

CURRICULUM VITAE

Kui Ren

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Education

Fall 2001–Spring 2006 PhD in Applied Mathematics (with distinction), Columbia University.
Fall 1998–Spring 2001 Master of Science, Peking University, P. R. China.
Fall 1994–Spring 1998 Bachelor of Science, Nanjing University, P. R. China.

Appointments

Fall 2018- Professor of Applied Mathematics, Columbia University, New York, NY.
Fall 2008-Summer 2020 Assistant, Associate and Full Professor of Mathematics, University of Texas, Austin, TX.
Fall 2007-Spring 2008 L. E. Dickson Instructor of Applied Mathematics, University of Chicago, Chicago, IL.
Fall 2006-Spring 2007 Postdoctoral Research Associate/ Adjunct Assistant Professor in Applied Mathematics, Columbia University, NY.

Visiting Positions

Fall 2017 Research Fellow, Institute for Computational and Experimental Research in Mathematics (ICERM), Brown University. ICERM Program: “Mathematical and Computational Challenges in Radar and Seismic Reconstruction”.
Fall 2013 Research Fellow, Institute of Pure and Applied Mathematics (IPAM), UCLA. IPAM Program: “Materials for a Sustainable Energy Future”.
Fall 2003 Research Fellow, Institute of Pure and Applied Mathematics (IPAM), UCLA. IPAM Program: “Inverse Problems: Computational Methods and Emerging Applications”.

Research Interests

Applied and Computational Mathematics: (i) Inverse Problems and Imaging: Inverse Boundary Value Problems, Hybrid/Multi-physics Inverse Problems, Imaging in Random Media; (ii) Scientific Machine Learning and AI for Science; (iii) Random Graphs: Graph Limits, Modeling of Complex Networks, Community Detection; (iv) Scientific Computing: Fast Algorithms for PDEs, Numerical Optimization; (v) Kinetic Modeling and Simulation: Wave and Particle Transport in Complex Media, Semiconductor Modeling.

Awards and Honors

2027 Plenary Speaker, Applied Inverse Problems (AIP 2027), Abu Dhabi
2025 Feng Kang Prize in Scientific Computing

- 2023 Plenary Speaker, International Congress of Basic Science, Beijing, China
- 2022 Distinguished Faculty Teaching Award, Columbia Engineering Alumni Association (CEAA).
- 2017 Calderón Prize, Inverse Problems International Association.
- 2016 The publication *Ding, Ren, & Vallélian, Inverse Problems, 095005, 2015* is chosen by the journal *Inverse Problems* for its “Highlights of 2015” collection *on the basis of referee endorsement, novelty and scientific impact*.
- 2014-2015 Moncrief Grand Challenge Award, The University of Texas at Austin.
- 2014 MediaV Young Researcher Award, International Conference Series on Inverse Problems and Related Topics and the MediaV Information Technology Co Ltd.
- 2013 The publication *Bal & Ren, Inverse Problems, 025010, 2012* is chosen by the journal *Inverse Problems* for its “Highlights of 2012” collection *on the basis of referee endorsement, novelty and scientific impact*.
- 2009-2010 Faculty Development Award, The University of Texas at Austin.
- 2006 The Robert Simon Memorial Prize for “*the Most Outstanding Doctoral Dissertation*”. APAM, Columbia University.
- 2002 The Extraordinary Teaching Assistant Award for “*Exceptional Efforts as a Teaching Assistant and Excellence in Undergraduate Education*”. Fu Foundation School of Engineering and Applied Sciences, Columbia University.

Professional Memberships

- [PM-1] Member, American Mathematical Society
- [PM-2] Member, Society for Industrial and Applied Mathematics (SIAM); Member, SIAG on Imaging Science; Member, SIAG on Computational Science and Engineering; Member, SIAG on Uncertainty Quantification; Member SIAG on Analysis of PDEs

Major Professional Services

@ Professional Societies

- [PS-3] Chair, SIAM Activity Group on Imaging Science, Society for Industrial and Applied Mathematics (SIAM), 2026-.
- [PS-2] Vice Chair, SIAM Activity Group on Imaging Science, Society for Industrial and Applied Mathematics (SIAM), 2024-2025.
- [PS-1] Member of Executive Committee, Inverse Problems International Association (IPIA), 2022-2025.

@ Editorial Boards

- [EB-7] Editor in Chief: *Frontiers of Applied Mathematics*, 2025-.
- [EB-6] Managing Editor: *Inverse Problems and Imaging*, 2025- (Associate Editor, 2020-).
- [EB-5] Managing Editor: *Journal of Computational Mathematics*, 2024- (Associate Editor, 2021-).
- [EB-4] Associate Editor: *SIAM Journal on Applied Mathematics*, 2020-.
- [EB-3] Associate Editor: *Multiscale Modeling and Simulation: A SIAM Interdisciplinary Journal*, 2020-.

- [EB-2] Member of Editorial Board: *Inverse Problems*, 2017-.
- [EB-1] Associate Editor: *Results in Applied Mathematics*, 2018-.

@ Major Committees

- [MC-4] Frontier in Science Award Selection Committee, 2024-2025.
- [MC-3] Joint selection committee for the 2024 SIAG/Imaging Science Best Paper Prize and 2024 SIAG/Imaging Science Early Career Prize
- [MC-2] Co-chair of Organizing Committee, SIAM Conference on Imaging Science, 2024.
- [MC-1] Calderón Prize Committee, Inverse Problems International Association, 2019.

@ Activities Co-organized

- [OG-24] April 2025, Scientific Committee, *The 14th Conference on Inverse Problems, Imaging, and Applications*, Tianjin, China.
- [OG-23] December 2024, Organizer, Special Session on *New Developments in Computational Imaging, Learning, and Inverse Problems*, 14th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Abu Dhabi, UAE.
- [OG-22] May 2023, Co-Organizer, Workshop on *Free Boundary Problems: Lecture Series and Recent Advances in Theory and Applications*, Columbia University, New York.
- [OG-21] October 2022, Co-Organizer, Workshop on *New Ideas in Computational Inverse Problems*, Banff International Research Station (BIRS), Canada.
- [OG-20] August 2021, Co-Organizer, Summer School on *Inverse Problems, Imaging and Scientific Machine Learning*, Columbia University, New York, NY.
- [OG-19] July 2019, Co-Organizer, *Minisymposium on Inverse Problems and Imaging: Theoretical and Computational Aspects*, 9th International Congress on Industrial and Applied Mathematics (ICIAM), Valencia, Spain.
- [OG-18] July 2019, Co-Organizer, *Minisymposium on Recent Developments in Hybrid Inverse Problems and Imaging*, Applied Inverse Problems Conference 2019, Grenoble, France.
- [OG-17] January 2019, Co-Organizer, *Special Session on Recent Advances in Inverse Problems and Imaging*, Joint Mathematical Meetings, Baltimore, MD.
- [OG-16] September 2017, Co-Organizer, *Workshop on Waves and Imaging in Random Media*, ICERM, Brown University, RI.
- [OG-15] May 2017, Co-Organizer, *Minisymposium on Inverse Problems in Scattering and Imaging*, Applied Inverse Problems Conference (AIP), Hangzhou, China.
- [OG-14] March 2017, Co-Organizer, *Minisymposium on Numerical Methods for Forward and Inverse Problems of Radiative Transport Equations*, SIAM Conference on Computational Sciences and Engineering, Atlanta, GA.
- [OG-13] January 2017, Co-Organizer, *SIAM Special Session on Recent Developments in Computational Inverse Problems and Imaging*, Joint Mathematical Meetings, Atlanta, GA.
- [OG-12] May 2016, Co-Organizer, *Minisymposium on Recent Developments in Hybrid Inverse Problems and Imaging*, SIAM Conference on Imaging Science, Albuquerque, New Mexico.
- [OG-11] December 2014, Co-Organizer, *Minisymposium on Computational Inverse Scattering Problems and Applications in Imaging*, International Conference on Inverse Problems and Related Topics, Taiwan.

- [OG-10] May 2014, Co-Organizer, *Minisymposium on Inverse Scattering Problems in Imaging Science*, SIAM Conference on Imaging Science, Hong Kong.
- [OG-9] July 2013, Co-Organizer, *Minisymposium on Inverse Problems for Wave Propagation in Complex and Random Environments*, Applied Inverse Problems Conference (AIP 2013), Daejeon, Korea.
- [OG-8] June 2013, Program Committee, *SAMSI Summer Program on Neuroimaging Data Analysis*, Statistical and Applied Mathematical Sciences Institute, NC.
- [OG-7] May 2011, Organizer, *Minisymposium on New Applications of Inverse Scattering Theory*, Applied Inverse Problems Conference (AIP 2011), College Station, TX.
- [OG-6] May 2011, Co-Organizer, *Minisymposium on Recent Developments of Reconstruction Methods for Inverse Medium Problems*, Applied Inverse Problems Conference (AIP 2011), College Station, TX.
- [OG-5] May 2010, Organizer, *Special Session Inverse Problems and Imaging*, International Conference on Computational and Mathematical Methods in Science and Engineering, University of Wisconsin, Madison, WI.
- [OG-4] January 2010, Co-organizer, *AMS Special Session on Inverse Problems: Analysis and Computation*, Joint Mathematical Meetings, San Francisco, CA.
- [OG-3] March 2009, Co-organizer, *Minisymposium Inverse Transport Computations and Medical Imaging Applications*, SIAM Conference on Computational Science and Engineering, Miami, FL.
- [OG-2] November 2008, International Program Committee, *The Huangguoshu International Interdisciplinary Conference on Biomedical Mathematics: Promising Directions in Imaging, Therapy Planning and Inverse Problems*, Anshun, Guizhou, China.
- [OG-1] May 2007, Co-organizer, *Workshop on Inverse Problems*, Columbia University, New York, NY.