Name: Jianzhong Wang   Title: Professor
                                 Mathematics and Statistics
College of Sciences

Degrees Earned

Bachelor Degree, (1967) Peking University, China

Master Degree, (1981) Zhejiang University, China

Ph.D. Degree (equiv.), (1984) Wuhan University, China

Peer-Review Publications and Artistic Performances/Exhibitions

Articles and Books Chapters Proceedings Artistic Performances Artistic Exhibitions

More than 70 papers have been published. A list of selected papers:

1.   C. K. Chui and J.Z. Wang, Dimensionality Reduction of Hyper Spectral Imagery Data for Feature Classification, in "Handbook of Geomathematics", W. Freeden, Z. Nashed and T. Sonar eds. Springer, Berlin, 2010.
2.   C. K. Chui and J.Z. Wang, Randomized Anisotropic Transform for Nonlinear Dimensionality Reduction, *International Journal on Geomathematics*, **1**(1) (2010) 23-50.
3.   J. Z. Wang, Construction of Local Nonlinear Filter without Staircase Effect in Image Restoration, *Applicable Analysis,* Sept. 2010
4.   C. K. Chui and J.Z. Wang, PDE models associate with the bilateral filter, *Advances in Computational Mathematics*, **31** (2009) 131-156.
5.   C. K. Chui and J.Z. Wang, Methods and algorithms for dimensionality reduction of HSI data, *The 2nd Workshop on Advancing the Automation of Image Analysis, AAIA Workshop II*, UCLA, Los Angles, July, 29-31, 2008.
6.   Jinazhong Wang, Wavelet approach to numerical differentiation of noisy functions, *Communications on Pure and Applied Analysis*, Vol. 6, No. 3, (2007) 873-897.
7.   Charles Chui and Jianzhong Wang, Wavelet-Based Minimal-Energy Approach to Image Restoration*, Applied and Computational Harmonic Analysis* Vol. 23 (2007) 114–130.
8.   Jianzhong Wang, Interpolating cubic spline wavelet packet on arbitrary partitions, *J. of Comput. Anal. And Appl.* **5** (2003) 179-193.
9.   C. K. Chui and Jianzhong Wang, Shannon wavelet approach to sub-band coding, *International Journal of Wavelets, Multiresolution and Information Processing,* **1** (2003) 233-242.
10.   R-Q. Jia, Jianzhong Wang, and D-X Zhou, Compactly supported wavelet bases for Sobolev spaces, *Applied and Computational Harmonic Analysis* 1**5** (2003) 224-241.

11.   Jianzhong Wang, Spline Wavelets in Numerical resolution of Partial Differential Equations, in *Wavelet Analysis and Applications* D.Deng, D. Huang, R-Q. Jia, W. Lin, and J. Wang (eds.) **Vol 25** of AMS/IP Studies in Advanced Mathematics, S. T. Yau, Series Editor, International Press, (2002) 257-277.

12.   Jianzhong Wang, A necessary and sufficient condition for a perfect filter bank, *SPIE Proceedings*, **Vol. 3813** (1999) 682--690.

13.   D. Ruch and W. So and Jianzhong Wang, Global support of a scaling vector, *Applied and Computational Harmonic Analysis* **5** (1998), 493--498.

14.   Jianzhong Wang, Stability and linear independence associated with scaling vectors, *SIAM Mathematical Analysis* **29** (1998), 1140--1156.

15.   D. Eubank, P. Van Fleet and Jianzhong Wang, Moment computation in invariant spaces, *Journal of Applied Mathematics and Stochastic Analysis* **11** (1998), 465--479.

16.   C. K. Chui and Jianzhong Wang, A study of asymptotically optimal time-frequency windows of scaling functions and wavelets, *Annals of Numerical Mathematics* **4** (1997), 193--216.

17.   W. So and Jianzhong Wang, Estimating the support of a scaling vector, *SIAM J. Matrix Analysis and Applications* **18** (1997), 66--73.

18.   W. Cai and Jianzhong Wang, Adaptive multiresolution collocation methods for initial boundary value problems of nonlinear PDE's, *SIAM Journal of Numerical Analysis* **33** (1996), 937--970.

19.   Jianzhong Wang, Cubic spline wavelet bases for Sobolev space and multilevel interpolation, *Applied and Computational Harmonic Analysis* **3** (1996), 154--163.

20.   C. K. Chui and Jianzhong Wang, High order orthonormal scaling functions and wavelets give poor time-frequency localization, *Fourier analysis and applications* **2** (1996), 415--426.

21.   Jianzhong Wang, On solutions of two-scale difference equations, *Chinese Ann. Math.* (*Series B*) **15** (1994), 23--34.

22.   C. K. Chui and Jianzhong Wang, Quasi-interpolation functional on the space of EP splines, *J. Approx. Theory* **76** (1994), 303--325.

23.   Rong-Qing Jia and Jianzhong Wang, Stability and linear independence associated with wavelet decompositions, *Proc. Amer. Math. Soc* **117** (1993), 1115--1124.

24.   C. K. Chui and Jianzhong Wang, An analysis of cardinal-spline wavelets, *J. Approx. Theory* **72** (1993), 54—68.

25.   C. K. Chui and Jianzhong Wang, A general framework of compactly supported splines and wavelets, *J. Approx. Theory* **71** (1992), 263--304.

26.   C. K. Chui and Jianzhong Wang, On compactly supported spline wavelets and a duality principle, *Trans. Amer. Math. Soc.* **330** (1992), 903--916.

27.   C. K. Chui and Jianzhong Wang, A cardinal spline approach to wavelets, *Proc. Amer. Math. Soc*. **113** (1991), 785—793.

28.   Jianzhong Wang, Wavelet theory and its application to engineering and physics, Math. Advance **2** (1991)

29. Jianzhong Wang, Approximation of Cauchy principal value integral by cubic spline, *Acta. Math. Scientia* **1** (1991)
30. Jianzhong Wang, Riemann problem with infinite many numbers of discontinuous points on real axis, *Acta. Math. Scientia* **1** (1988)
31. Jianzhong Wang, On Cauchy principal value integral in case of kernel with infinite many numbers of discontinuous points, *Acta. Math. Scientia* **3** (1987)
32. Jianzhong Wang, On multivariate splines interpolations, *Chinese Ann. Math.* (*Series A*) **2** (1986)
33. Jianzhong Wang, On coefficients of expansion in bivariate box splines, *Chinese Ann. Math.* **2** (1986)
34. Jianzhong Wang, Representations of box splines by truncated powers, *Math. Numer. Sinica* **1** (1985)
35. D. Huang and Jianzhong Wang, Inequality of Kolmogorov type bearing on self-conjugate differential operators, *Acta. Math. Sinica* **26** (1983)
36. Jianzhong Wang, On optimal error bounds for interpolating splines, *Scientia Sinica* (*Series A*) **25** (1982)

Research Monographs and Technical Reports Funded External Grants
   Research Monograph: Geometric Structure of High-Dimensional Data and Dimensionality Reduction, High-Education Press, China/Springer (2011)
   Aug. 2007 - July 2010. Principal investigator of NSF Grant *Project title*: RUI: Adaptive Kernels for Partial Differential Equation Models in Image Processing: Constructions and Algorithms.
   Aug. 1995 - July 1997. **Principal investigator of NSF Grant** *Project title*: Wavelets based on several scaling functions and related applications.
   Apr. 2006 – Mar. 2007. Principal investigator of SHSU Enhancement Grant for Research *Project title*: On Data-Dependent Multi-Layer Structure of High-Dimensional Data.
   Apr. 2003 – Mar. 2004. **Principal investigator of SHSU Enhancement Grant for Research.** *Project title*: Numerical Implementation of Wavelet-Type Adaptive Methods for One-Dimensional Nonlinear Initial-Boundary Valued Problems.
   Nov. 1998 - Aug. 1999. Principal investigator of SHSU Enhancement Research Grant. *Project title*: An adaptive multi-level wavelet interpolation scheme and its application in solving nonlinear anisotropic diffusion equations.
   Nov. 1998 - Aug. 1999. Research member of TRIES. *Project title*: Object detection Module.
   Aug. 1983 – July 1992. Seven grants obtained from the Chinese National Science Foundation and Chinese National High Education Research Foundation.

Peer-Review Presentations/Posters

Work or Professional Experiences

08/2003 – current: Professor**,** Department of Mathematics and Statistics, Sam Houston State University

08/1994 - 08/2003 Assistant and Associate Professor, Department of Mathematics and Statistics, Sam Houston State University   **08/1993 - 08/1994:** Visiting Professor, Department of Mathematics, University of North Carolina at Charlotte   **11/1992 - 08/1993 & 09/1989 - 01/1991:** Visiting researcher, Department of Mathematics, Texas A&M University

10/1988 – 08/1989: Visiting professor, Department of Mathematics, Ohio State University, Columbus, Ohio

   02/1984 - 08/1994: Full Professor/Associate Chair, Department of Mathematics, Wuhan University, China

Honors and Awards

The 2007 Excellence in Research Award for Sam Houston State University, 2007.

The awards of Highly-Rank Researches at Wuhan University, 1992, 1985, and 1986

The awards of Outstanding Research in Hubei Province and Wuhan City, 1985, 1986, 1987, 1988, 1989, and 1991.

Awards of "Advanced Research in Science and Technology", Chinese National Education Committee, 1992

Other Competencies
1. Associate-editor of the International Journal of Applicable Analysis (2010 – current)
2. Chief-editor of special issue "Wavelet Applications in Numerical PDEs and Mathematical Image Processing" on the Journal of Applicable Analysis (2008 – 2010)
3. Editor of *Far-East Journal of Mathematics* (2006-current)
4. Editor of *Journal of Wavelet Theory and Applications* (2006-current)
5. Editorial Board of *Applied and Computational Harmonic Analysis* (1993-1999)
6. Editor of the proceedings of *Wavelet Analysis and Applications* (with D. Deng, D. Huang, R-Q. Jia, W. Lin) **25** of AMS/IP Studies in Advanced Mathematics, S. T. Yau, Series Editor, International Press. (2002)