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Sung Ha KANG
Professor of Mathematics

Georgia Institute of Techology
Atlanta, GA, USA

Employment and Education

Professor	August 2017 - Present
Associate Professor (Tenured)	August 2011 - July 2017
Assistant Professor (Tenure-Track)	August 2008 - July 2011
School of Mathematics, Georgia Institute of Technology, Atlanta, GA 30332, USA	

Tenure-Track Assistant Professor	August 2002 - July 2008
Department of Mathematics, University of Kentucky, Lexington, KY 40506, USA	
Promotion to Associate Professor with tenure approved on March 27, 2008	

Ph.D. in Applied Mathematics	September 1997- June 2002
Department of Mathematics, University of California, Los Angeles, CA 90095, USA	
Thesis Adviser : Prof. Tony F. Chan	

B.S. in Mathematics	March 1993 - February 1997
Department of Mathematics, Yonsei University, Seoul, Korea	

Research Interests

Variational functional and PDE based models, mathematical analysis and fast numerical algorithms for applied problems, such as image and signal processing, PDE identification, data clustering and path planning.

Mathematical approaches to image processing and computer vision. Variational functional and PDE based methods for various problems arising in image restorations and segmentation: denoising, deblurring, inpainting, color image, video, shape analysis, texture, multiphase image segmentation and various extensions.

Numerical methods and scientific computing. Identification of differential equations using numerical techniques.

Refereed Journal Publications

1. Tony F. Chan, Sung Ha Kang and Jianhong Shen, "Total Variation denoising and enhancement of color images based on the CB and HSV color Models", *Journal of Visual Communication and Image Representation*, Volume 12, Issue 4, Pages 422-435, 2001.

2. Tony F. Chan, Sung Ha Kang and Jianhong Shen, "Euler's Elastica and curvature based inpaintings", *SIAM Journal on Applied Mathematics*, Volume 63, Number 2, Pages 564-592, 2002.

3. Sung Ha Kang and Jianhong Shen, "Video dejittering by Bake and Shake, *Image and vision computing*", Volume 24, Issue 2, Pages 143-152, 2006.

4. Tony F. Chan and Sung Ha Kang, "Error analysis for image inpainting", *Journal of Mathematical Imaging and Vision*, Volume 26, Number 1-2, Pages 85-103, 2006.

5. Jean-François Aujol and Sung Ha Kang, "Color image decomposition and restoration", *Journal of Visual Communication and Image Representation*, Volume 17, Issue 4, Pages 916-928, 2006.

6. Yoon Mo Jung, Sung Ha Kang and Jianhong Shen, "Multiphase image segmentation via Modica-Mortola phase transition", *SIAM journal on Applied Mathematics*, Volume 67, Issue 5, Pages 1213-1232, 2007.

7. Sung Ha Kang and Riccardo March, "Variational models for image colorization via Chromaticity and Brightness decomposition", *IEEE trans. on image processing*, Volume 16, Issue 9, Pages 2251-2261, 2007.

8. Jianhong Shen and Sung Ha Kang, "Quantum TV and Applications in Image Processing, *Inverse Problems and Imaging*", Volume: 1, Number 3, pages 557-575, 2007.

9. James H. Money and Sung Ha Kang, "Total variation semi-blind deconvolution using shock filters", *Image and Vision Computing*, Volume 26, Issue 2, Pages 302-314, 2008.

10. Berta Sandberg, Sung Ha Kang, and Tony F. Chan, "Unsupervised Multiphase Segmentation: A phase balancing model", *IEEE transaction on image processing*, Volume 19, Issue 1, pages 119 - 130, 2010.

11. Minh Ha-Quang, Sung-Ha Kang, and Triet M. Le, "Image and Video Colorization Using Vector-Valued Reproducing Kernel Hilbert Spaces", *Journal of Mathematical Imaging and Vision*, Volume 37 , Number 1, Pages 49 - 65, 2010.

12. Marco Barchiesi, Sung-Ha Kang, Triet Le, Massimiliano Morini, and Marcello Ponsiglione, "A variational model for infinite perimeter segmentations based on Lipschitz level set functions: denoising while keeping finely oscillatory boundaries", *SIAM Journal of Multiscale Modeling and Simulation*, Volume 8, Issue 5, pages 1715-1741, 2010.

13. Sung Ha Kang, Berta Sandberg, and Andy Yip, "A Regularized K-means and Multiphase Scale Segmentation", *Inverse problems and imaging*, Volume 5, Issue 2, Pages 407-429, 2011.

14. Frank Crosby and Sung Ha Kang, "Multiphase Segmentation for 3D Flash Lidar Images", *Journal of Pattern Recognition Research*, Vol 6, No 2, 193-200, 2011.

15. Wei Zhu, Sung Ha Kang and George Biros, "A geodesic active contour based variational model for short axis cardiac-MR image segmentation", *International Journal of Computer Mathematics*, Vol. 90, No.1, 124-139, 2013.

16. Sung Ha Kang and Riccardo March, "Existence and regularity of minimizers of a functional for unsupervised multiphase segmentation", *Nonlinear Analysis Series A: Theory, Methods and Applications*, Vol. 76, 181-201, 2013

17. Yifei Lou, Sung Ha Kang, Stefano Soatto and Andrea Bertozzi, "Video Stabilization of Atmospheric Turbulence Distortion", *Inverse Problems and Imaging*, Vol. 7, Issue 3, 2013.

18. Sung Ha Kang, Behrang Shafei and Gabriele Steidl, "Supervised and Transductive Multi-Class Segmentation Using p-Laplacians and RKHS Method", *Journal of Visual Communication and Image Representation*, Vol 25, Issue 5, 1136-1148, July 2014

19. Sung Ha Kang and Riccardo March, "Multiphase image segmentation via equally distanced multiple well potential", *Journal of Visual Communication and Image Representation*, Volume 25, Issue 6, Pages 1446–1459, 2014.

20. Sung Ha Kang, Wei Zhu and Jackie Shen, "Illusory Shapes via Corner Fusion", *SIAM Journal of Imaging Science*, Vol. 7, Num 4, 1907-1936, 2014

21. Sung Ha Kang, Seong Jun Kim, and Haomin Zhou, "Path optimization with limited sensing ability", *Journal of Computational Physics*, Volume 299, 15 October 2015, Pages 887– 901.

22. Maryam Yashtini and Sung Ha Kang, "A fast relaxed normal two split method and an effective weighted TV approach for Euler's elastica image inpainting", *SIAM Journal of Imaging Science*, Volume 9, Number 4, pages 1552-1581, 2016.

23. Sung Ha Kang, Seong Jun Kim, and Haomin Zhou, "Optimal Sensor Positioning (OSP); A Probability Perspective Study", *SIAM Journal on Scientific Computing*, 39(5), 759-777, 2017.

24. Maryam Yashtini, Sung Ha Kang, and Wei Zhu, "Efficient Alternating Minimization Methods For Variational Edge-weighted Colorization Models", *Advances in Computational Mathematics*, Volume 45, Issue 3, pp 1735Ð1767, 2019

25. Yuchen (Roy) He and Sung Ha Kang, "Lattice Identication and Separation: Theory and Algorithm (LISA)", *SIAM Journal of Imaging Science*, 12(4), 2063 – 2096, 2019.

26. Yuchen He, Sung Ha Kang, and Hao Liu, "Curvature Regularized Surface Reconstruction from Point Cloud", ArXiv:2001.07884, *SIAM Journal on Imaging Sciences*,13(4), 1834-1859 (2020).

27. Sung Ha Kang, Wenjing Liao, and Yingjie Liu, "IDENT: Identifying Differential Equations with Numerical Time evolution", ArXiv:1904.03538, *Journal of Scientific Computing*, 87, 1 (2021).

28. Martin Huska, Sung Ha Kang, Alessandro Lanza, and Serena Morigi, "A Variational Approach to Additive Image Decomposition into Structure, Harmonic and Oscillatory Components", *SIAM Journal on Imaging Sciences*, (accepted 2021).

29. Yuchen He, Sung-Ha Kang, Wenjing Liao, Hao Liu and Yingjie Liu, "Robust Identification of Differential Equations by Numberical Techniques from a single set of noisy observation (Robust IDENT from a single set of noisy observation)", arXiv:2006.06557, *SIAM Journal on Scientific Computing*, (accepted 2021).

30. Yuchen He, Sung Ha Kang, Jean-Michel Morel, "Silhouette Vectorization by Affine Scale-space", arXiv:2007.12117, *Journal of Mathematical Imaging and Vision*, (accepted 2021).

31. Yuchen He, Sung-Ha Kang, Wenjing Liao, Hao Liu and Yingjie Liu, "Identification of Nonlocal Potentials in Aggregation", *Communications in Computational Physics*, (accepted 2022).

32. Antonio Cicone, Martin Huska, Sung Ha Kang and Serena Morigi, "JOT: a Variational Signal Decomposition into Jump, Oscillation and Trend", IEEE Transactions on Signal Processing, (accepted 2022).

Preprints (Submitted work)

33. Benjamin McLaughlin and Sung Ha Kang, "A new parallel adaptive clustering and its application to streaming data", arXiv:2104.02680. Submitted 2021

34. Yuchen He, Namjoon Suh, Xiaoming Huo, Sung Ha Kang, and Yajun Mei, "Asymptotic Theory l_1-Regularized PDE Identification from a Single Noisy Trajectory", submitted 2021.

35. Mengyi Tang, Maryam Yashtini and Sung Ha Kang, "Counting Objects by Diffused Index: geometry-free and training-free approach", submitted 2021

36. Mengyi Tang, Kumbit Hwang and Sung Ha Kang, "StemP: A fast and deterministic Stem-graph approach for RNA and protein folding prediction", submitted Dec 2021

Book Chapter Publications (Peer-reviewed)

37. Sung Ha Kang and Jianhong Shen, "On the slicing moments of BV functions and applications to image dejittering", in *Image Processing Based on Partial Differential Equations*, Springer-Verlag, Berlin, pages 35-55, 2007.

38. Sung Ha Kang, Xuecheng Tai and Wei Zhu, "Survey of geometry inspired variational segmentation: interface model, curvature terms and fast computation", *Handbook of Numerical Analysis*, Elsevier, Volume 20, 2019.

Peer-reviewed Proceedings (double-blind or blind reviewed)

39. Sung Ha Kang, Tony. F. Chan and Stefano Soatto, "Inpainting from Multiple view", *IEEE Proceedings of First International Symposium on 3D Data Processing Visualization Transmission*, Pages 622-625, 2002.

40. Triet Le, Minh Ha Quang and Sung Ha Kang, "Reproducing kernel and colorization", *Proceedings of the 8th International Conference on Sampling Theory and Applications (SAMPTA 09)*, May 2009.

41. Guozhi Dong, Markus Grasmair, Sung Ha Kang and Otmar Scherzer, "Scale and Edge detection with Topological Derivatives of the Mumford-Shah Functional", Fourth *International Conference on Scale Space and Variational Methods in Computer Vision (SSVM)*, 2013.

42. Maryam Yashtini, Sung Ha Kang, "Alternating Direction Method of Multiplier for Euler's Elastica-Based Denoising", Fifth *International Conference on Scale Space and Variational Methods in Computer Vision (SSVM)* 2015: 690-701

43. Yuchen (Roy) He, and Sung Ha Kang, "Lattice Metric Space Application to Grain Defect Detection", Seventh *International Conference on Scale Space and Variational Methods in Computer Vision (SSVM)* 2019.

44. Yuchen He, Martin Huska, Sung Ha Kang, Hao Liu, "Fast Algorithms for Surface Reconstruction from Point Cloud", ArXiv: 1907.01142. *In the proceedings of the International Workshop on Image Processing and Inverse Problems (IPIP 2018)*, **Springer**, page 61-80, 2018.

45. Yuchen He, Sung Ha Kang, Luis Álvarez, "Finding the skeleton of 2D shape and contours: implementation of Hamilton-Jacobi Skeleton", *Image Processing On Line*, 11 (2021), pp. 18 – 36. https://doi.org/10.5201/ipol.2021.296.

46. Yuchen He, Sung Ha Kang, Jean-Michel Morel, "Accurate Silhouette Vectorization by Affine Scale-Space", *IEEE International Conference on Image Processing (ICIP)*, 2021.

Technical Reports

47. Jeff Anderson, Feng-Nan Hwang, Sung Ha Kang, Bahareh Momken, Richard Shugart, Caroline Torcaso, Modeling molecular diffusion in soft tissues using fluorescence microscopy, *NCSU tech report CRSC-TR00-24*, 2000.

48. Sung Ha Kang, Tony F. Chan and Stefano Soatto, Landmark based inpainting from Multiple view, *UCLA Math CAM Report 02-11*, March 2002.

49. SeongJai Kim and Sung Ha Kang, Implicit Procedures for PDE-based Color Images Denoising via Brightness-Chromaticity, *UK tech report 02-07*, 2002.

50. Xiong Ding and Sung Ha Kang, "Adaptive time-stepping exponential integrators for cubic-quintic complex Ginzburg-Landau equations", ArXiv:1703.09622.

Fundings

NSF DMS-ITR	Period : Sep. 2003 - Aug. 2006 Title: PDE based Image Restoration: Efficient Numerical Algorithms and software engineering. Amount $110,520. PI: SeongJai Kim (Mississippi State Univ.), Co-PI: Sung Ha Kang.
NSF DMS	Period : Sep. 2007- Aug. 2010, Single PI, Amount $106,201. Title: Image Deblurring and Decomposition: Texture and Color Image Analysis.
Simons Foundation	Collaboration Grant. Period : Sep. 2013- Aug. 2018, Single PI, Amount $35,000. Title: Mathematical Analysis and Numerical Application of Imaging Problems.
Simons Foundation	Collaboration Grant. Period : Sep. 2018- Aug. 2023, Single PI, Amount $42,000. Title: Mathematical approaches to Imaging, optimization and classification.

Institute and Departmental Awards

CoS Mentoring Award College of Science, Georgia Institute of Technology	Contribution to junior faculty mentoring	Spring 2022
CIOS Honor Roll Georgia Institute of Technology	Student Recognition of Excellence in Teaching	Spring 2021
Herman K. Fulmer Faculty School of Mathematics, Georgia Institute of Technology	Teaching Award	Spring 2018
Cullen-Peck Faculty Scholar Award College of Science, Georgia Institute of Technology	innovative research	2015

Workshop and Conference Organization and Program Committee

Workshop at University of Kentucky Title: Image Processing and Computational Methods. **Workshop co-organizer** with S. Kim, P. Hislop, D. Lau, and B. Seales.	Lexington, Kentucky	March 21-23, 2003
BIRS Workshop Title: Mathematical Image Analysis and Processing. **Workshop co-organizer** with S. Esedoglu (UCLA), M. Pugh (Toronto) and J. Shen (Minnesota).	Banff, Canada	October 23-28, 2004
SIAM Conference on Analysis of Partial Differential Equation MS29 and MS51 PDE Based Models in Image Processing Co-organizer of Minisymposium with S. Levine (Duquesne)	Mesa, Arizona	Dec. 10-12, 2007
Hausdorff Research Institute for Mathematics (**HIM**) Organizer of group A, Junior Trimester Program on Analysis Title: Calculus of Variation and Image processing **Group leader and organizer** Co-organizers: M. Barchiesi (CMU), T. Le (Yale), M. Morini (SISSA), L. Mugnai(Leipzig), and M. Ponsiglione(Roma)	Bonn, Germany	Sep. - Dec. 2008
SIAM Conference on Analysis of Partial Differential Equation MS1, MS11, and MS20 Variational Methods in Image Proc. and Interface Problems.	Miami, Florida	FL, Dec. 7-10, 2009

Co-organizer of Minisymposium with Maria Westdickenberg (GT Math)

2nd annual Georgia Scientific Computing Symposium (**GSC**) February 20, 2010
Georgia Tech, School of Mathematics, Atlanta, GA
Symposium co-organizer with Jim Nagy (Emory), Luca Dieci and Haomin Zhou.

SIAM Conference on Imaging Science Chicago, Illinois April 12-14, 2010
MS8 and MS13 Variational models and Math. approaches to image processing.
Co-organizer of Minisymposium with Jean-Francois Aujol (ENS, France)

SIAM Conference on Imaging Science Philadelphia, Pennsylvania May 20-22, 2012
MS5 and MS15 Current Develop. and Challenges in Imaging Through Turbulence.
Co-organizer of Minisymposium with Yifei Lou (Gatech)

IPAM The International Conference on the Frontier of Computational and Applied Math June 8 - 10, 2012
Tony Chan's 60th Birthday Conference, Los Angeles, California
Organizing committee with Thomas Hou (Caltech), Hongkai Zhao (UCI), Haomin Zhou (GT)

Fourth Int. Conf. on Scale Space and Variational Methods in Computer Vision (**SSVM**) June 2nd-6th 2013
Schloss Seggau, Graz region, Austria
Scientific and Program Committee

SIAM Conference on Imaging Science Hong Kong, May 12-14, 2014
MS24 (2 sessions) Color Perception and Image Enhancement.
Co-organizer of Minisymposium with G. Steidl (Kaiserslautern)

SIAM Conference on Imaging Science Hong Kong, May 12-14, 2014
Scientific Committee

The Foundations of Computational Mathematics (**FoCM**) conference December 11-20, 2014
Montevideo, Uruguay
Computational Harmonic Analysis, Image and Signal Processing
Workshop organization with J. Tanner (Oxford) and U. Molter (U of Buenos Aires)

Fifth Int. Conf. on Scale Space and Variational Methods in Computer Vision (**SSVM**) May 31 - June 4, 2015
Scientific and Program Committee Bordeaux, France

SIAM Conference on Imaging Science Albuquerque, New Mexico, USA May 23-26, 2016
MS57 High Order Regularization and Numerical Methods.
Co-organizer of Minisymposium with Maryam Yashtini (GT, Math)

Sixth Int. Conf. on Scale Space and Variational Methods in Computer Vision (**SSVM**) June 4 - June 8, 2017
Scientific and Reviewing Committee Denmark

AMS Spring Southeastern Sectional Meeting, Auburn Uni. Auburn, AL. March 15-17, 2019
Special Session on Clustering Methods and Applications, I
Co-organizer with Benjamin McLaughlin (Naval Research)

Seventh Int. Conf. on Scale Space and Variational Methods in Computer Vision (**SSVM**) June 2019
Program Committee Germany

Eight Int. Conf. on Scale Space and Variational Methods in Computer Vision (**SSVM**) June 2021
Program Committee virtual

Scholarly Activities and Visits

Visiting Scholar at UCLA   July 2004 - December 2004
Department of Mathematics, University of California, Los Angeles, CA.

Long-term visitor at IMA, 2005-2006 Thematic year on Imaging.   January 2006 - May 2006
Institute of Mathematics and its Applications (IMA), University of Minnesota, Minneapolis, MN

Trimester visit at HIM   September 2008 - November 2008
Hausdorff Research Institute for Mathematics (HIM), Bonn, Germany
Junior Trimester Program on Analysis, Group A: Calculus of Variation and Image processing

Visiting Professor at ENS Cachan   May 2009-June 2009.
The Ecole normale supÃrieure de Cachan, France. Visiting Prof. Jean-Francois Aujol

Participant at Mathematisches Forschungsinstitut **Oberwolfach**, Germany   Jan 30- Feb 5, 2011
Workshop 1105: Trends in Mathematical Imaging and Surface Processing
Organized by V. Caselles (Barcelona), M. Rumpf (Bonn), G. Sapiro (Minneapolis), and P. Schroder (Pasadena)

Participant at **Dagstuhl**   Nov 20 - Nov 25, 2011
Efficient Algorithms for Global Optimization Methods in Computer Vision
Organized by A. Bruhn (Saarlandes), T. Pock (Graz) and X.-C. Tai (Bergen)

Visiting Scholar at Moulhouse, France   May 5-31, 2013
Laboratoire de Mathematiques, Informatique et Applications, Univ. de Haute-Alsace Mulhouse-Colmar

Participant at Institute for Mathematics and its Applications (**IMA**)   Sep 23-26, 2013
Hot Topics Workshop:Imaging in Geospatial Applications

MSRI Member, Fall 2013 semester, Berkely, California   Nov-Dec 2013
Program: Optimal Transport: Geometry and Dynamics program

The International Federation for Information Processing (**IFIP**)   Jan. 2014-present
Working group 7.4 - Inverse Problems and Imaging

The **Fields Institute** Fall 2014 semester, Toronto, Canada   Sep 15-19, 2014
Thematic Program on Variational Problem in Physics, Economics and Geometry

The Institute for Computational and Experimental Research in Mathematics (**ICERM**)   Sep 29- Oct 3, 2014
Semester Program on "High-dimensional Approximation"
Workshop on 'Approximation, Integration, and Optimization'

The Center of Mathematical Sciences and Applications (**CMSA**), Harvard University   June 27–30, 2016
Workshop on "Optimization in Image Processing".

Joint Mathematics meeting, Atlanta, GA   January 4-7, 2017

CNA/Ki-Net, Department of Mathematical Sciences, Carnegie Mellon University   March 14-16, 2017
Workshop: Dynamics and Geometry from High Dimensional Data,

Invited Conference and Workshop Presentations

1. Workshop on Image Processing and Computational Methods, University of Kentucky, Lexington, KY,
   March 21-23, 2003.

2. **AMS** Sectional meeting, Ohio University, Athens, Ohio, March 26-27, 2004
   Invited talk in Special Session on Wavelets, other multiscale methods and their applications.

3. **SIAM** Conference on Imaging Science, Salt Lake City, Utah, May 3-5, 2004
   Invited talk in MS6 Geometric Regularization in Image Analysis and Processing.

4. KWMS, 1st international workshop for Korean women in Mathematics, Korea Institute for Advanced Study, **Seoul, Korea**, June 21, 2004,
   Plenary Talk, "Mathematical approaches to image denoising and inpainting problems".

5. KWMS, 1st international workshop for Korean women in Mathematics, **Seoul, Korea**, June 23, 2004
   invited talk in Special Session on Applied Mathematics.

6. **AMS** Sectional Meeting, University of Pittsburgh, Pittsburgh, Pennsylvania, November 6-7, 2004
   Invited talk in Special Session on PDE-Based Methods in Imaging and Vision.

7. AHA International conference on Applicable Harmonic Analysis, May 23-27, 2005
   Invited talk in Special Session on PDE based imaging, **HangZhou, China**.

8. Workshop: PDE-Based Image Processing and Related Inverse Problems
   Center of Mathematics for Applications (CMA), **Oslo, Norway**, August 8-12, 2005, Invited address.

9. **AMS** Eastern Section Meeting, Annandale-on-Hudson, NY, October 8-9, 2005
   Invited talk in Special Session on Mathematical Methods for the Analysis of Images and High Dim. Data.

10. **AMS** Southeastern Section Meeting, Florida International University, Miami, FL, April 1-2, 2006
    Invited talk in Special Session on Mathematical Models in Image and High-Dimensional Data Analysis.

11. **SIAM** Conference on Imaging Science, Minneapolis, Minnesota, May 15-17, 2006
    Invited talk in MS44 Variational and PDE Models for Image Decomposition.

12. **AMS** Fall Central Section Meeting, Cincinnati, OH, October 21-22, 2006
    Invited talk in Special Session on Nonlinear Partial Differential and Its Applications.

13. **SIAM** Conference on Analysis of Partial Differential Equations, Mesa, AZ, December 10-12, 2007.
    MS29 PDE Based Models in Image Processing - Part I of II.

14. **SIAM** Conference on Imaging Science, San Diego, CA, July 7-9, 2008.
    MS39 Variational Color Image Processing

15. **SIAM** Annual Meeting, San Diego, CA, July 7-11, 2008.
    MS82 Segmentation and Data Mining Conference on Imaging Science.

16. **SAMPTA** the 8th international conference on Sampling Theory and Applications
    Marseille, France, May 18-22, 2009. Invited talk in Special session on Sampling and inpainting.

17. **IMACS** World Congress, Computational and Applied mathematics and Applications in Science and Engineering, **Athens, GA**, August 3-5, 2009

18. Konkuk-Hanyang Workshop on Biomedical Topics, *Konkuk University*, Seoul, Korea, December 15, 2009

19. **KMS-AMS** Joint Meeting of the Korean Mathematical Society and the American Mathematical Society. **Seoul, Korea**, December 16-20, 2009, Invited talk in the special session on Mathematical Biology.

20. One day Workshop, Department of Mathematical Sciences, *Korea Advanced Institute of Science and Technology (KAIST)*, December 29, 2009

21. **SIAM** Conference on Imaging Science, Chicago, IL, April 12-14, 2010. MS 51 Analytical and Computational Aspects of Mathematical Modeling for Image Enhancement, Reconstruction and Segmentation

22. International Conference on Mathematical Methods for Imaging, Sun Yat-Sen University, **Guangzhou, China**, August 4-6, 2010.

23. **UKC2010**, US-Korea conference on science technology, and entrepreneurship, Seattle, WA, August 13, 2010, 1:30PM. Invited Papers Talk in (PAS) Pure and Applied Sciences Symposium on Mathematics and Statistics.

24. **SIAM** Conference on Computational Science and Engineering, Reno, Nevada, March 3, 2011. MS106 Scientific Computing in Image Processing - Part I of II.

25. **FoCM** (Foundations of Computational Mathematics), Period 1 Workshop A4 on Computational harmonic analysis, image and signal processing, Budapest, Hungary, July 4, 2011.

26. The international workshop on "Recent Advances in Biomedical Imaging" at Shanghai Jiao Tong University, **Shanghai, China**, August 18, 2011.

27. The second Midwest Conference on Mathematical Methods for Images and Surfaces, Michigan State University, East Lansing, MI, August 28, 2011.

28. Schloss **Dagstuhl** Leibniz-Zetrum Fur Informatik, Germany. Seminar 11471, Efficient Algorithms for Global Optimisation Methods in Computer Vision, November 24, 2011.

29. International Conference on Scientific Computing: In honor of Prof. Tony F. Chan at his 60th birthday for his contributions to scientific computing, **Hong Kong**, January 4, 2012.

30. 4th Georgia Scientific Computing Symposium (**GSC**), University of Georgia, Athens, GA, February 25, 2012

31. Erwin Schrodinger International Institute for Mathematical Physics (**ESI**) and Universitat Wien, Vienna, Austria, April 25, 2012, Workshop on Computational Inverse Problems.

32. 3rd New York Conference on Applied Mathematics (**NYCAM**), Rensselaer Polytechnic Institute, Troy, NY, October 13, 2012. **Plenary Talk.**

33. The 8th International Congress on Industrial and Applied Mathematics (**ICIAM**), Beijing, China, August 10-14, 2015. MS-Th-E-48 Image restoration: new algorithms and new applications - Part I of III.

34. 39th **SIAM** Southeastern Atlantic Section Conference, Birmingham, Alabama, March 20-22, 2015. MS 10 Variational models and their fast algorithms in mathematical imaging.

35. 39th **SIAM** Southeastern Atlantic Section Conference, Birmingham, Alabama, March 20-22, 2015. MS 13 Inverse Problems and Imaging II.

36. **SIAM** Conference on Imaging Science, Albuquerque, New Mexico, USA, May 23-26, 2016. MS6 Image Segmentation, Classification and Applications - Part I of II.

37. **SIAM** Conference on Imaging Science, Albuquerque, New Mexico, USA, May 23-26, 2016. MS95 New Models for Image Restoration and Enhancement - Part II of II.

38. Workshop on Dynamical Systems, GTMAP workshop, Auguest 10-11, 2017 School of Mathematics, Georgia Institute of Technology, Atlanta, GA.

39. **Isaac Newton Institute for Mathematical Sciences**, Workshop VMVW01: Variational methods, New optimisation techniques and New fast numerical algorithms, Sep 4-8, 2017, Cambridge, UK

40. International Workshop on Computational Mathematics, Ewha Womans University, December 15, 2017, Seoul, Korea

41. International workshop on inverse problems and image processing (Prof. Raymond Chan's 60th), April 21-24, 2018, Beijing Computational Science Research Center, Beijing, China

42. **SIAM** Conference on Imaging Science, Bologna, Italy, June 5-8, 2018. MS15-1: Nonlinear Diffusion: Models, Extensions and Algorithms

43. **SIAM** Conference on Imaging Science, Bologna, Italy, June 5-8, 2018. MS3-2 Applications of imaging modalities beyond the visible spectrum. (In place of co-author Dr. Ben McLaughlin.)

44. **AWM** Research Symposium, Rice University, Huston, TX, April 6, 2019. Session on Women in Data Science.

45. Workshop on recent developments on Mathematical/Statistical Approaches in Data Science (MSDAS), University of Texas, Dallas, Texas, Jun 2, 2019.

46. **ICIAM** International Congress on Industrial and Applied Mathematics, Valencia, Spain, July 17, 2019 Scientific Program MS FT-4-3 5 Optimisation and Inverse Problems in Imaging Science.

47. **SIAM** Conference on Imaging Science, Toronto, Canada, July 6-9, 2020.
    MS16 Data Driven Image Restoration - Part II of II. (Virtual session).

48. **SIAM** Conference on Imaging Science, Toronto, Canada, July 6-9, 2020 (virtual).
    MS Curvature related models for image processing and vision -part I of II (Session cancelled).

49. Georgia Scientific Computing Symposium (**GSC**), U. of Georgia, Athens, GA, February 27, 2021 (virtual)

50. **OneWorld SIAM-IS** Virtual Seminar Series,
    Image and Inverse Problems (IMAGINE) seminar, (Virtual) April 28, 2021.

51. **SIAM** Southeastern Atlantic Section Conference, MS13: Surrogate modeling for high-dimensional problems and applications,(virtual), September 18, 2021

52. **SIAM** Southeastern Atlantic Section Conference, MS17:Modeling and Numerical Methods for Image Problems, (virtual), September 19, 2021

SUMMER SCHOOL LECTURES

53. Summer School and Workshop on Imaging Science and Medical Applications, **University of Coimbra, Portugal**, June 15, 2010 (9-10:30AM,11AM - 1PM) and June 16, 2010 (9-10:30AM)

54. 2010 NIMS Hot topics School and Workshops on Image Processing, Computer Vision, Compress sensing and related Applications, **Seoul National University**, Seoul, Korea, Dec 14, 2010 (15:30-17:10PM) and Dec 15, 2010 (10-11:40AM).

55. **The Summer School on Mathematics in Imaging Science** 2018, May 28 to June 1, 2018 at Department of Mathematics of Bologna University. This is a prequel to SIAM conference on Imaging Science in Bologna, Italy, June 5-8 2018.

SEMINAR AND COLLOQUIUM PRESENTATIONS AT UNIVERSITIES

56. Image Processing Seminar, Department of Mathematics, UCLA, Jan. 2001.

57. CCS (Center for Computational Sciences) seminar series, U of Kentucky, October 23, 2002.

58. Departmental Colloquium, Mathematics, U of Kentucky, November 7, 2002.

59. Numerical Analysis Seminar (Math), *Kunkook University*, Seoul, Korea, June 24, 2004.

60. Numerical and Applied Mathematics Seminar, Department of Mathematics, *Seoul National University*, Seoul, Korea, June 28, 2004.

61. Partial Differential Equation seminar, Dep of Mathematics, U of Kentucky, February 9, 2005.

62. Applied Mathematics Colloquium (Math), *Yonsei University*, Seoul, Korea, May 31, 2005.

63. Applied Computational and Mathematics Seminar, Department of Mathematics, *Georgia Institute of Technology*, Atlanta, Georgia, September 23, 2005.

64. Institution of Mathematics and Its Applications (IMA) Seminar, Minneapolis, MN, Feb 20, 2006.

65. Applied Mathematics Seminar, Department of Mathematics, *Ohio State University*, Columbus, OH, November 16, 2006.

66. Applied Mathematics Seminar, Department of Applied Mathematics, *University of Washington*, Seattle, WA, January 24, 2008.

67. Istituto per le Applicazioni del Calcolo, "Mauro Picone" of C.N.R., Rome, Italy November 24, 2008

68. Dipartimento di Matematica Pura ed Applicata, Universita' degli Studi di L' Aquila, L' Aquila, Italy, November 26, 2008

69. Applied Math seminar, *University of Georgia*, Athens, Georgia, December 8, 2008

70. PDE Seminar, *Georgia Institute of Technology*, Atlanta, Georgia, January 27, 2009.

71. Applied Math seminar, *University of Georgia*, Athens, Georgia, April 8, 2009

72. Mathematics and Computer Science, *Emory University*, Atlanta, Ga, September 30, 2009

73. Department of Mathematics, *SungKyunKwan University*, Suwon, Korea, Dec 22, 2009

74. Seminar, Department of Mathematics, *University of Alabama*, Tuscaloosa, AL, Jan 28, 2010

75. CSE seminar, College of Computing, *Georgia Institute of Technology*, March 5, 2010

76. Seminar, Computational Science and Engineering Dep., *Yonsei University*, Seoul, Korea, Dec 21, 2010

77. Analysis and Applied Mathematics Seminar, Department of Mathematics and Statistics, *Kennesaw State University*, Kennesaw, GA, April 4th, 2011.

78. Applied Math seminar, *University of Georgia*, Athens, Georgia, April 20, 2011

79. Istituto per le Applicazioni del Calcolo, "Mauro Picone" of C.N.R., *Rome*, Italy, June 21, 2011.

80. Mathematical Image Processing and Data Analysis, Department of Mathematics, *Technische Universitat Kaiserslautern*, Germany, June 27, 2011.

81. Computational Science Center, *Universitat Wien*, Vienna, Austria, July 1, 2011.

82. Seminar, Computational Science and Engineering Dep., *Yonsei University*, Seoul, Korea, August, 2011

83. Applied Mathematics Seminar, Department of Mathematics, University at Buffalo, The State University of New York, October 15, 2012

84. Departmental Colloquium, Department of Mathematics, The University of Alabama at Birmingham, November 2, 2012

85. Laboratoire de Mathmatiques, Informatique et Applications (LMIA), Universite de Haute-Alsace (UHA) Mulhouse-Colmar, France, May 16, 2013

86. Fields Institute for Research in Mathematical Sciences. U. of Toronto Toronto, Canada, July 18, 2013

87. SciCom group, David R. Cheriton School of Computer Science, University of Waterloo, Waterloo, Ontario, Canada, July 19, 2013

88. Analysis Seminar, Department of Mathematical Sciences, Clemson University, October 3, 2013

89. Departmental Colloquium, Georgia State University, March 27, 2015

90. Numerical Analysis Seminar, Dep. of Mathematics, North Carolina State University, September 26, 2017

91. Applied Mathematics and Analysis Seminar, Program in Applied Mathematics, Department of Mathematics, Duke University, September 27, 2017

92. Numerical Analysis and Scientific Computing Seminar, Dep. of Math., Emory University, March 29, 2019.

93. Widely Applied Mathematics Seminars, John Paulson School of Engineering and Applied Sciences, Harvard University, September 26, 2019.

94. Applied Mathematics and Computation Seminar, Department of Mathematics and Statistics, University of Massachusetts Amherst, Feb 23, 2021 (Virtual).

95. Data Science Seminar, College of Science, Georgia Institute of Technology, October 15, 2021

96. (Undergraduate students) Mathematics and Computer science seminar series, Department of Mathematics and Computer science, Duquesne University, Pittsburgh, PA, October 5-7, 2006.

97. (Graduate students) Research Horizon seminar, School of Mathematics, Georgia Institute of Technology, Atlanta, Georgia. **Four times** on April 15, 2009, October 14, 2009, March 16, 2011, and Feb. 12, 2014

98. (Undergraduate students) Dep. of Mathematics, University of Alabama, Tuscaloosa, AL, Jan 29, 2010.

99. (**Junior high/high school teachers**) Teacher Professional Development Experiences, Center for Education Integrating Science, Mathematics, and Computing Student and Technology (**CEISMC**), Georgia Institute of Technology, July 16, 2010.

100. (**K12 students**) Invited Talk, Korean-American Scientists and Engineers Association (KSEA) Students Mathematics Workshop, US-Korea Conference on Science, Technology, and Entrepreneurship (**UKC**) 2010, Seattle, WA, August 13, 2010 5PM.

101. (Undergraduate students) Math 4801 Undergraduate seminar, School of Math, Georgia Tech, Atlanta, GA. **Four times** on September 23, 2010, September 20, 2011, September 3, 2013 and November 10, 2015

102. (**High school students**) Keynote Speaker at 2010 Siemens Competition in Math, Science and Technology, Atlanta, GA, November 13th, 2010 7PM.

103. (General Audience) Short Research Presentation, College of Science, Georgia Institute of Technology, Atlanta, Georgia, April 2, 2015

104. (General Academic Audience) High Performance Computing Science day, College of Science, Georgia Tech, December 7, 2015.

105. (Undergraduate students) School of Mathematics, Georgia Tech, Math 4801, Atlanta, GA. **Three times** on October 3, 2017, September 9, 2019, and September 20, 2021

106. (Undergraduate students/freshman seminar) School of Mathematics, Georgia Tech, Math 1000, Atlanta, GA, **Two times** on November 20, 2017 and September 4, 2018.

107. (Undergraduate students) MatheMatics Association, Emory Univerisity, Atlanta, GA, October 23, 2019.

108. (Graduate students) Research Horizon seminar, School of Mathematics, Georgia Institute of Technology, Atlanta, Georgia on Nov 13, 2019

109. (Graduate students) SIAM Student Seminar, School of Mathematics, Georgia Institute of Technology, September 24, 2021

110. (**High School Students**) Mu Alpha Theta, Math Honor Society club, Eastlake High School, Sammamish, Washington, December 9th, 2021 (Virtual)

TEACHING: UNDERGRADUATE AND GRADUATE CLASSES

Georgia Institute of Technology, Fall 2008 - present

1.	2009 Spring	Undergraduate	MA 2403 Differential Equation	75 students
2.	2009 Spring	Graduate	MA 6645 Numerical Approximation Theory	20 students
3.	2009 Fall	Undergraduate	MA 1502 Calculus II	110 students
4.	2010 Spring	Graduate	MA 6646 Numerical ODE	30 students
5.	2010 Fall	Undergraduate	MA 2413 Differential Equations Honors	13 students
6.	2010 Fall	Graduate	MA 6514: Intro. to Methods of Applied Mathematics	27 students
7.	2011 Spring	Graduate	MA 6645 Numerical Approximation Theory	18 students
8.	2011 Fall	Undergraduate	MA 2403 Differential Equation two classes, 7 sections, 255 students
9.	2012 Spring	Graduate	MA 6646 Numerical Methods for ODE	31 students

10.	2012 Fall	Undergraduate	MA 2403 Differential Equation	5 sections, 171 students
11.	2012 Fall	Graduate	MA 6640 Introduction to Numerical Methods for PDE	18 students
12.	2013 Spring	Graduate	MA 6645 Numerical Approximation Theory	13 students
13.	2013 Spring	Reading course	MA 8900: F. Zhou	
14.	2013 Fall	Reading course	MA 8900 Y. Wang	
15.	2014 Spring	Undergraduate	MA 2605 Calculus III for Computer Science	120 students
16.	2014 Spring	Graduate	MA 6646 Numerical Methods for ODE	22 students
17.	2015 Spring	Graduate	MA 6645 Numerical Approximation Theory	12 students
18.	2015 Fall	Graduate	MA 6701: Math Methods of Applied Sciences I	58 students + 10 DL
19.	2015 Fall	Reading course	B. Ide and E. Sabo	
20.	2016 Spring	Graduate	MA 6646 Numerical Methods for ODE	16 students
21.	2016 Fall	Undergraduate	MA 2552 Differential Equation	two lectures, 7 sections, 230 students
22.	2017 Spring	Graduate	MA 6645 Numerical Approximation Theory	14 students
23.	2017 Fall	Undergraduate	MA 2552 Differential Equation	4 sections, 104 students
24.	2017 Fall	Undergraduate	MA 2552 Differential Equation	GT Lorraine, DL 18 students
25.	2018 Spring	Graduate	MA 6646 Numerical Methods for ODE	27 students
26.	2019 Spring	Undergraduate	MA 2552 Differential Equation	sections D4-D7, 118 students
27.	2019 Spring	Undergraduate	MA 2552 Differential Equation	sections F5-F8, 119 students
28.	2019 Fall	Graduate	MA 6640 Intro. to Numerical Methods for PDE	27+5 students
29.	2019 Fall	Undergraduate	MA 4320 Complex Analysis	27 students
30.	2020 Spring	Graduate	MA 6646 Numerical Methods for ODE	21 students
31.	2020 Fall	Undergraduate	MA 4320 Complex Analysis	39 students
32.	2020 Fall	Graduate	MA 6643: Numerical Linear Algebra	33 students
33.	2021 Spring	Undergraduate	MA 4320 Complex Analysis	45 students
34.	2021 Fall	Undergraduate	MA 4320 Complex Analysis	45 students
35.	2021 Fall	Graduate	MA 6640: Intro. to Numerical Methods for PDE	28 students
36.	2022 Spring	Graduate	MA 6646 Numerical Methods for ODE	20 students

University of Kentucky, Fall 2002 - Spring 2008, Tenure-Track Assistant Professor

1.	2002 Fall	Undergraduate	MA 109 College Algebra	32 students
2.	2002 Fall	Graduate	MA 537 Numerical Analysis	27 students
3.	2003 Fall	Undergraduate	MA 123 Elementary Calc. and its Applications	27 students
4.	2003 Fall	Graduate	MA 625 Numerical Methods for Diff. Equ.	5 students
5.	2004 Spring	Graduate	MA 537 Numerical Analysis	12 students
6.	2004 Spring	Graduate	MA 611 Reading course	J.Money
7.	2005 Spring	Undergraduate	MA 321 Introduction to Numerical Methods	15 students
8.	2005 Spring	Graduate	MA 537 Numerical Analysis	29 students
9.	2005 Fall	Undergraduate	MA 109 College Algebra	65 students
10.	2005 Fall	Graduate	MA 625 Numerical Methods for Diff. Equ.	11 students
11.	2006 Fall	Undergraduate	MA 114 Calculus II	80 students
12.	2006 Fall	Undergraduate	MA 321 Introduction to Numerical Methods	22 students

13. 2007 Spring	Undergraduate	MA 113 Calculus I	65 students
14. 2007 Spring	Graduate	MA 537 Numerical Analysis	8 students
15. 2007 Spring	Graduate	MA 611 Reading course	S.Torrealba
16. 2007 Fall	Undergraduate	MA 321 Introduction to Numerical Methods	24 students
17. 2007 Fall	Graduate	MA 625 Numerical Methods for Diff. Equ.	10 students
18. 2007 Fall	Graduate	MA 611 Reading course	A. Misra
19. 2008 Spring	Undergraduate	MA 321 Introduction to Numerical Methods	17 students
20. 2008 Spring	Undergraduate	MA 471 Advanced Calculus II	6 students

University of California, Los Angeles, Fall 1997 - Winter 2001
Teaching Assistant/Associate/Lecturer
Undergraduate level classes: Math 1 Precalculus, Math 2 Finite Mathematics, Math 31A Differential and Integral Calculus, Math 149 Linear Programming, Math 151AB Applied Numerical Methods, Math 164 Optimization, Pic 1 Introduction to Computers and Computing, Pic 1S Software Tools for Information Management, Stat 50 Introduction to Statistics.

Mentoring: Undergraduate Student Research

1. Jing Cicy Cui (Agnes Scott College)   Summer REU (with Westdickenberg)   Summer 2009
   Topic: Anisotropic diffusion and the Perona-Malik scheme.

2. Chuya Yaya Guo (Agnes Scott College)   Summer REU (with Westdickenberg)   Summer 2009
   Topic: Numerical methods for isotropic and non-isotropic diffusion, including total variation denoising.

3. Tarik Trent (Emory University)   Summer REU (with Westdickenberg)   Summer 2009
   Topic: Shock filter and variational models for image deblurring, including non-isotropic blur kernels.

4. Janatta Washington (Spelman College)   Summer REU (with Westdickenberg)   Summer 2009
   Topic: Principal component analysis, SVD and image analysis.

5. Elisa Trejo (Discrete Math Major, GT)   MA 4080 Senior Project I and II   Spring 2010 - Fall 2010

6. Kevin Lewis (Biomedical Engineering, GT)   MA 2699/2698 Research for credit   Spring 2010- Fall 2012
   PURA Award- President's Undergraduate Research Award, Spring 2011

7. Trevor Siu (ECE, GT)   MA 2699 Research for credit   Spring 2010

8. Jacob Yongtaik Mok (ISyE, GT)   MA 2699 Research for credit   Spring 2011

9. Joshua Liu (Discrete Math, GT)   MA 4080 Senior Project I   Fall 2011

10. Tyler Cox (Math ,GT)   MA 4699 Undergraduate research   Fall 2012 - Spring 2013
    Undergraduate Award, School of Mathematics, Spring 2013

11. Chenxing Wang (Exchange student, Xi'an Jiaotong U.)   Undergraduate research   Spring 2014

12. Lin Li (Exchange student, Xi'an Jiaotong U.)   Undergraduate research   Spring 2014

13. Sayem Hoque (CS, GT)   Undergraduate research   Spring 2015-Summer 2017

14. Kumbit Hwang (Applied Math, GT)   Undergraduate research   Fall 2015-Spring 2016
    Best Junior Undergraduate Award, School of Mathematics, Spring 2016

15. Chris Kwan (Applied Math, GT)   Undergraduate Mentoring   Fall 2015

16. Nick Selby (ME, GT)   MA 4699 Undergraduate research   Spring 2016
    Best Oral Presentation Award, 11th Annual Undergraduate Research Symposium
    College of Science, Georgia Institute of Technology, April 19, 2016

17. Jun Xiang (EE, GT)   Summer REU, Georgia Tech   Summer 2017

18. Hyunsu Park (CS, GT)   MA 4699 Undergraduate research   Spring 2018

19.	Joshua Baker (CS, GT)	Undergraduate research	Spring 2018
20.	Josh Li (Visiting Student from Sydney, Australia)	Undergraduate research	Fall 2019
21.	Peiyao Wu (Math, GT)	MA 4699 Undergraduate research	Spring 2020-Spring 2021
	PURA Award- President's Undergraduate Research Award, Spring 2021		
22.	Yujian (Tim) Hu (CS, GT)	Undergraduate research	Spring 2020-Spring 2021
23.	Angela Morales (Math, GT)	Undergraduate research	Fall 2021
24.	Tiankuo (Hanson) Zhang (Math and Econ, GT)	Undergraduate research	Summer 2021-present

MENTORING: PH. D. STUDENTS ADVISING

James Money   PhD Defense April 25, 2006
Department of Mathematics, University of Kentucky.
Thesis title: Variational methods for image deblurring and discretized Picard's method.
post-graduate first position: Tenure-track Assist. Prof. at North Carolina Central University.

Yuchen Roy He   PhD Defense April 9, 2021
School of Mathematics, Georgia Institute of Technology
Thesis title: Mathematical and data-driven pattern representation with applications in image processing,
computer graphics, and infinite dimensional dynamical data mining.
post-graduate first position: Post-doc at Duke University
            (delayed Duke position due to Covid) post-doc at Shanghai Jiao Tong University, China.

Ben Ide   Mentoring period: Fall 2015 -present
School of Mathematics, Georgia Institute of Technology
Oral thesis proposal passed on Fall 2017.

Mengyi Tang   Mentoring period: Fall 2019 -present
School of Mathematics, Georgia Institute of Technology
Oral thesis proposal passed on April 6th, 2021.

Haodong Sun   Mentoring period: Fall 2020 -present
School of Mathematics, Georgia Institute of Technology
Oral thesis proposal passed on December 3, 2021.

Mollene Denton   Mentoring period: Fall 2019 -present
School of Mathematics, Georgia Institute of Technology

Guangyu Cui   Mentoring period: Fall 2020 -present
School of Mathematics, Georgia Institute of Technology

Ho (Mark) Law   Academic mentoring period: Fall 2020 -present
School of Mathematics, Georgia Institute of Technology

Gyujin Park   Academic mentoring period: Fall 2021 -present
School of Mathematics, Georgia Institute of Technology

MENTORING: POSTDOCTORAL FELLOWS AND VISITING SCHOLARS RESEARCH

Dr. Seong Jun Kim   Fall 2013 - Summer 2016
Hale and Regular Postdoc, Co-mentor with Prof. Haomin Zhou
School of Mathematics, Georgia Institute of Technology
Current position: Samsung, Korea. Summer 2016-present

Dr. Maryam Yashtini   Fall 2014 - Summer 2017
IMPACT NSF Postdoc, School of Mathematics, Georgia Institute of Technology
First position: Tenure-track Assistant Professor, Georgetown University, Washington D.C. (Fall 2017-present)

Dr. Ben McLaughlin   Fall 2015 - Spring 2019
Researcher, US Navy Research, Panama City, FL

Dr. Martin Huska   Spring 2019
Visiting Postdoc, Research fellow, University of Bologna, Italy

Teaching Mentor: Junior Faculty and Postdocs on Teaching

Prof. Josephine Yu   Fall 2014 - Spring 2016
Assistant Professor, School of Mathematics, Georgia Institute of Technology

Prof. Wenjing LIao   Fall 2017 - Fall 2019
Assistant Professor, School of Mathematics, Georgia Institute of Technology

Prof. Hannah Choi   Spring 2021 - present
Assistant Professor, School of Mathematics, Georgia Institute of Technology

Dr. Armenak Petrosyan   Fall 2021 - present
Hale Postdoctoral Fellow, School of Mathematics, Georgia Institute of Technology

Dr. BeiBei Liu   Fall 2021 - present
Hale Postdoctoral Fellow, School of Mathematics, Georgia Institute of Technology

Dr. Zhiyu Wang   Fall 2021 - present
Hale Postdoctoral Fellow, School of Mathematics, Georgia Institute of Technology

Academic Committees Service

Georgia Institute of Technology, Fall 2008 - present

1.	2008 Summer	MATH Master's committee member	D.Bryner (Chair, Prof. Liu, Math)
2.	2009 Summer	MATH PhD dissertation committee member	H. Deng (Chair, Prof. Zhou, Math)
3.	2009 Fall	PhD dissertation committee outside member	W. Huang (Chair, Prof. Anderson, ECE)
4.	2009 Fall	PhD dissertation committee outside member	J. Lee (Chair, Prof. Anderson, ECE)
5.	2010 Summer	PhD dissertation committee outside member	W. Sung (Chair, Prof. Mavris, AE)
6.	2010 Summer	PhD dissertation committee outside member	T. Song (Chair, Prof. Laskar, ECE)
7.	2010 Summer	PhD dissertation committee outside member	J. Choi (Chair, Prof. Laskar, ECE)
8.	2010 Fall	PhD dissertation committee outside member	J. Cha (Chair, Prof. Tentzeris, ECE)
9.	2010 Fall	PhD dissertation committee outside member	V. Kaul (Chair, Prof. Yezzi, ECE)
10.	2010 Fall	PhD dissertation committee outside member	J. Hur(Chair, Prof. Tentzeris, ECE)
11.	2011 Spring	PhD defense committee outside member	S. Yoon (Chair, Prof. Jongman Kim, ECE)
12.	2011 Spring	MATH PhD Oral exam committee member	Ke Yin (Chair, Prof. Haomin Zhou, Math)
13.	2011 Fall	PhD defense committee outside member	S. Kim (Chair, Prof. M. Tentzeris, ECE)
14.	2011 Fall	PhD defense committee outside member	W. Sung (Chair, Prof. Mavris, AE)
15.	2011 Fall	PhD defense committee outside member	J. Lee (Chair, Prof. Yezzi, ECE)
16.	2012 Spring	MATH PhD Oral exam committee member	Jun Lu (Chair, Prof. Haomin Zhou, Math)

17. 2012 Spring MATH PhD Oral exam committee member Lili Hu (Chair, Prof. Yingjie Liu , Math)

18. 2012 Summer PhD defense committee outside member H. Yu (Chair, Prof. G. Stuber, ECE)

19. 2012 Fall PhD defense committee outside member B. Ganapathy (Chair. Prof. Yezzi, ECE)

20. 2013 Spring MATH PhD defense committee member J. Liu (Chair, Prof. Zhou, Math)

21. 2013 Spring MATH PhD defense committee member K. Yin (Chair, Prof. Zhou, Math)

22. 2013 Spring PhD defense committee outside member I. Kim (Chair, Prof. Chin-Hui Lee, ECE)

23. 2013 Summer PhD defense committee member B. Shafei (Chair, Prof. G. Steidl)
Mathematik - Technische Universität Kaiserslautern, Germany

24. 2013 Summer PhD defense committee outside member S. Asif (Chair, Prof. Romberg, ECE)

25. 2013 Fall MATH PhD Oral exam committee member F. Difonzo (Chair, Prof. Dieci, Math)

26. 2013 Fall PhD defense committee outside member S. Kwon (Chair, Prof. Barry, ECE)

27. 2013 Fall PhD defense committee outside member H. Jung (Chair, Prof. Weitnauer, ECE)

28. 2014 Spring CSE PhD Oral exam committee member Y. He (Chair, Prof. Park, CSE)

29. 2014 Spring MATH PhD Oral exam committee member S. Yang (Chair, Prof. Liu, Math)

30. 2014 Spring PhD defense committee outside member M. Mueller (Chair. Prof. Yezzi, ECE)

31. 2014 Spring MATH PhD defense committee member J. Lu (Chair, Prof. Zhou, Math)

32. 2014 Summer MATH PhD defense committee member L. Hu (Chair, Prof. Liu, Math)

33. 2014 Fall CSE PhD defense committee member Y. He (Chair, Prof. Park, CSE)

34. 2015 Spring MATH PhD defense committee member F. Difonzo (Chair, Prof. Dieci, Math)

35. 2015 Spring MATH PhD Oral exam committee member JD. Walsh (Chair, Prof. Dieci, Math)

36. 2015 Fall CSE PhD Oral exam committee A. Cecen (Chair, Prof. Song CSE and S. Kalidindi, ME)

37. 2016 Spring PhD Oral exam committee member M. Lee (Chair, Prof. Mavris, AE)

38. 2016 Spring MATH PhD Oral exam committee member T. Chen (Chair, Prof. Short, Math)

39. 2016 Fall CSE PhD Oral exam committee member R. Du (Chair. Prof. Park, CSE)

40. 2016 Fall CSE PhD Oral exam committee member Y. Wang (Chair, Prof. Song, CSE)

41. 2016 Fall Math PhD Oral exam committee member X. Wang (Chair, Prof. Liu, Math)

42. 2016 Fall Math PhD Oral exam committee member Y.-S. Cheng (Chair, Prof. Heil, Math)

43. 2017 Spring CSE PhD Oral exam committee member X. Xing (Chair, Prof. Chow, CSE)

44. 2017 Spring CSE PhD Oral exam committee member A. Cecen (Chair, Prof. Kalidindi, ME)

45. 2017 Spring Math PhD Defense committee member J. Walsh (Chair, Prof. Dieci, Math)

46. 2017 Summer PhD Defense committee member A. Blanco (Chair, Prof. Rincon-Mora, EE)

47. 2017 Summer CSE PhD defense committee member A. Cecen (Chair, Prof. Kalidindi, ME)

48. 2017 Fall Math PhD Oral exam committee member H. Zhai (Chair, Prof. Zhou, Math)

49. 2017 Fall Math PhD Oral exam committee Chair Ben Ide (Math)

50. 2018 Spring PhD Oral exam committee member F. Jafri (Chair, Prof. Yezzi, ECE)

51. 2018 Spring CSE PhD Defense committee member R. Du (Chair, Prof. Park, CSE)

52. 2018 Spring PhD Defense committee member C. Solis (Chair, Prof. Rincon-Mora, ECE)

53. 2018 Spring Math PhD Oral exam committee member Y. Delchev (Chair, Prof. Iliev, Math)

54. 2018 Summer Math PhD Defense committee member X. Wang (Chair, Prof. Liu, Math)

55. 2018 Summer Math PhD Defense committee member T. Chen (Chair, Prof. Short, Math)

56. 2018 Summer Math PhD Defense committee member F. Zhou (Chair, Prof. Koltchinskii, Math)

57.	2018 Summer	Math Master Defense	B. Hebbe Madhusudhana (Chair, Prof. Blekherman, Math)
58.	2018 Fall	ISyE PhD Oral exam committee member	T. Kong (Chair, Prof. Vidakovic, ISyE)
59.	2018 Fall	ECE PhD Defense committee member	F. Jafri (Chair, Prof. Yezzi, ECE)
60.	2018 Fall	AE PhD Defense committee member	M. Lee (Chair, Prof. Mavris, AE)
61.	2019 Spring	ISyE PhD Defense committee member	Tae Woon Kong (Chair, Prof. Vidakovic, ISyE)
62.	2019 Spring	Math PhD Defense committee member	Haoyan Zhai (Chair, Prof. Zhou, Math)
63.	2019 Spring	Math PhD Oral exam committee member	Shu Liu (Chair, Prof. Zhou, Math)
64.	2019 Spring	Math PhD Oral exam committee Chair	Yuchen Roy He (Math)
65.	2020 Spring	ECE PhD Defense committee member	Jiahao Xie (Chair, Prof. Meliopoulos, ECE)
66.	2020 Spring	Math PhD Oral exam committee member	John (Jack) Olinde (Chair, Prof. Short, Math)
67.	2020 Fall	CSE Qualifying exam committee member	Shikhar Shah (Chair, Prof. Chow, ECE)
68.	2020 Fall	Physics PhD Defense committee	Ratrick Reinbold (Chair, Prof.Grigoriev, Physics)
69.	2020 Fall	PhD Defense committee member	Robert Friedlander (Chair, Prof. Yezzi, ECE)
70.	2020 Fall	Math PhD Oral exam committee member	Haiyu Zo (Chair, Prof. Liu, Math)
71.	2021 Spring	Math Oral exam committee member	Victor Bailey (Chair, Prof. Heil, Math)
72.	2021 Spring	Math Oral exam committee Chair	Mengyi Tang (Math)
73.	2021 Spring	Math PhD Defense committee Chair	Yuchen Roy He (Math)
74.	2021 Summer	Math PhD Defense committee member	Renyi Chen (Chair, Prof. Tao, Math)
75.	2021 Summer	Math PhD Defense committee member	Yian Yao (Chair, Prof. de la Llave, Math)
76.	2021 Fall	Math PhD Oral exam committee member	Daniyar Omarov (Chair, Prof. Dieci, Math)
77.	2021 Fall	Math PhD Oral exam committee Chair	Haodong Sun (Math)

University of Kentucky, Fall 2002 - Spring 2008

1.	2003 Fall	Master's committee Chair	J. Money
2.	2004 Spring	Master's committee Chair	T. Burden
3.	2004 Summer	PhD exam committee member, Mechanical Engineering	
4.	2004 - 2006	PhD committee Chair	J. Money
5.	2005 Fall	Academic adviser	W. Guo
6.	2005 Fall	PhD committee member	P. Quillen
7.	2006 Fall	PhD committee outside member	M. Nazzal
8.	2007 Fall	PhD committee outside member	S. Torrealba

Departmental and College Committees Service

University of Kentucky, Fall 2002 - Spring 2008

1. Department of Mathematics, Hiring committee member, 2005-06
2. Math Education Hiring Committee member for College of Education, 2007-08

Georgia Institute of Technology, Fall 2008 - present

1. Applied and Computational Mathematics (**ACM**) Seminar Organizer   Fall 2009 -present. Weekly seminar organization then supervising the organization. Co-organization with M. Westdickenberg (before), S. Alben (before), H. Zhou (before), M. Short (before), M. Tao (current) and W. Liao (current).

2. Election Committee member, School of Mathematics   Fall 2009- Fall 2011, Fall 2012-2013

3. Graduate Committee member, School of Mathematics   Fall 2011- Spring 2013

4. Communication, Development and Outreach (CDO) Committee member, SoM   Fall 2013- Spring 2014

5. Junior Promotion and Tenure (JPT) Committee member, School of Mathematics   Fall 2015- Spring 2017

6. **CSE-MATH Graduate Program Coordinator**   Fall 2015 - present
    School of Math coordinator overseeing CSE-MATH PhD and Master program: oversee CSE-Math PhD and MS admission, supervise progresses of CSE-Math students, oversee and approve secondary/double degree for CSE-Math MS, and the Math liaison for CSE program.

7. GT Mathematics and Applications Portal (**GT-MAP**), Point of Contact   Spring 2016 - present
    One of contacts of GT-MAP. GT MAP activities includes discussion oriented seminars and yearly workshops. More information at http://gtmap.gatech.edu/

8. Faculty Advisory Committee member, School of Mathematics   Fall 2016- Spring 2018

9. Math 2552 Differential Equation Review Task Force, **lead**, Spring 2018 - Summer 2019

10. PostDoc Committee **Chair**, School of Mathematics   Fall 2019- Spring 2021

11. Math 2552 Differential Equation Advanced placement exam   Spring 2021, Summer 2021, and Fall 2021

12. Qualifying Exam Numerical Comps, School of Mathematics   Spring 2021-present

13. M@th AP hiring committee **Chair**, School of Mathematics   Spring 2022- present

14. Reviewer for 2018 ORAU Ralph E. Powe Junior Faculty Enhancement Awards.   Fall 2019 - Summer 2020
    GT ORAU (Office of the Executive Vice President for Research)

15. School of CSE, School Chair search Committee, College of Science member   Fall 2019 - Summer 2020

16. College of Science, Strategic Planning Committee   Fall 2019 - Fall 2020

17. CSE Qualifying Exam committee for Numerical Linear Algebra, School of CSE   Spring 2021 - Fall 2021

18. College of Sciences, Reappointment, Promotion, and Tenure (RPT) committee   Fall 2021- present

Editorial board Service

Inverse Problems and Imaging   2013-present
The AIMS journal. Editorial Board

Advances in Continuous and Discrete Models, Theory and Modern Applications   2021-present
Springer journal. Editorial Board.

Peer Review for Research Journals

Applied and Computational Harmonic Analysis	Applied Mathematics and Computation
Applied Mathematics Research Express	Applied Sciences
Communications in Mathematical Sciences	Comput. Methods in Science and Eng.
Computational Optimization and Applications	Computers in Biology and Medicine
Computer Vision and Image Understanding	Computing in Science and Engineering
Digital Signal Processing	East Asia Journal on Applied Mathematics
Electronics Letters	EURASIP J. on Image and Video Proc.

European Journal of Applied Mathematics

IEEE Transactions on Image Processing

IEEE Transactions on N. N. and Learning Sys.

IET Image Processing

Image Processing On Line (IPOL)

Int. Journal of Image and Graphics

Inverse Problems (IOP)

Journal of Comp. and Applied Mathematics

J. of Comp. Methods in Sciences and Eng.

Journal of Imaging

Journal of Math. Imaging and Vision

Journal of the Optical Society of America A

Mathematical Problems in Engineering

Multidimensional Systems and Signal Proc.

Nonlinear Analysis: Real World Applications

Numerische Mathmatik

Pattern Recognition (PR)

Physica A: Statistical Mechanics and its App.

Remote Sensing

Signal Processing

SIAM Journal on Mathematical Analysis

SIAM Journal on Scientific Computing

Transactions on Numerical Analysis (ETNA)

Trans.on Visualization and Computer Graphics

IEEE Signal Processing Letters

IEEE Transactions on Multimedia

IEEE Trans. on Visual. and Computer Graphics

Image and Vision Computing

Int. Journal of Biomedical Imaging

Int. Journal of Imaging Systems and Tech.

Inverse Problems and Imaging (IPI)

Journal of Computational Mathematics

Journal of Electronic Imaging

J. of Nonlinear Analysis B: Real World App.

Journal of Scientific Computing

Journal of Visual Com. and Image Repres.

Methods and Applications of Analysis

Multiscale Modeling and Simulation (MMS)

Numerical Math.: Theory, Methods and App.

Optical Engineering

Pattern Recognition Letters

PLOS ONE

Signal Image and Video Processing

SIAM Book Review

SIAM Journal on Imaging Sciences (SIIMS)

The IMA Journal of Applied Mathematics

T. on Ultras., Ferroelectrics, and Freq. Cont.

The American Journal of Undergraduate Research (AJUR)

REFEREE FOR THE CONFERENCE PROCEEDINGS AND BOOKS

European Signal Processing conference

IEEE Visualization

International Conference on Large-Scale Scientific Computations

International Symposium on Computational and Information Sciences

International Workshop On Image Processing and Inverse Problem

Conference on Scale Space and Variational Methods in Computer Vision (SSVM)

Cambridge University Press

John Wiley and Sons, Inc.

Mathematics, Statistics and Physics, CRC Press