

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**, 6th 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