Biographical Sketch for MLADEN VICTOR WICKERHAUSER

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1 Education

BS (Mathematics, with honor) 1980, California Institute of Technology, Pasadena, California.
MS (Mathematics) 1982, Yale University, New Haven, Connecticut.
PhD (Mathematics) 1985, Yale University. *Advisor:* Professor Ronald R. Coifman.

2 Coauthors and Collaborators

K. Agyem, C. D'Alessandro, P. Andersen, J.M. Arbeit, P. Auscher, R. Bouguerra, R.R. Coifman, J. Corbett, E. Cubillo, W.K. Czaja, J.O. Deasy, X. Fang, M. Farge, N.L.B. Freeman, R.W. Fuhrhop B.K. Ghosh, E. Gootman, E. Goirand, F. Heurtaux, N. Hess-Nielsen, M.S. Hughes, A.R. Kahkoska, M. Kong, G.M. Lanza, J.-P. Leduc, F. Majid, J.N. Marsh, B. Maurizi, J.E. McCarthy, Y. Meyer, H.F. Mikkelsen, R. Muthukkumar, P.F. Odgaard, F. Pascal, T. Phillipovitch, M. Picard, F. Planchon, S. Quake, D. Rochberg, H. Šikić, J. Smith, J. Stoustrup, K.R. Sreenivasan, E. Theumann–Wesfreid, L. Thomas, A. Trgo, K. Ukrainčik, A. Vassiliou, E. Vidal, K.D. Wallace, R.S. Weinstock, G. Weiss, S.A. Wickline, W. Zhu, L. Zubair.

3 Synergistic Activities

1,2. U.S. Patents Nos. 5,384,725 and 5,526,299, *Method and Apparatus for Encoding and Decoding Using Wavelet-Packets*, (with R. Coifman and Y. Meyer), issued 24 January 1995 and 11 June 1996.

3. U.S. Patent No. 6,792,073, *A Method and Apparatus for Radiotherapy Treatment Planning*, (with Joseph O. Deasy), issued 14 September 2004.

4,5. U.S. Patents Nos. 7,054,454 and 7,333,619, *Fast Wavelet Estimation of Weak Bio-signals Using Novel Algorithms for Generating Multiple Additional Data Frames*, (with Elvir Causevic and Eldar Causevic), issued 30 May 2006 and 19 February 2008.

6. U.S. Patent No. 8,500,644, *Applying Renyi Entropy to Detect Changes in Scattering Architecture*, (with M. S. Hughes, J. McCarthy, G. Lanza, and S. Wickline), issued 6 August 2013.

7. Associate Editor of the *International Journal on Wavelets and Multiresolution Processing* since 2002.

8. Advisory Board member, Birkhäuser *Applied Harmonic Analysis* book series since 1996.

9. Associate Editor of the *Glasnik Matematički* since 1995.

10. Associate Editor of the *Journal of Fourier Analysis and Applications* since 1994.

11. Software Editor; Member of the Editorial Advisory Board of the *Journal of Applied and Computational Harmonic Analysis* since 1993.

12. *Thesis advisees:* S. Tourville (PhD 1997), M. Nielsen (PhD 1999), W. Czaja (PhD 2000), P. Odgaard (2004), Yao Xie (2014), D. Meyer (PhD 2015).
13. *Mathematics for Multimedia*, an undergraduate course introduced in 1997. Its textbook and software are published by Birkhäuser/Springer Verlag, ISBN 978-0-8176-4879-4, (2009).
14. *Introducing Financial Mathematics*, an undergraduate course introduced in 2019. Its textbook and software are published by Chapman and Hall/CRC Press, ISBN 978-1-0323-5985-4, (2023).

4 Most Recent Grants and Awards

1. Wavelet Pioneer Award, Society of Photo-Optical Instrumentation Engineers, 4 April 2002.
2. NSF Grant DMS-0072234, "Adapted Wavelet Algorithms," 1 July 2000 to 30 June 2004.

5 Ten Recent and Relevant Publications

[1] Nikki L. B. Freeman, Rashmi Muthukkumar, Ruth S. Weinstock, M. Victor Wickerhauser, and Anna R. Kahkoska. Use of machine learning to identify characteristics associated with severe hypoglycemia in older adults with type 1 diabetes: a post-hoc analysis of a case–control study. *BMJ Open Diabetes Research and Care*, 12(1):1–9, 2024.

[2] Michael Hughes, Jon N. Marsh, John E. McCarthy, Mladen Victor Wickerhauser, Brian Maurizi, Kirk D. Wallace, Gregory M. Lanza, and Samuel A. Wickline. Improved signal processing to detect cancer by ultrasonic molecular imaging of targeted nanoparticles. *Journal of the Acoustical Society of America*, 129(6):3756–3767, June 2011.

[3] Michael S. Hughes, John E. McCarthy, M. Victor Wickerhauser, Jon N. Marsh, Jeffery M. Arbeit, Ralph W. Fuhrhop, Kirk D. Wallace, Lewis Thomas, James Smith, Kwesi Agyem, Gregory M. Lanza, and Samuel A. Wickline. Real-time calculation of a limiting form of the Rényi entropy applied to detection of subtle changes in scattering architecture. *Journal of the Acoustical Society of America*, 126(5):2350–2358, November 2009.

[4] P. F. Odgaard, J. Stoustrup, P. Andersen, M. V. Wickerhauser, and Henrik Fløe Mikkelsen. Feature based handling of surface faults in compact disc players. *Control Engineering Practice*, 14(12):1495–1509, December 2006.

[5] I. El Naqa, I. Kawrakow, M. Fippel, J. V. Siebers, P. E. Lindsay, M. V. Wickerhauser, M. Vicic, K. Zakarian, N. Kauffmann, and J. O. Deasy. A comparison of Monte Carlo dose calculation denoising techniques. *Physics in Medicine and Biology*, 50:909–922, 2005.

[6] E. Čaušević, R. E. Morley, M. V. Wickerhauser, and A. E. Jacquin. Fast wavelet estimation of weak biosignals. *IEEE Transactions on Biomedical Engineering*, 52(6):19, June 2005.

[7] W. K. Czaja and M. V. Wickerhauser. Singularity detection in images using dual local autocovariance. *Applied and Computational Harmonic Analysis*, 13(1):77–88, July 2002.

[8] J. O. Deasy, M. V. Wickerhauser, and M. Picard. Accelerating Monte Carlo simulations of radiation therapy dose distributions using wavelet threshold de-noising. *Medical Physics*, 29(10):2366–2373, 2002.

[9] M. V. Wickerhauser. Large-rank approximate principal component analysis with wavelets for signal feature discrimination and the inversion of complicated maps. *J. Chem. Info. Computer Sci.*, 34(5):1036–1046, Sep/Oct 1994.

[10] Ronald R. Coifman and Mladen Victor Wickerhauser. Entropy based algorithms for best basis selection. *IEEE Transactions on Information Theory*, 32:712–718, March 1992.