018, pp. 48–51.

Honors

Michigan Institute for Computational Discovery and Engineering Fellow, University of Michigan, 2016 - 2017

Graduate Research Fellowship Program Honorable Mention in *Mathematical Sciences*, National Science Foundation, 2016 - 2017

Trevor Evans Award in *Mathematics and Computer Science*, Emory University, 2016

Deborah Jackson Award in *Mathematics*, Emory University, 2015

Professional Services

Technical paper reviewer for:
IEEE Signal Processing Letters
IEEE Transactions on Computational Imaging
IEEE Transactions on Medical Imaging
IEEE Journal of Selected Topics in Signal Processing
IEEE International Symposium on Biomedical Imaging
International Journal of Imaging Systems and Technology