

Personal Data

Contact

Name Xiaosheng ZHUANG
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Research Interests

Applied and Computational Harmonic Analysis; Sparse Approximation;
Directional Multiscale Representation Systems; Compressed Sensing;
Image/Signal Processing; Deep/Machine Learning and Pattern Recognition.

Educational Background

2005.09 – 2010.07 Ph.D. in Applied Mathematics
University of Alberta, Canada; Supervisor: Prof. [Bin Han](#)
2003.09 – 2005.07 M.Sc. in Mathematics and Applied Mathematics
Sun Yat-sen University, China; Supervisor: Prof. [Dao-Qing Dai](#)
1999.09 – 2003.07 B.Sc. in Mathematics and Applied Mathematics
Minor in Computer Science
Sun Yat-sen University, China

Employment History

2018.07 – Present Associate Professor, City University of Hong Kong, Hong Kong
2018.09 – 2020.08 Associate Head, City University of Hong Kong, Hong Kong
2012.12 – 2018.06 Assistant Professor, City University of Hong Kong, Hong Kong
2012.07 – 2012.12 PIMS & MITAC PDF, University of Alberta, Canada
2011.10 – 2012.06 PDF, Technical University of Berlin, Germany; Advisor: Gitta Kutyniok
2010.09 – 2011.09 PDF, University of Osnabrueck, Germany; Advisor: Gitta Kutyniok
2005.09 – 2010.07 Research Assistant, University of Alberta, Canada
2010.07 – 2010.08 Summer Term Instructor, University of Alberta, Canada
2005.09 – 2010.04 Teaching Assistant, University of Alberta, Canada
2003.09 – 2005.07 Research Assistant, Sun Yat-sen University, China

Honors and Awards

2013.07	Early Career Award, 2013/2014, RGC, Hong Kong
2012.06	Oberwolfach Leibniz Graduate Student, Oberwolfach, Germany
2009.09	Eoin L Whitney Scholarship, University of Alberta
2008.12	Dr. Josephine Mitchell Graduate Research Prize, University of Alberta
2006.09	Provost Doctoral Entrance Award, University of Alberta Josephine Mitchell Scholarship, University of Alberta
2005.09	Provost Doctoral Entrance Award, University of Alberta
2002.09	1st Class Scholarship, Sun Yat-Sen University Lenovo Scholarship, Sun Yat-Sen University
2001.09	3rd Class Scholarship, Sun Yat-Sen University
2000.09	2nd Class Scholarship, Sun Yat-Sen University J.C. Hu & S.Q. Xu Memorial Scholarship, Sun Yat-Sen University

Teaching

2022.01 – 2022.05	MA4537 (Introduction to Actuarial Science), CityU MA2507(Computing Mathematics Laboratory), CityU
2022.01 – 2022.05	MA4537 (Introduction to Actuarial Science), CityU
2021.09 – 2021.12	MA2185 (Discrete Mathematics), CityU
2021.01 – 2021.05	MA1200 (Calculus and Basic Linear Algebra I), CityU
2020.09 – 2020.12	MA2508 (Multivariate Calculus), CityU MA2172 (Applied Statistics for Sciences and Engineering), CityU
2020.01 – 2020.05	MA4537 (Introduction to Actuarial Science), CityU
2019.09 – 2019.12	MA2508 (Multivariate Calculus), CityU
2019.01 – 2019.05	MA2001 (Multivariate Calculus and Linear Algebra), CityU
2018.09 – 2018.12	MA2001 (Multivariate Calculus and Linear Algebra), CityU
2018.01 – 2018.05	MA2001 (Multivariate Calculus and Linear Algebra), CityU
2018.01 – 2018.05	MA4542 (Real Analysis), CityU
2017.09 – 2017.12	MA2001 (Multivariate Calculus and Linear Algebra), CityU
2017.01 – 2017.05	MA2001 (Multivariate Calculus and Linear Algebra), CityU
2016.09 – 2016.12	MA2001 (Multivariate Calculus and Linear Algebra) and MA4542 (Real Analysis), CityU
2016.01 – 2016.05	MA2001 (Multivariate Calculus and Linear Algebra) and MA3001 (Differential Equations), CityU
2015.09 – 2015.12	MA2001 (Multivariate Calculus and Linear Algebra) and MA3522 (Analysis), CityU
2015.01 – 2015.05	MA2001 Lecturer (Multivariate Calculus and Linear Algebra), CityU
2014.09 – 2014.12	MA2001 Lecturer (Multivariate Calculus and Linear Algebra) MA4542 Lecturer (Real Analysis), CityU
2014.01 – 2014.05	MA2001/MA2170 Lecturer (Multivariate Calculus and Linear Algebra), CityU
2013.09 – 2013.12	MA2001 Lecturer (Multivariate Calculus and Linear Algebra), MA4542 Lecturer (Real Analysis), CityU
2013.01 – 2013.05	MA2149 Lecturer (Mathematical Analysis), CityU
2010.07 – 2010.08	Math 113 Lecturer (Elementary Calculus), University of Alberta
2010.01 – 2010.04	Math 102 Lab Instructor (Linear Algebra), University of Alberta
2009.09 – 2009.12	Math 113 Lab Instructor (Elementary Calculus), University of Alberta Math 381 Lab Instructor (Numerical Analysis), University of Alberta
2009.01 – 2009.04	Math 113 Lab Instructor (Elementary Calculus), University of Alberta
2008.09 – 2008.12	Math 113 Lab Instructor (Elementary Calculus), University of Alberta

Grants

External Grants

No.	Approval Date	Project Title	Duration (Months)	PI	Funding Source
6	2022.07.01	Directional Framelets on Compact Sets: Theory, Construction, Realization, and Applications	36	YES	GRF
5	2019.07.01	Framelets on Graphs for Deep Learning Applications	24	YES	GRF
4	2018.07.01	Multiscale Data Analysis: Directional Framelets on Manifolds and Graphs	36	YES	GRF
3	2017.07.01	Dual Framelets on Manifolds and Graphs with Applications in Multiscale Data Analysis	24	YES	GRF
2	2014.07.01	On the Design and Applications of Multidimensional Subdivision Schemes and Directional FIR Filter Banks	42	YES	GRF
1	2013.07.01	Directional Multiscale Representation Systems: Theory, Design, and Applications	42	YES	ECS

Internal Grants

No.	Approval Date	Project Title	Duration (Months)	PI	Funding Source
5	2021.09.01	Directional Framelets on Bounded Domains for Applications in Deep Learning and Mathematical Imaging	24	YES	CityU SRG
4	2021.05.13	Generic and Targeted VTL for Self-Access Learning - Development e-Mathematical Help Centre for e-Learning and e-Teaching of Fundamental Mathematical Courses via Modern Digital Technologies	24	YES	UGC Special VTL Grant
3	2020.09.01	Adaptive Directional Framelets on Bounded Domains and Their Applications	24	YES	CityU SRG
2	2015.09.01	Directional Multiscale Representation Systems with Low Redundancy Rate and Their Applications in High-Dimensional Data Analysis	24	YES	CityU SRG
1	2015.05.22	Directional Multiscale Representation Systems in Manifold Learning	30	YES	CityU StUp

Publication List

A. Articles Published or Accepted in Refereed Journals

1. Li J., Feng H., and **Zhuang X.** (2022) Convolutional neural networks for spherical signal processing via area-regular spherical Haar tight framelets. *IEEE Transaction on Neural Networks and Learning Systems*. Online Published.
2. Li Y.-R., Shen L., and **Zhuang X.** (2022.09) A tailor-made 3-dimensional directional Haar semi-tight framelet for pMRI reconstruction. *Applied and Computational Harmonic Analysis*. 60: 446-470.
3. Zheng X., Zhou B., Wang Y. G. and **Zhuang X.** (2022.01) Decimated framelet system on graphs and fast G-framelet transforms, *Journal of Machine Learning Research*, 23(18): 1-68.
4. Li Y.-R., Chan R. H., Shen L., and **Zhuang X.**, (2021.07) Regularization with multilevel non-stationary tight framelets for image restoration, *Applied and Computational Harmonic Analysis*, 53: 332-348.
5. Xiao Y. and **Zhuang X.** (2021.04) Adaptive directional Haar tight framelets on bounded domains for digraph signal representations, *Journal of Fourier Analysis and Applications*, 27:7.
6. Zhang J., Aviles-Rivero A. I., Heydecker D., **Zhuang X.**, Chan R. H., Schönlieb C. B. (2021.04) Dynamic spectral residual superpixels, *Pattern Recognition*. 112: 107705.
7. Wang Y. G., Li M., Ma Z., Montufar G., **Zhuang X.**, and Fan Y. (2020) Haar graph pooling. *Proceedings of ICML 2020 (ICML 2020)*: 3807-3817. (arXiv:1909.11580).
8. Li M., Ma Z., Wang Y. G., and **Zhuang X.** (2020.08) Fast Haar transforms for graph neural networks, *Neural Networks*, 128: 188-198.
9. Wang, Y.G., and **Zhuang, X.** (2020.01) Tight framelets and fast framelet transforms on manifolds, *Applied and Computational Harmonic Analysis*, 48 (1): 64-96.
10. Han B., Mo Q., Zhao Z., and Zhuang X. (2019.10) Compactly supported directional tensor product complex tight framelets with applications to image denoising and inpainting, *SIAM Journal on Imaging Sciences*, 12 (4): 1739-1771.
11. Chao S. and Zhuang X. (2019.08) A study concerning soft computing approaches for stock price forecasting. *Axioms*, 8 (4): 116.
12. Han, B., Li T., and Zhuang, X. (2019.05) Directional compactly supported box spline tight framelets with simple geometric structure. *Applied Mathematics Letters*, 91: 213 – 219.
13. Che Z., and **Zhuang, X.** (2018.08) Digital affine shear filter banks with 2-layer structure and their applications in image processing, *IEEE Transaction on Image Processing*, 27 (8): 3931-3941.
14. Han, B., Jiang, Q. T., Shen, Z. W., and **Zhuang, X.** (2018.01) Symmetric canonical quincunx tight framelets with high vanishing moments and smoothness. *Mathematics of Computation*, 87 (309):347-379.
15. Chui, C. K., Mhaskar, H. N., and **Zhuang, X.** (2018.01) Representation of functions on big data associated with directed graphs. *Applied and Computational Harmonic Analysis*, 44 (1):165-188.
16. **Zhuang, X.** (2017.07) Quincunx fundamental refinable functions in arbitrary dimensions. *Axiom*, 6 (3):20.
17. **Zhuang, X.** (2016.09) Digital affine shear transforms: fast realization and applications in image/video processing. *SIAM Journal on Imaging Sciences*, 9 (3):1437-1466.
18. Han, B., Zhao, Z., and **Zhuang, X.** (2016.09) Directional tensor product complex tight framelets with low redundancy. *Applied and Computational Harmonic Analysis*, 41 (2): 603-637.

19. Chui, C. K., De Villiers, J., and Zhuang, X. (2016.07) Multirate systems with shortest spline-wavelet filters. *Applied and Computational Harmonic Analysis*, 41 (1): 266-296.
20. Han, B. and **Zhuang, X.** (2015.09) Smooth affine shear tight frames with MRA structures, *Applied and Computational Harmonic Analysis*, 39 (2): 300-338.
21. Bodmann, B. G., Kutyniok, G., and **Zhuang, X.** (2015.01) Gabor shearlets, *Applied and Computational Harmonic Analysis*, 38 (1):87-114.
22. Tan, C. and **Zhuang X.** (2014.06) The common Hardy space and BMO space for singular integral operators associated with isotropic and anisotropic homogeneity, *Journal of Mathematical Analysis and Applications*. 414: 480-487.
23. King, E. J., Kutyniok, G., and **Zhuang, X.** (2014.02) Analysis of inpainting via clustered sparsity and microlocal analysis, *Journal of Mathematical Imaging and Vision*. 48 (2): 205-234.
24. Han, B. and **Zhuang, X.** (2013.01) Algorithms for matrix extension and orthogonal wavelet filter banks over algebraic number fields. *Mathematics of Computation*. 82 (281): 459-490.
25. Specktor, S. and **Zhuang, X.** (2012) Asymptotic Bernstein type inequalities and estimation of wavelet coefficients. *Methods and Applications of Analysis*. 19 (3): 289-312
26. Kutyniok, G., Shaharm, M., and **Zhuang, X.** (2012) ShearLab: A rational design of a digital parabolic scaling algorithm. *SIAM Journal on Imaging Sciences*. 5 (4):1291-1332.
27. Mo, Q. and **Zhuang X.** (2012) Matrix splitting with symmetry and dyadic framelet filter banks over algebraic number fields, *Linear Algebra and its Applications*. 437 (10): 2650-2679.
28. **Zhuang, X.** (2012) Matrix extension with symmetry and construction of biorthogonal multiwavelets with any integer dilation. *Applied and Computational Harmonic Analysis*. 33 (2): 159-181.
29. Chui, C. K., Han, B. and **Zhuang, X.** (2012) A dual-chain approach for bottom-up construction of wavelet filters with any dilation. *Applied Computational Harmonic Analysis*. 33 (2): 204-225.
30. Han, B. and **Zhuang, X.** (2010) Matrix extension with symmetry and its applications to symmetric orthonormal multiwavelets. *SIAM Journal on Mathematical Analysis*. 42 (5): 2297-2317.
31. Han, B. and **Zhuang, X.** (2009) Analysis and construction of Multivariate interpolating refinable function vectors. *Acta Applicandae Mathematicae*. 107:143-171.
32. Han, B., Kwon, S. G. and **Zhuang, X.** (2009) Generalized interpolating refinable function vectors. *Journal of Computational and Applied Mathematics*. 227:254-270.
33. **Zhuang X.** and Dai, D. Q. (2007) Improved discriminate analysis for high dimensional data and its application to face recognition. *Pattern Recognition*. 40: 1570-1578.
34. **Zhuang X.**, Dai, D. Q. and Yuen, P. C. (2005) Face recognition by inverse Fisher discriminant features. *Lecture notes in Computer Science*. 3832:92-98.
35. **Zhuang X.** and Dai, D. Q. (2005) Inverse Fisher discriminate criteria for small sample size problem and its application to face recognition. *Pattern Recognition*. 38: 2129-2194.

B. Book Chapters

- Dyn, N., and Zhuang, X. (2021) Linear Multiscale Transforms Based on Even-Reversible Subdivision Operators, book chapter in “*Excursions in Harmonic Analysis, Volume 6: In Honor of John Benedetto’s 80th Birthday*”, Springer.
- Kutyniok, G., Lim, W.-Q., and **Zhuang, X.** (2011) Digital Shearlet Transforms, book chapter in “*Shearlets: Multiscale Analysis for Multivariate Data*”, Springer.
- **Zhuang, X.** (2010) Matrix extension with symmetry and its applications, Book chapter in *Approximation Theory XIII: San Antonio 2010*, M. Neamtu and L.L. Schumaker eds. Springer, 2012.

C. Other Refereed Contributions

1. Wang Y.G. and **Zhuang, X.** (2019) Tight framelets on graphs for multiscale data analysis. *Wavelets and Sparsity XVIII, SPIE Proc.* 11138-11.
2. Li Y.-R. and **Zhuang, X.** (2019) Parallel magnetic resonance imaging reconstruction algorithm by 3-dimension directional Haar tight framelet regularization. *Wavelets and Sparsity XVIII, SPIE Proc.* 11138-47.
3. **Zhuang, X.** and Han B. (2019) Compactly supported tensor product complex tight framelets with directionality. *The 13th International Conference on Sampling Theory and Applications (SampTA2019), Bordeaux, France.*
4. Che Z. and **Zhuang, X.** (2017) Affine shear tight frames with two-layer structure. *Wavelets and Sparsity XVII, SPIE Proc.* 10394-22.
5. Che Z. and **Zhuang, X.** (2017) Digital affine shear filter banks with 2-layer structure. *2017 International Conference on Sampling Theory and Applications (SampTA), Tallinn, Estonia.* 575-579.
6. **Zhuang, X.** (2015) Smooth affine shear tight frames: digitization and applications. *Wavelets and Sparsity XVI, SPIE Proc.* 9597.
7. Bodmann, B. G., Kutyniok, G., and **Zhuang, X.** (2011) Coarse quantization with the fast digital shearlet transform. *Wavelet XI, San Diego, CA, SPIE Proc.* (8318).
8. King, E. J., Kutyniok, G., and **Zhuang, X.** (2011) Analysis of data separation and recovery problems using clustered sparsity. *Wavelet XI, San Diego, CA, SPIE Proc.* (8318).
9. Donoho, D. L., Kutyniok, G., Shahram, M., and **Zhuang, X.** (2011) A rational design of a digital shearlet transform. *The 9th International Conference on Sampling Theory and Applications*, Singapore.
10. **Zhuang, X.** (2011) The digital shearlet transform on pseudo-polar grids. *Oberwolfach Report* 17/2011: 29-32.
11. **Zhuang, X.** (2011) Interpolating refinable function vectors and matrix extension with symmetry. *Oberwolfach Report* 44/2010: 35-37.

D. Manuscripts Preprinted or Submitted

Journal Editor and Referee

Associate Editor:

- Multidimensional Systems and Signal Processing

Referee for Journals and Others:

- Acta Applicandae Mathematicae
- Advances in Computational Mathematics
- Analysis and Applications
- Applied Computational Harmonic Analysis
- Applied Mathematics Letters
- Artificial Intelligence Review
- Banach Journal of Mathematical Analysis
- Biomedical Signal Processing and Control
- Bulletin of the Iranian Mathematical Society
- Bulletin of the Malaysian Mathematical Sciences Society
- Computer Vision and Image Understanding
- Constructive Approximation
- IEEE Transaction on Information Theory
- IEEE Transaction on Neural Networks and Learning Systems
- IEEE Transaction on Signal Processing
- International Journal of Mathematical, Engineering and Management Sciences
- International Journal of Numerical Analysis and Modeling, Series B
- International Journal of Wavelets, Multiresolution and Information Processing
- International Journal on Geomathematics
- Journal of Approximation Theory
- Journal of Computational and Applied Mathematics
- Journal of Computational Mathematics
- Journal of Fourier Analysis and Applications
- Journal of Machine Learning Research
- Journal of Mathematical Analysis and Applications
- Journal of Mathematical Imaging and Vision
- Journal of Scientific Computing
- Knowledge-Based Systems
- Lecture Notes in Computer Sciences
- Mathematics and Computers in Simulation
- Mathematical Foundations of Computing
- Mathematical Reviews (MR)
- MDPI: AppliedMath
- Multidimensional Systems and Signal Processing
- Neural Computing and Applications
- Neural Processing Letters
- Numerical Functional Analysis and Optimization

- Numerical Mathematics: Theory, Methods, and Applications
- Optica Applicata
- Proceedings of the International Conference on Sampling Theory and Applications
- Results in Mathematics
- SCIENCE CHINA Mathematics
- SIAM Journal on Control and Optimization
- SIAM Journal on Mathematical Analysis
- SN Partial Differential Equations and Applications
- Zentralblatt MATH

Organizing Activities

- 2023.05 International Conference on Approximation Theory and Beyond, Nashville, USA
Minisymposium: Sparsity for Data Representation and Learning: Analysis, Algorithms, and Applications.
Co-Organized with Lixin SHEN (Syracuse Univ.)
- 2023.05 International Conference on Applied Mathematics (ICAM2020+ICAM2022)
City University of Hong Kong, Hong Kong.
Co-Organized with Raymond CHAN, Ya Yan LU, Junhui WANG, Roderick WONG, Ding-Xuan ZHOU
- 2022.02 Hong Kong Mathematics Education Conference 2021/22
香港數學教育會議 2021/22, CityU, Hong Kong.
Co-Organizer
- 2020.07 SIAM Conference on Imaging Sciences 2020, Toronto, Canada,
Minisymposium: Framelets, Compressed Sensing, Optimization, and Image Processing,
Co-Organized with Bin Han (University of Alberta)
- 2020.05 SIAM Conference on Mathematics of Data Science 2020, Cincinnati, Ohio, USA,
Minisymposium: Harmonic Analysis for Graph Signal Processing and Deep Learning Applications,
Co-Organized with Qiyu SUN (University of Central Florida)
- 2018.06 SIAM Conference on Imaging Sciences 2018, Bologna, Italy,
Minisymposium: Framelets, Optimization, and Image Processing,
Co-Organized with Bin Han (Univ. of Alberta), Yan-ran Li (Shenzhen Univ.), and Lixin SHEN (Syracuse Univ.)
- 2016.06 International Conference on Applied Mathematics,
City University of Hong Kong, Hong Kong.
Co-Organized with Ya Yan LU, Roderick WONG, Xiang ZHOU
- 2016.05 15th International Conference on Approximation Theory, San Antonio, USA
Minisymposium: Sparse Approximation and Mathematical Imaging
Co-Organized with Bin HAN (Univ. of Alberta), Maria Skopina (St. Petersburg State Univ.)
- 2014.12 The 5th International Conference on Scientific Computing and Partial Differential Equations,
Hong Kong Baptist University, Hong Kong
Minisymposium: Applied Harmonic Analysis and Sparse Approximation,
Co-Organized with Gitta Kutyniok (TU-Berlin)
- 2014.05 SIAM Conference on Imaging Sciences 2014, Hong Kong Baptist University, Hong Kong
Minisymposium: Directional Multiscale Representation Systems and Mathematical Imaging,
Organizer
- 2007.05 “Student Seminar” in Summer School and Workshops on Mathematical Imaging and Digital Media, National University of Singapore, Singapore.
Organizer

Invited and Plenary Talks

Plenary Speaker

2014

2014.12 International Workshop on Wavelets, Frames and Applications – II
Dec 24-30, 2014. University of Delhi, India

Invited Presentations

2023

2023.05 数据科学理论、算法与应用学术研讨会
Foshan, China

2023.05 International Conference on Approximation Theory and Beyond,
Nashville, USA

2021

2021.05 2021 Conference on Compressed Sensing, Learning Theory and Applications,
Hangzhou, China

2020

2020.01 2020 Workshop on Optimal Configuration and Related Topics,
Southwestern University of Finance and Economics, Chengdu, China

2019

2019.11 Fourth Hangzhou Workshop on Harmonic Analysis and Applications, Hangzhou, China

2019.11 2019 Seminar on Machine Learning and Compressed Sensing Theory and Its Applications
Foshan, China

2019.11 Seminar, University of Science and Technology Beijing, Beijing, China

2019.08 Wavelets and Sparsity XVIII, SPIE Optical Engineering + Applications, San Diego, USA

2019.07 Seminar, CAS, Beijing, China

2019.07 The 13th International Conference on Sampling Theory and Applications (SampTA2019)
Université de Bordeaux, Bordeaux, France

2019.07 The Signal Processing with Adaptive Sparse Structured Representations Workshop
(SPARS2019)
INP-ENSEEIH, Toulouse, France

2019.06 Seminar, HUST, Wuhan, China

2019.05 International Conference on Computational Harmonic Analysis and Statistical Learning 2019
Hohai University, Nanjing, China

2019.02 Joint Workshop on Mathematical Analysis and Applications,
City University of Hong Kong and Tel Aviv University, Hong Kong

2018

2018.12 International Workshop on Approximation Theory and Methods,
Sun Yat-sen University, Guangzhou, China

2018.11 Symposium on Applicable and Computational Analysis
Tsinghua Sanya International Mathematics Forum (TSIMF), Sanya, China

2018.08 PIMS-AMI Workshop on Applied Harmonic Analysis and Statistical Learning,
University of Alberta, Edmonton, Canada

- 2018.06 International Symposium on Computational Harmonic Analysis, Beihang University, Beijing, China
- 2018.06 Minisymposium: Framelets, Optimization, and Image Processing in SIAM Conference on Imaging Science, Bologna, Italy.
- 2018.05 7th International Conference on Computational Harmonic Analysis, Vanderbilt University, Nashville, Tennessee, USA
- 2018.05 2nd International Conference on Kernel-Based Approximation Methods, South China Normal University, Guangzhou, China
- 2018.03 Fast Algorithms for Generating Static and Dynamically Changing Point Configurations, in ICERM Semester Program on “Point Configurations in Geometry, Physics and Computer Science”, Brown University, Providence, RI, USA

2017

- 2017.12 From Approximation Theory to Real-World Applications, Tsinghua Sanya International Mathematics Forum (TSIMF), Sanya, China
- 2017.10 CityU-TAU Joint Workshop, Tel-Aviv University, Israel
- 2017.09 Workshop on Mathematics for Data Sciences, Sun Yat-sen University, Zhuhai, China
- 2017.08 Wavelets and Sparsity XVII, SPIE Optical Engineering + Applications, San Diego, USA
- 2017.06 Joint Workshop on Mathematics and Applications, Wuhan University, Wuhan, China
- 2017.06 Workshop on Computational Harmonic Analysis, NanKai University, Tianjin, China
- 2017.05 International Conference of Kernel-Based Approximation Methods in Machine Learning, South China Normal University, Guangzhou, China
- 2017.03 1st International Conference on Mathematics of Data Science, Baptist Univ., Hong Kong
- 2017.03 2nd IM-Workshop on Applied Approximation, Signals and Images, Bernried, Germany
- 2017.02 7th Workshop on High-Dimensional Approximation, University of New South Wales, Sydney, Australia

2016

- 2016.12 2016 International Conference on Some Mathematical Approximation Approaches in Data Science, Zhejiang University, Hangzhou, China
- 2016.09 Mecklenburg Workshop on Approximation Methods and Data Analysis, University of Luebeck, Germany
- 2016.06 International Conference: East Asia Section of SIAM (EASIAM 2016), University of Macau, Macau
- 2016.05 15th International Conference on Approximation Theory, San Antonio, USA
- 2016.02 IM-Workshop on Applied Approximation, Signals and Images, Bernried, Germany

2015

- 2015.12 Workshop on Image Processing and PDE, Sun Yat-sen University, Guangzhou, China
- 2015.12 First Workshop on Computational Science, Jinan University, Guangzhou, China
- 2015.09 Workshop on PDE and Harmonic Analysis, City University of Hong Kong, Hong Kong
- 2015.08 SPIE on Wavelets and Sparsity XVI, San Diego, USA

- 2015.06 International Conference “Wavelets and Applications”,
Euler International Mathematical Institute, St. Petersburg, Russia
- 2015.01 Joint Workshop of Tel-Aviv University and City University of Hong Kong,
City University of Hong Kong, Hong Kong

2014

- 2014.12 The 5th International Conference on Scientific Computing and Partial Differential Equations,
Minisymposium on Applied Harmonic Analysis and Sparse Approximation,
Hong Kong Baptist University, Hong Kong
- 2014.11 Workshop on Applied Harmonic Analysis and Approximation Theory,
Sun Yat-sen University, Guangzhou, China
- 2014.11 ICERM Research Cluster: Computational Challenges in Sparse and Redundant
Representations,
Brown University, Providence, RI, USA
- 2014.06 International Conference on Harmonic Analysis and Applications,
Nankai University, Tianjin, China
- 2014.05 5th International Conference on Computational Harmonic Analysis,
Vanderbilt University, Nashville, USA
- 2014.05 Minisymposium: Directional Multiscale Representation Systems and Mathematical Imaging,
SIAM Conference on Imaging Sciences,
Hong Kong Baptist University, Hong Kong
- 2014.04 Workshop on Applied Mathematics, City University of Hong Kong, Hong Kong
- 2014.03 Workshop on Structured Preconditioning and Iterative Methods with Applications,
TSIMF, Sanya, China

2013

- 2013.12 The 2nd Guangzhou International Workshop on Mathematical Imaging,
Sun Yat-sen University, Guangzhou, China
- 2013.08 Applied Harmonic Analysis Conference, University of Calgary, Calgary, Canada
- 2013.07 CMIV Workshop on Matrix Analysis and Applications, Hong Kong Baptist University, Hong
Kong
- 2013.06 Seminar, School of Mathematical and Computational Sciences,
Sun Yat-sen University, Guangzhou, China
- 2013.06 The Hong Kong Mathematical Society, Annual General Meeting,
City University of Hong Kong, Hong Kong
- 2013.05 International Conference on Approximation Theory and Applications,
City University of Hong Kong, Hong Kong
- 2013.04 14th International Conference in Approximation Theory, San Antonio, TX, USA
- 2013.04 Centre for Mathematical Imaging and Vision, Seminar, Hong Kong Baptist University, Hong
Kong
- 2013.03 Mathematical Analysis and its Applications Colloquium,
Liu Bie Ju Centre, City University of Hong Kong, Hong Kong

2012

- 2012.11 PIMS/AMI Seminar, University of Alberta, Canada
- 2012.10 Imaging Seminar, University of Houston, USA
- 2012.08 Joint AB/BC Seminar, UBC, Canada
- 2012.06 Learning Theory and Approximation, Oberwolfach, Germany
- 2012.04 Campus Visit, City University of Hong Kong, Hong Kong

2011

- 2011.07 International Conference on Applied Harmonic Analysis and Multiscale Computing
University of Alberta, Edmonton, Canada
- 2011.06 Poster session in From Abstract to Computational Harmonic Analysis, Strobl, Austria
- 2011.05 Oberseminar, Jacobs University, Bremen, Germany
- 2011.05 International Symposium in Approximation Theory, Vanderbilt University, USA
- 2011.05 The 9th International Conference on Sampling Theory and Applications,
Nanyang Technological University, Singapore
- 2011.03 Operator Algebras and Representation Theory: Frames, Wavelets and Fractals, Oberwolfach,
Germany
- 2011.01 Sparse Representations and Efficient Sensing of Data, Dagstuhl, Germany

2010

- 2010.10 Mini-workshop: Shearlets, Oberwolfach, Germany
- 2010.03 13th International Conference on Approximation Theory, San Antonio, USA
- 2010.01 Workshop on Optimal Frames and Operator Algebras, 2010 AMS National Meeting,
San Francisco, USA

2009

- 2009.01 Applied Mathematics Graduate Student Conference (AMGSC 2009),
Simon Fraser University, Vancouver, Canada
- 2008.06 Summer School and Workshops on Mathematical Imaging and Digital Media
National University of Singapore, Singapore
- 2008.04 Graduate Colloquium, University of Alberta, Edmonton, Canada

Other Activities

- 2019.10 Visiting Prof. Lei Shi, Fudan University, Shanghai, China
- 2019.09 Visiting Prof. Yuguang Wang, Shanghai Jiao Tong University, Shanghai, China
- 2022.09 Visiting Prof. Qi Ye, South China Normal University, Guangzhou, China
- 2022.08 Visiting Prof. Yan-Ran Li, Shenzhen University, Shenzhen, China
- 2019.11 Visiting Prof. Zhengwei Shen, University of Science and Technology Beijing, Beijing, China
- 2019.07 Visiting Prof. Le Ou-Yang, Shenzhen University, Shenzhen, China
- 2019.07 Visiting Prof. Zhiqiang Xu, CAS, Beijing, China
- 2019.07 Visiting Prof. Heping Wang, Capital Normal University, Beijing, China
- 2019.07 Visiting Prof. Yi Shen, Zhejiang Sci-Tech University, Hangzhou, China
- 2018.08 Visiting Prof. Bin Han, University of Alberta, Edmonton, Canada
- 2018.07 Visiting Xinjiang University, Xinjiang, China
- 2017.08 Visiting Prof. Bin Han, University of Alberta, Edmonton, Canada
- 2017.08 Visiting Dr. Chun-Kit Lai, San Francisco State University, San Francisco, USA
- 2017.08 Visiting Prof. Hrushikesh N. Mhaskar, Claremont Graduate University, USA
- 2017.05 Invited talk at Sun Yat-sen University, (by Prof. Yao LU), Guangzhou, China
- 2017.02 Visiting Dr. Yuguang Wang, La Trobe University, Melbourne, Australia
- 2016.08 Visiting Professor Gitta Kutyniok, Technical University of Berlin, Germany
- 2016.07 Visiting Professor Bin Han, University of Alberta, Canada
- 2015.07 Visiting Professor Bin Han, University of Alberta, Canada
- 2015.05 Visiting Professor Nira Dyn, Tel-Aviv University, Israel
- 2014.08 Visiting Professor Bin Han, University of Alberta, Canada
- 2013.06 Visiting Professor Haizhang Zhang, Sun Yat-sen University, China
- 2013.04 Visiting Professor C.K. Chui, University of Missouri, St. Louis, USA
- 2012.10 Visiting Professor B.G. Bodmann, University of Houston, TX, USA
- 2011.08 Visiting SLIM (Seismic Laboratory for Imaging and Modeling) of University of British Columbia, Vancouver, Canada
- 2011.08 Participate in Summer school on Applied Harmonic Analysis and Multiscale Computing, University of Alberta, Edmonton, Canada
- 2011.05 Participate in the 32nd Norddeutsches Kolloquium über Angewandte Analysis und Numerische Mathematik, Osnabrueck, Germany
- 2010.01 Participate in 2010 Joint Mathematics Meeting, San Francisco, USA
- 2009.05 Participate in Summer School/ Workshop on Multivariate Splines and Their Applications, University of Georgia, Athens, USA
- 2007.09 Participate in BIRS Workshop: Trends in Applied Harmonic Analysis Banff, Canada
- 2007.08 Participate in ISFMA Symposium on Wavelet Methods in Mathematical Analysis and Engineering, Zhuhai, China
- 2007.05 Participate in Western Canadian Conference for Young Researchers in Mathematics 2007, Calgary, Canada
- 2006.05 Western Canadian Conference for Young Researchers in Mathematics 2006, Edmonton, Canada

- 2008.11 Volunteer in SNAP Math Fair, University of Alberta, Edmonton
- 2008.03 Volunteer in SNAP Math Fair, University of Alberta, Edmonton
- 2002.05 Participated in the ACM College Programming Contest (ACM-CPC) of Sun Yat-Sen University, China. Got 3rd prize
- 2001.10 Passed the National Computer Software Test and got a Rank Certificate

Research Students, Assistants, and Visitors

Visitors

2013.04	Prof. Congpei AN, Southwestern University of Finance and Economics, Chengdu, China
2018.06	Prof. Congpei AN, Jinan University, Guangzhou, China
2018.05	Prof. H.N.Mhaskar, Claremont University, USA
2018.05	Prof. Bin Han, University of Alberta, Canada
2018.01	Prof. Congpei AN, Jinan University, Guangzhou, China
2017.07	Prof. Congpei AN, Jinan University, Guangzhou, China
2017.05	Prof. Bin Han, University of Alberta, Canada
2017.05	Prof. H.N.Mhaskar, Claremont University, USA
2016.07	Prof. Nira Dyn, Tel-Aviv Univ., Israel
2016.07	Prof. Chaoqiang Tan, Shantou Univ., China
2016.05	Prof. H.N.Mhaskar, Claremont University, USA
2016.05	Prof. Bin Han, University of Alberta, Canada
2016.02-2016.04	Prof. Congpei AN, Jinan University, Guangzhou, China
2016.01	Prof. Chaoqiang Tan, Shantou Univ., China
2015.02	Prof. Chaoqiang Tan, Shantou Univ., China
2014.12	Prof. Philipp Grohs, ETH Zurich, Switzerland.
2014.12	Prof. Bin Han, University of Alberta, Canada
2014.07	Prof. Chaoqiang Tan, Shantou Univ., China
2014.01	Prof. Chaoqiang Tan, Shantou Univ., China
2013.06	Prof. Chaoqiang Tan, Shantou Univ., China
2013.05	Prof. Bin Han, University of Alberta, Canada

RAs and Post-docs

2019.10-2020.08	Yuchen XIAO
2019.07-2019.08	Chao SHI
2016.04-2016.10	Yun CHEN (PhD: Sun Yat-sen University)
2015.11-2016.08	Yu Guang WANG (PhD: The University of New South Wales (UNSW))

Ph.D. Students

2021.09-	Ruigang ZHENG
2020.09-	Yuchen XIAO
2020.09-	Jianfei LI (Co-Supervisor Dr. Han FENG)
2019.09-	Shuqi CHEN (Co-Supervisor with Prof. Daniel W C HO)
2021.10-2022.08	Bo XIAO (Co-Supervisor with Dr. Xiang ZHOU)
2015.09-2018.08	Zhihua CHE

M.Sc Project Students

2022.09-2023.05	Quanhan LI
2018.09-2019.05	Chao SHI

B.Sc Final Year Project Students

2022.09-2023.05	Zirui Zhang
2021.09-2023.05	Zhuoya XU
2020.09-2021.05	Baoli HAO
2019.09-2020.05	Qingyuan ZHANG
2018.09-2019.05	Lijia CHE; Haozhen BO
2016.09-2017.05	Xinrui TAN
2013.09-2014.05	Ka Wing HO

Research Undergraduate Students

2023.06-2023.08	Trung Hai, LE
2023.01-2023.06	Vojin RADOVANOVIC (CIS)
2023.02-2023.05	Yonghao YU, Harsh Lalwani
2021.06-2021.12	Muhammad Usman FAROOQ (CIS)
2021.06-2021.08	Songlin JIN (UBC: Summer Exchange Intern Student)
2020.09-2021.05	Zian CHEN (CIS)
2020.12-2020.03	Kan Wong YIM Kent (CARLS)
2020.09-2021.05	Anupam PANI (CIS)
2020.02-2020.06	Baoli HAO (CIS)
2018.09-2019.05	Xilin ZHANG (CIS)
2018.07-2018.08	Jiamin WU, Chuxiao Feng (CIS)
2017.10-2017.12	Hao Zhang, Wenxuan DAN (CIS)
2017.06-2017.08	Zhen ZHANG, Hao ZHANG (CIS)