

Mathew Hu

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Education

- B.S., Mathematics and Applied Mathematics, Department of Mathematical Sciences, Fudan University, Shanghai, China, 2017
- M.S., Mathematics, Courant Institute of Mathematical Sciences, New York University, New York, New York, 2019 (Antoine Cerfon, advisor)
- Ph.D., Computational Science, Engineering, and Mathematics (CSEM), Oden Institute for Computational Engineering & Sciences, The University of Texas at Austin, Austin, Texas, 2025 (Omar Ghattas, advisor) (expected)

Academic Employment and Positions

- Ph.D. Student, Oden Institute for Computational Engineering Sciences, The University of Texas at Austin, August 2019 - May 2025 (expected)

Work Experience

1. Summer Internship - TotalEnergies E&P. Houston, TX, USA. 05/22/2023 - 08/18/2023.

Research Interests

1. Applications: (1) Seismic imaging.
2. Methods: (1) Large scale Bayesian inference; (2) Numerical Optimization; (3) Hessian approximation in PDE constrained inverse problems.

Work-in-Progress Journal Papers

1. **Mathew Hu**, Nick Alger, Longfei Gao, Omar Ghattas, Rami Nammour, "Fast approximations of high-rank Hessians: Applications to seismic inversion and uncertainty quantification"

Conference Presentations

1. **Mathew Hu**, Nick Alger, Longfei Gao, Omar Ghattas, Rami Nammour, "Fast approximations of high-rank Hessians: Applications to seismic inversion and uncertainty quantification", 5th Annual Meeting of the SIAM Texas-Louisiana Section. Houston, Texas. Nov 5, 2022.
2. **Mathew Hu**, Nick Alger, Longfei Gao, Omar Ghattas, Rami Nammour, "Fast approximation of high-rank Hessians to accelerate MCMC for Bayesian seismic inversion", SIAM Conference on Uncertainty Quantification. Atlanta, Georgia. April 12, 2022.

Other Research Experience

1. Fast, High Order Computation of Magnetic Surfaces of Toroidal Fusion Devices (NYU Master Thesis), February 2018 - May 2019.

Teaching Experience

Role	Course	Delivery Method	# of Sections	# of Students	Institute	Semester	Overall Teaching Effectiveness
GTA	Math for Economics II	In-Person	1	30	NYU	Spring 2019	-
GTA	Math for Economics I	In-Person	1	30	NYU	Fall 2018	-

Awards and Honors

1. Fudan University Academic Professional Scholarship, Fall 2016, Fall 2015, Fall 2014
2. Fudan University Outstanding Student Scholarship, Fall 2016, Fall 2015, Fall 2014
3. National Endeavor Fellowship, Fall 2014
4. First Prize of National College Mathematics Contest (Shanghai Division), Fall 2014, Fall 2013
5. First Prize of Chinese Mathematical Olympiad in Senior, Fall 2011
6. First Prize of Chinese Southeast Mathematical Olympiad, Summer 2011
7. Second Prize of Chinese Mathematical Olympiad in Senior, Fall 2010

Relevant Technology Skills

- Programming Languages: Python, Matlab, Julia, R, C