YUGUANG WANG

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Research Interests

Applied Harmonic Analysis, Computational Statistics, Machine Learning, Approximation Theory

Positions

Adjunct Associate Lecturer, The University of New South Wales, Feb. 2017 – present

Research Officer in Statistics, La Trobe University, Sep. 2016 – present

Postdoctoral Fellow in Applied Mathematics, City University of Hong Kong, Nov. 2015 – Aug. 2016

Research Assistant in Applied Mathematics, The University of New South Wales, Apr. 2015 – Nov. 2015

Education

Ph.D. in Applied Mathematics, The University of New South Wales, Australia, Aug. 2011 – Jun. 2015

Supervisors: Professors I. H. Sloan, R. S. Womersly and M. G. Cowling

Thesis: *Filtered polynomial approximation on the sphere*

M.S. in Applied Mathematics, China Jiliang University, Sep. 2008 – Jun. 2011

B.S. in Mathematics, China Jiliang University, Sep. 2004 – Jun. 2008

Book Chapters

[1] Y. G. Wang, H. Zhu (2017). Analysis of Framelet Transforms on a Simplex. Accepted in *Festschrift for the 80th Birthday of Ian Sloan.* Editors: Josef Dick, Frances Y Kuo, Henryk Wozniakowski, Publisher: Springer.

Published Papers

[2] V. V. Anh, P. Broadbridge, A. Olenko, Y. G. Wang (2017). On Approximation of Fractional Stochastic Partial Differential Equations on the Sphere. Accepted in *Stochastic Environmental Research and Risk Assessment.*

[3] Y. G. Wang, Q. T. Le Gia, I. H. Sloan, R. S. Womersley (2017). Fully Discrete Needlet Approximation on the Sphere. *Applied and Computational Harmonic Analysis*, **43**, 292–316.

[4] Q. T. Le Gia, I. H. Sloan, Y. G. Wang, R. S. Womersley (2017). Needlet Approximation for Isotropic Random Fields on the Sphere. *Journal of Approximation Theory*, **126**, 86–116.

[5] J. S. Brauchart, E. B. Saff, I. H. Sloan, Y. G. Wang, R. S. Womersley (2016). Random Point Sets on the Sphere — Hole Radii, Covering, and Separation. *Experimental Mathematics*, Available online 04 Oct. 2016, pages 1–20.

[6] Y. G. Wang, I. H. Sloan, R. S. Womersley (2016). Riemann Localisation on the Sphere. *Journal of Fourier Analysis and Applications*, Available online 01 Aug. 2016, pages 1–43.

[7] Y. G. Wang (2016). Filtered Polynomial Approximation on the Sphere. *Bulletin of the Australian Mathematical Society*, **93**(01), 162–163.

[8] F. Cao, D. Wang, H. Zhu, Y. G. Wang (2016). An Iterative Learning Algorithm for Feedforward Neural Networks with Random Weights. *Information Sciences*, **328**, 546–557.

[9] J. S. Brauchart, J. Dick, E. B. Saff, I. H. Sloan, Y. G. Wang, R. S. Womersley (2015). Covering of Spheres by Spherical Caps and Worst-case Error for Equal Weight Cubature in Sobolev Spaces. *Journal of Mathematical Analysis and Applications*, **431**(2), 782–811.

[10] Y. G. Wang, F. Cao (2014). Approximation by Semigroup of Spherical Operators. *Frontiers of Mathematics in China*, **9**(2), 387–416.

[11] Z. Chen, H. Zhu, Y. G. Wang (2013). A Modified Extreme Learning Machine with Sigmoidal Activation Functions. *Neural Computing and Applications*, **22**(3-4), 541–550.

[12] Y. Yuan, Y. G. Wang, F. Cao (2011). Optimization Approximation Solution for Regression Problem Based on Extreme Learning Machine. *Neurocomputing*, **74**(16), 2475–2482.

[13] Y. G. Wang, Y. Yuan, F. Cao (2011). A Study on Effectiveness of Extreme Learning Machine. *Neurocomputing*, **74**(16), 2483–2490.

[14] Y. G. Wang, F. Cao (2011). Approximation by Boolean Sums of Jackson Operators on the Sphere. *Journal of Computational Analysis and Applications*, **13**(5), 830–842.

[15] Y. G. Wang, F. Cao (2009). The Direct and Converse Inequalities for Jackson-type Operators on Spherical Cap. *Journal of Inequalities and Applications*, **2009**:205298.

Submitted Papers

[16] Y. G. Wang, X. Zhuang (2017). Tight Framelets and Fast Framelet Filter Bank Transforms on Manifolds. *arXiv:1608.04026 [math.CA].*

Conference Talks

Workshop on Big Data Analysis: a small workshop on big data, Melbourne, Apr. 2017.

7th Workshop on High Dimensional Approximation, Sydney, Feb. 2017.

ANZIAM-ZPAMS, Hangzhou, Nov. 2016.

12th MCQMC Conference, Stanford, Aug. 2016.

International Conference on Applied Mathematics, Hong Kong, May 2016.

15th International Conference on Approximation Theory, San Antonio, May 2016.

59th Annual Meeting of the Australian Mathematical Society, Adelaide, Sep. 2015.

8th International Congress on Industrial and Applied Mathematics (ICIAM), Beijing, Aug. 2015.

8th Australia New Zealand Mathematics Convention, Melbourne, Dec. 2014.

ESI Programme on "Minimal Energy Point Sets, Lattices, and Designs", Vienna, Oct. 2014.

School Postgraduate Conference, UNSW Australia, Sydney, Oct. 2014.

Constructive Functions 2014, Nashville, May 2014.

Annual Conference of Australia and New Zealand Industries and Applied Mathematics (ANZIAM), Rotorua, Feb. 2014.

57th Annual Meeting of the Australian Mathematical Society, Sydney, Sep. 2013.

56th Annual Meeting of the Australian Mathematical Society, Ballarat, Sep. 2012.

Annual Conference of Australia and New Zealand Industries and Applied Mathematics (ANZIAM), Warrnambool, Jan. 2012.

Awards

2011–2015, University International Postgraduate Award (UIPA), UNSW Australia.

2009–2010, Excellent Postgraduate Scholarship, China Jiliang University, China.

2004–2008, Excellent Undergraduate Scholarship, China Jiliang University, China.

Professional Activities

In Organizing Committee for *Workshop on Big Data Analysis: a small workshop on big data* in Melbourne, Apr. 2017.

Review for *Analysis and Applications*; *Electronic Journal of Statistics*; *International Journal of Wavelets, Multiresolution and Information Processing*; *Mathematical Methods in the Applied Sciences*; *Neural Networks*; *Neural Computing and Applications*; *IEEE Transactions on Pattern Analysis and Machine Intelligence*.

Membership

ACM, ANZIAM, AustMS, SIAM

Programming

Matlab, Python, R for computers and clusters