



Research at the Interface of Applied Mathematics and Machine Learning

December 8–12, 2025

Department of Mathematics, University of Houston

<http://math.uh.edu/cbms-amml>



Overview

This CBMS conference will feature ten lectures delivered by Dr. Lars Ruthotto from Emory University. The lectures will be divided into three modules. Module 1 consists of three introduction lectures on machine learning (e.g. deep neural networks, learning problems). The second module, also of three lectures, will introduce important components of applied mathematics in machine learning (e.g. optimization, regularization). The last module will focus on the use of machine learning in critical problems in computational and applied mathematics (e.g. inverse problems, high dimensional partial differential equations). These lectures will be supplemented by a dozen invited talks from participants, a poster session, and panel discussions.

Principal Lecturer



Dr. Ruthotto is an internationally recognized leading researcher in optimization, inverse problems, machine learning and mathematical and numerical methods for deep learning. He is a Winship Distinguished Research Associate Professor in the Department of Mathematics and the Department of Computer Science at Emory University. He received his Ph.D. in Mathematics from the University of Münster in Germany in 2012. Dr. Ruthotto received the NSF Career Award in 2018.

Conference Schedule

Time	Monday	Tuesday	Wednesday	Thursday	Friday
0830 - 0900	Welcome	Coffee	Coffee	Coffee	Coffee
0900 - 1000	Lecture 1	Lecture 3	Lecture 5	Lecture 7	Lecture 9
1000 - 1030	Break	Break	Break	Break	Break
1030 - 1130	Lecture 2	Lecture 4	Lecture 6	Lecture 8	Lecture 10
1130 - 1300	Lunch	Lunch	Lunch	Lunch	Lunch
1300 - 1345	Talk	Talk	Talk	Talk	
1345 - 1430	Talk	Talk	Talk	Talk	
1430 - 1500	Break	Break	Break	Break	
1500 - 1545	Talk	Panel	Discussion	Talk	
1545 - 1630	Talk	Panel	Discussion	Talk	
1630 - 1700	Break		Break	Break	
1700 - 1800	Social Event		Poster	Social Event	
1800 - 1900	Social Event		Poster	Social Event	

Registration

You can register for the conference at <https://www.math.uh.edu/cbms-amml> (QR code below). Poster submissions are open. Limited travel support is available; preference given to junior participants.

- Registration Deadline: September 1st
- Notification of Acceptance & Travel Support: September 15th
- Registration Fee: \$50 (collected after notification of acceptance)

Invited Speakers

The conference will host several invited speakers presenting their recent research results:

- Harbir Antil, Mathematics, George Mason University
- Eric C. Chi, Statistics, Rice University
- Simon Foucart, Mathematics, Texas A&M
- Juntao Huang, Mathematics & Statistics, Texas Tech University
- Demetrio Labate, Mathematics, University of Houston
- Wenjing Liao, Mathematics, Georgia Tech
- Akil Narayan, Mathematics, University of Utah
- Elizabeth Newman, Mathematics, Emory University
- Jonathan Siegel, Mathematics, Texas A&M
- Deepanshu Verma, Mathematical & Statistical Sciences, Clemson University
- Lu Zhang, Computational Applied Mathematics & Operations Research, Rice University
- Zecheng Zhang, Mathematics, Florida State University

Venue & Contact



- Organizers: Loïc Cappanera, Yunhui He, Andreas Mang & Min Wang
- Email: nsfcbms2025@math.uh.edu
- Physical Address: University of Houston, 4226 Martin Luther King Boulevard, Houston, Texas 77004
- Building & Room: SR1 634

Invited Panelists

The conference will host a panel where experts and scientists share experiences while discussing current and future trends in research and machine learning applications. Invited panelists include:

- Detlef Hohl, Shell Technology Center Houston
- Xiaoqian Jiang, School of Biomedical Informatics, UTHealth Houston
- Peter Kochunov, Psychiatry and Behavioral Sciences, UTHealth Houston
- Javad Razjouyan, Baylor College of Medicine
- Amir Sharafkhaneh, Baylor College of Medicine
- Xiao-Hui Wu, ExxonMobil Technology & Engineering

Support

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