

Fuqun HAN

Department of Mathematics, University of California, Los Angeles, USA

✉ fqhan@math.ucla.edu

WORK EXPERIENCE

University of California, Los Angeles, USA

- *Hedrick Assistant Adjunct Professor* Aug. 2023 – Present
Faculty mentor: Prof. Stanley Osher

EDUCATION

The Chinese University of Hong Kong, Hong Kong SAR

- **Ph.D. in Mathematics** Aug. 2020 – June 2023
Supervisor: Prof. Jun Zou
- **M.Phil. in Mathematics** Aug. 2018 – July 2020
Supervisor: Prof. Jun Zou
- **B.Sc. in Mathematics** Aug. 2014 – July 2018
Graduated with *First Class Honours*

PUBLICATIONS AND PREPRINTS

1. **Fuqun Han**, Stanley Osher and Wuchen Li, *Sparse Transformer Architectures via Regularized Wasserstein Proximal with L_1 Prior*, arXiv:2510.16356 (2025).
2. **Fuqun Han**, Stanley Osher and Wuchen Li, *Splitting Regularized Wasserstein Proximal Algorithms for Nonsmooth Sampling Problems*, arXiv:2502.167733 (2025).
3. **Fuqun Han**, Kazufumi Ito, *A Weighted Sampling Method for the Inverse Medium Problem with Limited Aperture*, arXiv:2509.14580 (2025).
4. Minxin Zhang, **Fuqun Han**, Yat Tin Chow, Stanley Osher, and Hayden Schaeffer, *Inexact Proximal Point Algorithms for Zeroth-Order Global Optimization*, arXiv:2412.11485 (2024).
5. **Fuqun Han**, Stanley Osher and Wuchen Li, *Convergence of Noise-Free Sampling Algorithms with Regularized Wasserstein Proximals*, arXiv:2409.01567 (2024).
6. **Fuqun Han**, Stanley Osher and Wuchen Li, *Tensor-Train-Based Sampling Algorithms for Approximating Regularized Wasserstein Proximal Operators*, *SIAM/ASA J. Uncertain. Quantif.*, 13 (2025), 775–804.
7. Jianfeng Ning, **Fuqun Han** and Jun Zou, *A Direct Sampling Method and Its Integration with Deep Learning for Inverse Scattering Problems with Phaseless Data*, *SIAM J. Sci. Comput.*, 47 (2025), C343–C368.
8. Jianfeng Ning, **Fuqun Han** and Jun Zou, *A Direct Sampling-Based Deep Learning Approach for Inverse Medium Scattering Problems*, *Inverse Probl.*, 40 (2023), 015005.
9. **Fuqun Han**, Yat Tin Chow and Jun Zou, *A Direct Sampling Method for Simultaneously Recovering Electromagnetic Inhomogeneous Inclusions of Different Nature*, *J. Comput. Phys.*, 470 (2022), 111584.
10. **Fuqun Han**, Yat Tin Chow and Jun Zou, *A Direct Sampling Method for the Inversion of the Radon Transform*, *SIAM J. Imaging Sci.*, 14 (2021), 1004–1038.
11. **Fuqun Han**, Yat Tin Chow and Jun Zou, *A Direct Sampling Method for Simultaneously Recovering Inhomogeneous Inclusions of Different Nature*, *SIAM J. Sci. Comput.*, 43 (2021), A2161–A2189.

RESEARCH INTERESTS

- Mathematical theory of generative modeling and transformer architectures.
- Sampling algorithms and optimal transport theory in data science.
- Tensor and low-rank methods for scalable scientific computing and sampling.
- Theory and numerical algorithms for PDE-constrained inverse problems.
- Derivative-free algorithms for global and nonconvex optimization.

SELECTED AWARDS

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|---|------|
| • Merit Case for Hedrick Assistant Adjunct Professor | 2025 |
| • Best Ph.D. Thesis Award, Hong Kong Mathematical Society | 2024 |
| • Best Master's Thesis Award (Silver Medal), International Consortium of Chinese Mathematicians | 2022 |
| • Outstanding Student Award, The Chinese University of Hong Kong | 2021 |
| • SIAM Certificate of Outstanding Efforts and Accomplishments | 2021 |
| • Heung To Educational Fund Mathematics Scholarship | 2017 |
| • 1978 Mathematics Alumnus Li Sze-lim Scholarship | 2017 |

SERVICES AND PROFESSIONAL ACTIVITIES

- **Reviewer for Journals:** *SIAM J. Numer. Anal.*, *SIAM J. Sci. Comput.*, *Inverse Probl. Imaging*, *J. Comput. Phys.*, *Inverse Probl.*, *SIAM J. Imaging Sci.*, *IEEE Trans. Med. Imaging*.
- **Selected talks:** SIAM CSE, SIAM UQ, SIAM MDS; Yale University; ICERM (Brown); IPAM (UCLA).
- **President / Vice President**, SIAM Student Chapter, CUHK 2021–2023
- **Graduate Student Representative**, Department of Mathematics, CUHK 2020–2023

TEACHING EXPERIENCE

University of California, Los Angeles (Instructor)

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|---|---------------------------------------|
| • MATH 151A: Applied Numerical Methods I | Fall 2024, Fall 2025 |
| • MATH 151B: Applied Numerical Methods II | Fall 2023, Spring 2024, Fall 2024 |
| • MATH 155: Mathematical Imaging | Winter 2024, Winter 2025, Spring 2025 |

The Chinese University of Hong Kong (Tutorial Instructor / Grader)

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| • MATH3240: Numerical Methods for Differential Equations | 2022 |
| • MATH3230: Numerical Analysis | 2018, 2021, 2022 |
| • MATH3215: Operations Research | 2020, 2021 |

REFEREES

1. **Prof. Stanley Osher**, University of California Los Angeles
sjo@math.ucla.edu
2. **Prof. Jun Zou**, The Chinese University of Hong Kong
zou@math.cuhk.edu.hk
3. **Prof. Wuchen Li**, University of South Carolina
WUCHEN@mailbox.sc.edu
4. **Prof. Yat Tin Chow**, University of California Riverside
yattinc@ucr.edu
5. **Prof. Hayden Schaeffer**, University of California Los Angeles
DOAM@math.ucla.edu
6. **Prof. Kazufumi Ito**, North Carolina State University
kito@ncsu.edu
7. **(Teaching) Prof. Marcus Roper**, University of California Los Angeles
mroper@math.ucla.edu