

François G. Meyer

Professor of Electrical Engineering and Applied Mathematics (by courtesy)

UNIVERSITY OF COLORADO AT BOULDER

Boulder, CO 80309

Phone: (303) 492-5470

Fax: (303) 492-2758

Citizenship: U.S.

E-mail: fmeyer@colorado.edu

<http://ece.colorado.edu/~fmeyer>

EDUCATION

INSTITUTION AND LOCATION	DEGREE	YEAR	FIELD OF STUDY
INRIA (UNIVERSITY OF RENNES I), FRANCE	Ph.D.	1993	Electrical Engineering
ENSIMAG, GRENOBLE, FRANCE	M.S. (magna cum laude)	1987	Applied Mathematics and Computer Science

RESEARCH INTERESTS

My work is concentrated around the problem of constructing low-dimensional representations of high-dimensional datasets, and the analysis of large graphs and their applications to the modeling of complex dynamical systems.

HONORS AND AWARDS

2017	<i>Jean d'Alembert</i> Fellowship to work at INRIA Paris-Saclay and NeuroSpin. The fellowship includes a net monthly salary of €3,300, for a period of six months. This French fellowship is similar to a German Humboldt Research Award.
2017	Fellowship from the Deutsche Forschungsgemeinschaft (German Research Foundation) during the program on "Compressed Sensing in Information Processing" at the Technische Universität Berlin, March 2017.
2016	Holland Teaching Excellence Award in Electrical and Computer Engineering, University of Colorado at Boulder.
2013	Holland Teaching Excellence Award in Electrical and Computer Engineering, University of Colorado at Boulder.
2010	Holland Teaching Excellence Award in Electrical and Computer Engineering, University of Colorado at Boulder.
Spring 2007	Senior Fellow of the <i>Institute for Pure and Applied Mathematics, UCLA</i> , program on "Random Shapes".
Spring 2007	Visiting Fellow of the <i>Isaac Newton Institute for Mathematical Sciences, Cambridge</i> , program on "Highly Oscillatory Problems, Computation, Theory and Applications".
Fall 2004	Senior Fellow of the <i>Institute for Pure and Applied Mathematics, UCLA</i> , program on "Multiscale Geometry and Analysis in High Dimensions".

- 2005 Invited Speaker, Symposium on the “Interpretation of the Surface Electromyogram”, American College of Sports Medicine, 2005 Annual Meeting, *Nashville*, June 2005.
- 2000 Invited Professor, International Ph.D. School, “*Mathematical Problems in Image Processing*”, *International Center for Theoretical Physics, Trieste, Italy*, September, 2000.
- 1998 Invited Professor, International Ph.D. School, “*Mathematical Questions in Signal and Image Processing*”, *Institute Henri Poincaré, Paris, France*, Sept- Dec.1998.
- 1992 Nominated for the Best Industry-Related Paper Award presented at the *11th IAPR International Conference on Pattern Recognition, ICPR’92*, The Hague, The Netherlands, Aug. 30 - Sept. 3, 1992.
- 1993- Sigma Xi, the Honorary Research Society.
- 1990-1993 French National Science Foundation Graduate Research Fellowship, 1990 -1993.

EMPLOYMENT

- 7/17-9/18 *University of Colorado at Boulder, Department of Electrical Engineering
Department Chair*
- spring 2017 *INRIA Paris-Saclay and NeuroSpin, Saclay, France.
Visiting Professor*
- 6/13-present *University of Colorado at Boulder, Department of Electrical Engineering
Professor*
- 04/15-present *University of Colorado at Boulder, Department of Applied Mathematics
Professor, by courtesy.*
- spring 2014 *Institute for Computational and Experimental Research in Mathematics, Brown University,
Visiting Scholar*
- 8/05-5/13 *University of Colorado at Boulder, Department of Electrical Engineering
Associate Professor*
- 9/06-9/07 *Princeton University, Center for the Study of Brain, Mind and Behavior,
Program in Applied and Computational Mathematics.
Visiting Research Scholar.*
- 8/99-7/05 *University of Colorado at Boulder, Department of Electrical Engineering
Assistant Professor*
- 6/97-8/99 *Yale University, Dept. of Diagnostic Radiology and Dept. of Computer Science
Assistant Professor.*
- 8/93-6/97 *Yale University, Dept. of Diagnostic Radiology and Dept. of Mathematics
Associate Research Scientist (7/95-6/97), Postdoctoral Associate (8/93-7/95).*

- 10/90-8/93 *INRIA, Imaging and Computer Vision group, Rennes, France.*
Research and Teaching Assistant. Ph.D. Advisor : Dr. Patrick Bouthemy, INRIA.
- 9/89-10/90 *Alcatel, Software Division, Paris, France.*
Software Engineer.
- 8/88-9/89 *Institute Gustave Roussy (largest European Cancer Institute), Radiotherapy, Villejuif, France,*
Research Engineer.
- 9/87-8/88 *French Nuclear Energy Agency, Thermonuclear Fusion Research Department, France.*
Research Engineer, (Military Service).
- 1/87-6/87 *LETI, Computer Tomography Research Department, Grenoble, France.*
Research Assistant.

PUBLICATIONS

MANUSCRIPTS SUBMITTED TO JOURNALS AND JOURNAL-EQUIVALENT CONFERENCE PROCEEDINGS

- [2] Wills P. and Meyer F.G. “Detecting Topological Changes in Dynamic Community Networks” *Submitted for publication to Computational Statistics and Data Analysis*, <https://arxiv.org/abs/1707.07362>.
- [1] Moehlman T.M., Markwald R.R., Chinoy E.D., Kaslovsky D.N., Meyer F.G., Melanson E.L., and Wright, K.P. “Regional Differences and Broad Band EEG Activity During Insufficient Sleep”, 22 pages, *submitted to SLEEP*, 2016.

MANUSCRIPTS TO BE SUBMITTED TO PEER-REVIEWED JOURNALS

- [1] Wills P. and Meyer F.G., “Metrics for Graph Comparison: A Practitioner’s Guide” to be submitted.

PEER-REVIEWED TEXTBOOK

- [1] Bose T. and Meyer F.G. contributing Chapter 10 (Image Processing Fundamentals, 71 pages), *Digital Signal and Image Processing*, Wiley, 2004.

EDITED BOOK

- [1] Petrosian A. and Meyer F.G.(Editors). *Wavelets in Signal and Image Analysis, From Theory to Practice*, Kluwer Academic Publishers, 2001.

PEER-REVIEWED BOOK CHAPTERS

- [4] Meyer F.G.. “Signal Data Mining from Wearable Systems”, in *Wearable Electronic Systems*, A. Bonfiglio and D. De Rossi Editors, Chapter 6, (26 pages), Springer Verlag, 2010.
- [3] Meyer F.G., Coifman R.R., “Brushlets : steerable wavelet packets,” in *Beyond Wavelets*, Welland G. (Editor), pp. 61-105, Academic Press, 2003.
- [2] Meyer F.G., “Hierarchical compression transforms including wavelets,” in *Encyclopedia of Optical Engineering*, (R.B. Johnson and R.G. Driggers editors), pp. 279-295, Marcel Dekker, 2003.
- [1] Meyer F.G., Averbuch A., Coifman R.R., “Multi-layered image representation: application to image compression”, *Wavelets in Signal and Image Analysis*, pp. 281-304, Kluwer Academic Publishers, 2001.

- [44] Dane Taylor, Juan G. Restrepo, and Meyer F.G., “Ensemble-based estimates of eigenvector error for empirical covariance matrices”, *Information and Inference: A Journal of the IMA*, July 2018, <https://academic.oup.com/imaiai/advance-article/doi/10.1093/imaiai/iyay010/5047951>.
- [43] Nathan D. Monnig and Meyer F.G., “The resistance perturbation distance: A metric for the analysis of dynamic networks”, *Discrete Applied Mathematics*, vol 236 pp 347– 386, 2018 <http://www.sciencedirect.com/science/article/pii/S0166218X17304626>
- [42] Feeney, D.F., Meyer F.G., Noone, N., and Enoka, R. M., “A latent low-dimensional common input drives a pool of motor neurons: a probabilistic latent state-space model”, *Journal of Neurophysiology*, Vol 118 (4), pp 2238–2250, 2017, <https://doi.org/10.1152/jn.00274.2017>
- [41] Meyer F.G., Benison, A.M., Smith Z., and Barth, D.S., “Decoding Epileptogenesis in a Reduced State Space”, to appear in *Proc. IEEE International Conference on Machine Learning and Applications*, Anaheim, CA, December 2016, [Acceptance rate: 24%] <http://arxiv.org/abs/1701.07243>.
- [40] Brutz, M. and Meyer F.G., “A flexible multiscale approach to overlapping community detection”, *Social Network Analysis and Mining*, pp 5:23, Dec. 2015. <http://dx.doi.org/10.1007/s13278-015-0259-z>.
- [39] Chinoy E.D., Frey D.J., Kaslovsky D.N., Meyer F.G., and Wright K.P., “Age-Related Changes in Slow Wave Activity Rise Time and NREM Sleep EEG With and Without Zolpidem in Healthy Young and Older Adults”, *Sleep Medicine*, vol 15(9), pp 1037–1045, 2014, <http://dx.doi.org/10.1016/j.sleep.2014.05.007>
- [38] Kaslovsky D.N., and Meyer F.G., “Non-Asymptotic Analysis of Tangent Space Perturbation”, *Information and Inference: A Journal of the IMA*, 3 (2), pp 134–187, 2014, <http://dx.doi.org/10.1093/imaiai/iau004>.
- [37] Monnig N., Fornberg B., Meyer F.G., “Inverting Non-Linear Dimensionality Reduction with Scale-Free Radial Basis Interpolation”, *Applied and Computational Harmonic Analysis*, 37(1), pp 162-170, 2014, <http://dx.doi.org/10.1016/j.acha.2013.10.004>.
- [36] Meyer F.G., and Shen X., “Perturbation of the Eigenvectors of the Graph Laplacian: Application to Image Denoising”; *Applied and Computational Harmonic Analysis*, 36(2), pp 326–334, 2014, <http://dx.doi.org/10.1016/j.acha.2013.06.004>
- [35] K.M. Taylor and F.G. Meyer, “A random walk on image patches”, *SIAM Journal on Imaging Sciences*, 5(2), pp 688-725, 2012, <http://dx.doi.org/10.1137/110839370>.
- [34] KM Taylor, MJ Procopio CJ Young and F.G. Meyer, “Estimation of arrival times from seismic waves: a manifold-based approach”, *Geophysical Journal International*, 185 (1), pp 435–452, 2011, <http://dx.doi.org/10.1111/j.1365-246X.2011.04947.x>.
- [33] Ramirez J., Meyer F.G., “Machine Learning for Seismic Signal Processing: Seismic Phase Classification on a Manifold”, in *Proc. IEEE International Conference on Machine Learning and Applications*, pp 382-388, 2011. [Acceptance rate: 27%]
- [32] S.M. Flaxman, Y. Lou and F.G. Meyer, “Evolutionary ecology of movement by predators and prey”, *Theoretical Ecology*, 4(2), 255-267, 2011. <http://dx.doi.org/10.1007/s12080-011-0120-6>

- [31] D.N. Kaslovsky and F.G. Meyer. “Noise Corruption of Empirical Mode Decomposition and its Effect on Instantaneous Frequency”, *Advances in Adaptive Data Analysis*, 2 (3), pp. 373-396, 2010.
- [30] Shen X, Dietlein C, Grossman E, Popovic Z, Meyer F.G.. “Detection and segmentation of concealed objects in terahertz images”, *IEEE Trans. Image Processing*, 17(12), pp 2465-2475, 2008.
- [29] Shen X. and Meyer F.G., “Low-dimensional embedding of fMRI datasets”, *Neuroimage*, 41(3); pp 886-902, 2008.
- [28] Meyer F.G., Shen X., “Classification of fMRI Time Series in a Low-Dimensional Subspace with a Spatial Prior”, *IEEE Transactions on Medical Imaging*, Vol 27(1), pp. 87-98, 2008.
- [27] Meyer F.G. and Stephens, G.J. “Locality and low-dimensions in the prediction of natural experience from fMRI”, *Advances in Neural Information Processing Systems*, Schölkopf B., Platt J. and Hofmann T. (editors), MIT Press, pp 1001-1008, 2008. [Acceptance rate: 22%]
- [26] Getreuer P., Meyer F.G., “ENO Multiresolution Schemes with General Discretizations”, *SIAM J. Numerical Analysis*, 46(6); pp 2953-2977, 2008.
- [25] Meyer F.G., “It is not a wavelet analysis”, *Journal of Applied Physiology*, 105(5):1677; 2008.
- [24] Keenan K., Farina D., Meyer F.G.; Merletti R.; Enoka R. “Sensitivity of the cross-correlation between simulated surface EMGs for two muscles to detect motor unit synchronization”, *Journal of Applied Physiology*, Vol 102, 2007, pp. 1193-1201.
- [23] Christou E.A., Rudroff T, Enoka J.A., Meyer F.G, Enoka R.M., “Discharge Rate During Low-Force Isometric Contractions Influences Motor Unit Coherence Below 15 HZ but not Motor Unit Synchronization” *Experimental Brain Research*, Vol 178(3), pp. 285-295, 2007.
- [22] Semmler J., Kornatz K., Meyer F.G., Enoka R.M., “Diminished task-related adjustments of common inputs to hand muscle motor neurons in older adults”, *Experimental Brain Research*, Vol 172(4), pp 507-518, 2006.
- [21] Mottram C.J., Christou E.A., Meyer F.G., Enoka R.M., “Frequency modulation of motor unit discharge has task-dependent effects on fluctuations in motor output”, *Journal of Neurophysiology*, Vol 94, pp 2878-2887, 2005.
- [20] Moritz C.T., Christou E.A., Meyer F.G., Enoka R.M., “Coherence at 16-32 Hz Can Be Caused by Short-Term Synchrony of Motor Units”, *Journal of Neurophysiology*, Vol 94, pp 105-118, 2005.
- [19] Shen X., Meyer F.G., “Analysis of Event-Related fMRI Data using Diffusion Maps,” *Information Processing in Medical Imaging*, G.E. Christensen and M. Sonka (editors), Springer Verlag, LNCS 3565, pp. 652-663, 2005. [Acceptance rate: 25%]
- [18] Meyer F.G., Chinrungrueng J., “Spatiotemporal clustering of fMRI time series in the spectral domain”, *Medical Image Analysis*, Vol 9(1), pp 51-68, 2005.
- [17] Semmler J.G., Sale M.V., Meyer F.G., Nordstrom M.A., “ Motor-unit coherence during isometric contractions is influenced by hand preference and training,” *Journal of Neurophysiology*, Vol 92 (6), pp. 3320-3331, 2004.

- [16] Meyer F.G., Chinrungrueng J, "Analysis of event-related fMRI data using best clustering bases," *Information Processing in Medical Imaging*, C. Taylor, A. Noble (editors), Springer Verlag, pp. 623-634, 2003. [Acceptance rate oral presentation: 22%]
- [15] Rajpoot N.M, Wilson R.G., Meyer F.G., Coifman R.R. "Adaptive wavelet packet basis selection for image coding," *IEEE Transactions on Image Processing*, Vol. 12, pp. 1460-1472, 2003.
- [14] Meyer F.G., Chinrungrueng J., "Analysis of Event-Related fMRI Data Using Best Clustering Bases," *IEEE Transactions on Medical Imaging*, Vol. 22, pp. 933-939, 2003.
- [13] Meyer F.G., "Wavelet based estimation of a semi parametric generalized linear model of fMRI time-series," special issue on "Wavelets in Medical Imaging," *IEEE Transactions on Medical Imaging*, Vol. 22, pp. 315-322, 2003.
- [12] Meyer F.G., Averbuch A., Coifman R.R., "Multi-layered image representation: application to image compression," *IEEE Transactions on Image Processing*, Vol. 11, pp. 1072-1080, 2002.
- [11] Meyer F.G., "Image compression with adaptive local cosines : a comparative study," *IEEE Transactions on Image Processing*, Vol. 11, pp. 616-629, 2002.
- [10] Tanabe J.L., Miller D., Tregellas J., Freedman R., Meyer F.G., "Comparison of detrending methods for optimal fMRI pre-processing," *Neuroimage* 15, pp. 902-907, 2002.
- [9] Averbuch A.Z., Meyer F.G., Strömberg J.O., Coifman R.R., Vassiliou A., "Low bit-rate efficient compression for seismic data," *IEEE Transactions on Image Processing*, Vol. 10, pp. 1801-1814, 2001.
- [8] Meyer F.G., Averbuch A., Strömberg J.O., "Fast adaptive wavelet packet image compression," *IEEE Transactions on Image Processing*, Vol. 9, pp. 792-800, 2000.
- [7] Averbuch A.Z., Israeli M., Meyer F.G., "Speed vs quality in low-bit rate still image compression," *Signal Processing: Image Communication*, 15, pp. 231-254, 1999.
- [6] Meyer F.G., Coifman R.R., "Brushlets: a tool for directional image analysis and image compression," *Applied and Computational Harmonic Analysis*. Vol. 4, pp. 147-187, 1997.
- [5] Meyer F.G., Constable R.T., Sinusas A.J., Duncan J.S., "Tracking myocardial deformation using spatially-constrained velocities". *IEEE Transactions on Medical Imaging*, Vol. 15, pp. 453-465, 1996.
- [4] Meyer F.G., Constable R.T., Sinusas A.J., Duncan J.S., "Tracking myocardial deformation using spatially-constrained velocities," *Information Processing in Medical Imaging*, Y. Bizais, C. Barillot, and R. Di Paola (editors), Springer, pp. 177-188, 1995. [Acceptance rate: 28 %]
- [3] Meyer F.G., "Time-to-collision from first-order models of the motion field," Special Section on Perception-Based Real-World Navigation, *IEEE Transactions on Robotics and Automation*, Vol. 10, pp. 792-798, 1994.
- [2] Meyer F.G., Bouthemy P, "Region-based tracking using affine motion models in long image sequences," *Computer Vision, Graphics and Image Processing: Image Understanding*, Vol. 60, pp. 119-140, 1994.
- [1] Meyer F.G., Bouthemy P., "Region-based tracking in an image sequence," *Proc. Second European Conference on Computer Vision*, pp. 476- 484, 1992. [Acceptance rate oral: 18.5%]

PATENTS

- [2] Dagher J.C., Meyer F.G., "System and Method for Joint Degradation Estimation and Image Reconstruction in Magnetic Resonance Imaging", United States Patent, 9,165,353, October 20, 2015. <http://www.google.com/patents/US9165353>
- [1] Stromberg J.O., Averbuch A.Z., Meyer F.G., Vassiliou A.A. "Fast compression and transmission of seismic data", United States Patent 6,594,394 , July 15, 2003. www.google.com/patents/US6594394

PAPERS PUBLISHED IN CONFERENCE PROCEEDINGS

- [32] Kaslovsky D.N., Meyer F.G., "Overcoming noise, avoiding curvature: optimal scale selection for tangent plane recovery", *Proc. IEEE Statistical Signal Processing Workshop*, pp. 904-907, 2012.
- [31] Dagher, J.C.; Meyer, F.G.; "A joint acquisition-reconstruction paradigm for correcting inhomogeneity artifacts in MR echo planar imaging"; International Conference of the IEEE Engineering in Medicine and Biology Society, pp 3744-3750, 2011
- [30] Meyer F.G., Taylor KM, Kaslovsky D., Procopio MJ, and Young CJ "Evaluation of Empirical Mode Decomposition and Chirplet Transform for Regional Seismic Phase Detection and Identification", Seismological Society of America 2009 Annual Meeting, *Seismological Research Letters*, Volume 80, No. 2 p 347, 2009.
- [29] Meyer F.G., "Learning and Predicting Brain Dynamics from fMRI: a Spectral Approach", in *Proceedings of Wavelet XII conference, Proceedings of SPIE Volume 6701*, pp. 67010W-1:6710W-10, 2007, <http://dx.doi.org/10.1117/12.733158>.
- [28] Shen X. and Meyer F.G. "Nonlinear dimension reduction and activation detection for fMRI dataset", *Proc. IEEE Computer Society Workshop on Mathematical Methods in Biomedical Image Analysis*, pp. 90-97, 2006
- [27] Ramírez-Vélez M., Staba R. Barth D.S., Meyer F.G. "Nonlinear Classification of EEG data for seizure detection", *Proc. IEEE International Symposium on Biomedical Imaging: Macro to Nano*, pp. 956-959, 2006.
- [26] Chinrungrueng J., Meyer F.G., "Shapiro-Wilk index: discriminatory index," *Proc. IEEE International Symposium on Communications and Information Technologies*, vol 2, pp. 1144-9, 2004.
- [25] Meyer F.G., Shen X., "Multiscale analysis of fMRI data with mixture of Gaussian densities," *Proc. IEEE International Symposium on Biomedical Imaging*, pp. 1175-1178, 2004.
- [24] Meyer F.G., Chinrungrueng J., "Clustering of Spatiotemporal Signals: Application to the Analysis of fMRI Data", *Proc. IEEE Workshop on Statistical Signal Processing*, pp. 469-472, 2003.
- [23] Meyer F.G., Chinrungrueng J., "Features selection for clustering of fMRI data," *Proc. SPIE 5207, Wavelets: Applications in Signal and Image Processing X*, pp. 426-434, 2003, <http://dx.doi.org/10.1117/12.507494>.
- [22] Meyer F.G., McCarthy G., "Wavelet based estimation of baseline drifts in fMRI," *Information Processing in Medical Imaging*, M. F. Insana and R. M. Leahy (editors), Springer Verlag, Lecture Notes in Computer Science 2082, pp. 232-238, 2001.

- [21] Meyer F.G., "Image Compression with adaptive local cosines : a comparative study," *Proc. IEEE International Conference on Image Processing*, Vol. 1, pp. 467-470, 2001.
- [20] Rajpoot N.M, Wilson R.G., Meyer F.G., Coifman R.R. "A new basis selection paradigm for wavelet packet image coding," *Proc. IEEE International Conference on Image Processing*, Vol. 3, pp. 816-819, 2001.
- [19] Averbuch A.Z., Meyer F.G., Strömberg J.O., Coifman R.R., Vassiliou A., "Low bit-rate compression of seismic data," in *Proc. SPIE 4478, Wavelets: Applications in Signal and Image Processing IX*, pp. 271-281, 2001, <http://dx.doi.org/10.1117/12.449714>.
- [18] Meyer F.G., "Estimation of a semi parametric model of fMRI data," in *Proc. SPIE 4478, Wavelets: Applications in Signal and Image Processing IX*, pp. 214-223, 2001, <http://dx.doi.org/10.1117/12.449706>.
- [17] Meyer F.G., "Wavelet based estimation of a semi parametric generalized linear model of fMRI time-series," *Proc. IEEE International Conference on Acoustics, Speech, and Signal Processing*, pp. 3681-3684, 2001.
- [16] Meyer F.G. "Decomposition of fMRI into multiple components," *Proc. SPIE 4119, Wavelet Applications in Signal and Image Processing VIII*, pp. 638-649, July 2000, <http://dx.doi.org/10.1117/12.408653>.
- [15] Rajpoot N.M, Meyer F.G., Wilson R.G., Coifman R.R. "On zerotree quantization for embedded wavelet packet image coding," *Proc. IEEE International Conference on Image Processing*, Vol. 2, pp. 283-287, 1999.
- [14] Meyer F.G., "Fast Compression of Seismic Data with Local Trigonometric Bases," *invited paper*, Special session on *Gabor expansions and local trigonometric bases, Wavelet Applications in Signal and Imaging Processing VII*, M.A. Unser, A. Aldroubi and A.F. Laine (editors), pp. 648-658, 1999.
- [13] Meyer F.G., Averbuch A., J.O. Strömberg, Coifman R.R., "Multi-layered image representation: application to image compression," *Proc. IEEE International Conference on Image Processing*, Vol. 2, pp. 292-296, 1998.
- [12] Meyer F.G. Averbuch A., J.O. Strömberg, Coifman R.R., "Multi-layered image compression," *Wavelet Applications in Signal and Imaging Processing VI*, M.A. Unser, A. Aldroubi and A.F. Laine (editors), Vol. 3458, pp. 128-139, 1998.
- [11] Averbuch A.Z., Israeli M., Meyer F.G., "Speed vs quality in low-bit rate still image compression," 4 pages, *Proc. International Wavelet Conference, "Wavelets and Multiscale Methods"* (Eds. INRIA), Tangier, April 13-17, 1998
- [10] Meyer F.G., Averbuch A., J.O. Strömberg, Coifman R.R., "Fast wavelet packet image compression," *Proc. IEEE Data Compression Conference -DCC'98*, 1998
- [9] Meyer F.G., Averbuch A., Coifman R.R., "Motion compensation of wavelet coefficients for very low bit rate coding," *Proc. IEEE International Conference on Image Processing*, Vol. 3, pp. 638-641, 1997.
- [8] Meyer F.G., Coifman R.R., "Adaptive directional image compression with oriented wavelets," *Proc. IEEE International Conference on Image Processing*, Vol. 1, pp. 601-604, 1996.

- [7] Meyer F.G., Coifman R.R., "Biorthogonal brushlet bases for directional image compression", *Proc. International Conference on Analysis and Optimization of Systems, Images, Wavelets and PDE's*, Lecture Notes in Control and Inform. Sci., 219, Springer Verlag, pp. 285-294, 1996.
- [6] Meyer F.G., Coifman R.R., "Directional image compression with brushlets," *Proc. IEEE International Symposium on Time-Frequency and Time-Scale Analysis*, pp. 189-192, 1996.
- [5] Meyer F.G., Constable R.T., Sinusas A.J., Duncan J.S., "Dense non rigid motion tracking from a sequence of velocity fields". *Proc. IEEE Conference on Computer Vision & Pattern Recognition*, pp. 839-844, 1996.
- [4] McEachen J.C., Meyer F.G., Constable R.T., Nehorai A., Duncan J.S., "A recursive filter for phase velocity and shape-based tracking of cardiac motion". *Proc. IEEE International Conference on Computer Vision*, pp. 653-658, 1995.
- [3] Bascle B., Bouthemy P., Deriche R., Meyer F., "Tracking complex primitives in an image sequence," *Proc. International Conference on Pattern Recognition*, Vol. I, pp. 426-431, 1994.
- [2] Meyer F.G., Bouthemy P., "Exploiting the temporal coherence of motion for linking partial spatiotemporal trajectories," *Proc. IEEE Conference on Computer Vision & Pattern Recognition*, pp. 746-747, 1993.
- [1] Meyer F.G., Bouthemy P., "Estimation of time to collision from first order motion models and normal flows," *Proc. International Conference on Pattern Recognition*, 1992, pp. 78-82. This paper was nominated for the Best Industry-Related Paper Award presented at this conference.

INVITED CONFERENCE PRESENTATIONS WITHOUT PROCEEDINGS

- [37] "Detecting Topological Changes in Dynamic Graphs", Wills P. and Meyer F.G., *Workshop on Graph Spectra, Combinatorics and Optimization*, University of Aveiro, Portugal, 2018.
- [36] Meyer F.G.(Invited Speaker), "A Graph Metric for the Structural Analysis of Dynamic Networks", *Workshop sponsored by the U.S. National Science foundation on Geometry for Signal Processing and Machine Learning*, Estes Park, Colorado, October 2016.
- [35] Meyer F.G., (Invited Speaker), "Adaptive Time-Frequency Analysis of Sleep EEG", Second Annual Colorado Sleep and Circadian Research Symposium, June 2015.
- [34] Meyer F.G., "Decoding Epileptogenesis in a Reduced State Space", *Workshop on Laplacians and Heat Kernels: Theory and Applications*, Banff International Research Station for Mathematical Innovation and Discovery, March, 2015.
- [33] Nathan Monnig, Conrad Hougen, and Meyer F.G., "Sampling of Dynamic Graphs and Recovery of the Spectral Properties", *SIAM Conference on Computational Science and Engineering*, Salt Lake City, UT, 2015.
- [32] Meyer F.G.(Invited Speaker), "Nonlinear Dimensionality Reduction: The Inverse Map", *5th International Conference on Computational Harmonic Analysis*, Vanderbilt University, May 2014.
- [31] Monnig N.D. and Meyer F.G.. "The Restricted Walker: A Fast Algorithm for Large Network Eigenvector Approximation", SIAM Annual Meeting, Chicago, 2014.

- [30] N.D. Monnig and Meyer F.G., “Network Completion for Out-of-Sample Extension”, *Workshop on Eigenvectors in graph theory and related problems in numerical linear algebra*, ICERM, Brown University, 2014.
- [29] N.D. Monnig, B. Fornberg and Meyer F.G., “Nonlinear Dimensionality Reduction: The Inverse Map”, *Workshop on Electrical Flows, Graph Laplacians, and Algorithms: Spectral Graph Theory and Beyond*, ICERM, Brown University, 2014.
- [28] Meyer F.G. “Random Graph Models for Image Patches”, ICERM, Brown University; Research Cluster: Geometric analysis methods for graph algorithms, 2014.
- [27] N.D. Monnig. and Meyer F.G., “The Restricted Walker: A Fast Algorithm for Large Network Eigenvector Approximation”, *SIAM Annual Meeting*, Chicago, 2014.
- [26] Meyer F.G., “Sparse Decoding of Behavioral Experience from fMRI Data”, Invited Lecture, Educational Course, *9th Annual Meeting of the Organization for Human Brain Mapping*, 2013.
- [25] Ramirez J, Meyer F.G., “Signal Processing on High-Dimensional Data Through A Low-Dimensional Embedding”, *Conference: 2012 Society for Advancement of Hispanics/Chicanos and Native Americans in Science National Conference*, 2012.
- [24] Meyer F.G., Kaslovsky D.N., and B. Wohlberg, “Analysis of image patches: a unified geometric perspective”, *SIAM Conference on Imaging Science*, 2012.
- [23] Ramirez J, Meyer F.G., “Machine Learning for Seismic Signal Processing: Phase classification of seismic events on a manifold”; *Society for the Advancement of Chicanos and Native Americans in Science National Conference*, 2011. Juan Ramirez received the Student Research Presentation Award (category: Applied Mathematics).
- [22] Kaslovsky D.N. and Meyer F.G., “Image Manifolds: Processing Along the Tangent Plane”, *International Congress on Industrial and Applied Mathematics*, 2011.
- [21] Meyer F.G., “Image de-noising on the manifold of patches: a spectral approach”, *SIAM Conference on Imaging Science*, 2010.
- [20] Meyer F.G., “Exploring the Manifold of Seismic Waves: Application to Phase Detection”, *Random Shapes Reunion Conference II*, Institute for Pure and Applied Mathematics, UCLA, December 6-11, 2009
- [19] Meyer F.G., “Learning Behavior as a Function of Brain Dynamics”, *American Mathematical Society (AMS) Joint Meetings; The Mathematics of Information and Knowledge*, 2008.
- [18] Meyer F.G., “Decoding brain activity in natural environments”, *SIAM Conference on Imaging Science*, 2008.
- [17] Meyer F.G., “Parametrization of Datasets with Low-distortion Embeddings”, *Random Shapes Tutorials*, Institute for Pure and Applied Mathematics, UCLA, 2007, <http://www.ipam.ucla.edu/programs/rstut/>.
- [16] Meyer F.G., “Charting a Functional Atlas from an fMRI Dataset”, *Random Shapes Tutorials*, Institute for Pure and Applied Mathematics, UCLA, 2007, <http://www.ipam.ucla.edu/programs/rstut/>

- [15] Meyer F.G., “Learning and predicting cognitive states from neuroimaging data collected in a natural environment”, *Image Processing for Random Shapes*, Institute for Pure and Applied Mathematics, UCLA, 2007, <http://www.ipam.ucla.edu/programs/rsws4>.
- [14] Meyer F.G. and Shen X. “Exploration of high dimensional biomedical datasets with low-distortion embeddings”, *Data Mining for Biomedical Informatics Workshop, 7th SIAM International Conference on Data Mining*, 2007.
- [13] Meyer F.G., “Exploration of high dimensional biomedical datasets with low-distortion embeddings”, *Information Theory and Applications Workshop*, 2007.
- [12] Dietlein C., Luukanen A., Meyer F.G., Popovic Z., and Grossman E., “Phenomenology of Passive Broadband Terahertz Images”, *4th ESA Workshop on Millimeter Wave Technology and Applications and 7th MINT Millimeter Wave International Symposium*, Espoo, Finland, 2006.
- [11] Meyer F.G., “Charting a Functional Atlas from an fMRI Dataset”, *Workshop on the Mathematics of Visual Analysis*, The Mathematical Sciences Research Institute (MSRI), 2006.
- [10] Meyer F.G., “Charting a Functional Atlas from an fMRI Dataset”, *Graybill Conference: “Multiscale Methods and Statistics: A Productive Marriage”*, Colorado State University, 2006.
- [9] Meyer F.G., “Frequency Analysis of the Electromyogram”, Symposium on the “Interpretation of the Surface Electromyogram”, *Annual Meeting of the American College of Sports Medicine*, 2005.
- [8] Meyer F.G., “Multiscale Analysis of fMRI data”, *Workshop on Multiscale Geometry in Image Processing and Coding, Institute for Pure and Applied Mathematics, UCLA*, 2004, <http://www.ipam.ucla.edu/programs/mgaws1/>.
- [7] Meyer F.G., “Seismic Data Compression with Local Cosine Transforms”, *Tutorials on “Multiscale Geometry and Analysis in High Dimensions”*, Institute for Pure and Applied Mathematics, UCLA, 2004, <http://www.ipam.ucla.edu/programs/mgatut/>.
- [6] Meyer F.G., “Image Compression with Wavelets”, *Tutorials on “Multiscale Geometry and Analysis in High Dimensions”*, Institute for Pure and Applied Mathematics, UCLA, September, 2004, <http://www.ipam.ucla.edu/programs/mgatut/>.
- [5] Meyer F.G., “Multiscale Analysis of fMRI data,” *Second International Conference on Computational Harmonic Analysis*, 2004.
- [4] Meyer F.G., “Multiscale Clustering of Spatiotemporal Signals : Application to the Analysis of fMRI Data,” *Digital Biology : The Emerging Paradigm*. National Institute of Health, 2003.
- [3] Meyer F.G., “Compression of Image with Trigonometric Bases,” *Society for Industrial and Applied Mathematics (SIAM) Annual Meeting*, 2001.
- [2] Meyer F.G., “Analysis of fMRI data,” *International Conference of the IEEE Engineering in Medicine and Biology Society, Workshop on Time-Frequency and Time-Scale Methods*, 2000.
- [1] Meyer F.G., “Multiple components representation of fMRI data,” *International Conference of the IEEE Engineering in Medicine and Biology Society, Workshop on Non stationary Biomedical Signal Processing*, 1999.

- [17] Chinoy E.D., Frey D.J., Kaslovsky D.N., **Meyer F.G.**, and Wright K.P., “Age-Related Differences in EEG Slow Wave Activity Rise Time with and without Zolpidem between Healthy Young and Older Adults”, *28th Annual Meeting of the Associated Professional Sleep Societies, pp A14, Journal of Sleep and Sleep Disorders Research, Vol. 37, Abstract Supplement, 2014.*
- [16] Chinoy E.D., Frey D.J., Kaslovsky D.N., **Meyer F.G.**, and Wright K.P., “Effects of ZOLPIDEM on Sleep Architecture and NREM Sleep EEG Power Spectra in Healthy Young and Older Adults”, *28th Annual Meeting of the Associated Professional Sleep Societies, pp A15, Journal of Sleep and Sleep Disorders Research, Vol. 37, Abstract Supplement, 2014.*
- [15] S. Flaxman, Y. Lou, and **Meyer F.G.**, “Evolutionary ecology of habitat selection by predators and prey”, *9th American Institute of Mathematical Sciences Conference on Dynamical Systems, Differential Equations and Applications, 2012.*
- [14] Ramirez, J. and **Meyer F.G.**, "Machine Learning for Seismic Signal Processing: Seismic Phase Classification on a Manifold", *Conference on Data Analysis (CoDA)*, Santa Fe, NM, 2012.
- [13] Chinoy, E.D., Kaslovsky, D.N., **Meyer F.G.**, and Wright Jr., K.P. “Analysis of the Sleep EEG with the Novel Signal Analysis Technique Empirical Mode Decomposition as Compared to Spectral Analysis”, *26th Annual Meeting of the Associated Professional Sleep Societies, SLEEP 2012.*
- [12] Chinoy E.D., Kaslovsky D.N., **Meyer F.G.**, and Wright Jr. K.P. “Changes in EEG Frequency Bands across the Sleep Transition Comparing Older and Young Adults as Measured by the Novel Signal Analysis Technique Empirical Mode Decomposition”, *26th Annual Meeting of the Associated Professional Sleep Societies, SLEEP 2012.*
- [11] Mottram CJ, Wallace CL, Chikando CN, **Meyer FG**, and Rymer WZ. “Spontaneously firing motor unit pairs in the spastic biceps brachii of stroke survivors are co-modulated.” Program No. 659.17/CC9. 2009 Neuroscience Meeting Planner. Chicago, IL: Society for Neuroscience, 2009. Online
- [10] Moritz, C. T., E. A. Christou, **F.G. Meyer**, and R. M. Enoka. “Distinguishing between time-and frequency-domain measures of motor unit synchronization.” In Soc Neurosci Abstr, vol. 30. 2004.
- [9] Semmler J., Kornatz K., **Meyer F.G.**, Enoka, R., “Diminished Task- Related Plasticity of Common Inputs to Hand Muscle Motor Neurons in Older Adults,” Proc. of the Australian Society for Medical Research, pp. 43 , 2004.
- [8] Semmler J.G., Sale M.V., **Meyer F.G.**, and Nordstrom M.A., “Motor Unit Coherence Is Influenced By Skilled Hand Muscle Use In Humans,” International Society of Electromyography and Kinesiology Abstracts, 2004.
- [7] Semmler, J., K. Kornatz, **F. Meyer**, and R. Enoka. “Diminished task-related plasticity of common inputs to hand muscle motor neurons in older adults.” In ASMR 2003: Proceedings of the Australian Society for Medical Research 42nd National Scientific Conference: The Cycles of Life: From Cells to Systems, pp. 43-43. Australian Society for Medical Research, 2012.
- [6] Kornatz K.W., Semmler J.G., **Meyer F.G.**, Poston B.S., Pascoe M.A., Enoka R.M., “Correlated motor unit discharge is similar for slow shortening, but not lengthening contractions in young and old adults”, Society for Neuroscience Abstracts, 2003.

- [5] J.L. Tanabe, D. Miller, J. Tregellas, Meyer F.G., “Comparison of detrending methods for fMRI data analysis,” *American Society of Neuroradiology, 39th Annual Meeting, Boston, 2001.*
- [4] J. Chinrungrueng, Meyer F.G., “Local Clustering of Functional Magnetic Resonance Images in the Frequency Space,” *9th Meeting of the International Society for Magnetic Resonance in Medicine, 2001.*
- [3] Meyer F.G., G. McCarthy, “Regression of a Semi Parametric Model of fMRI Time-Series in the Wavelet Domain,” *9th Meeting of the International Society for Magnetic Resonance in Medicine, 2001.*
- [2] Meyer F.G., Constable R.T., Sinusas A.J., Duncan J.S., “Myocardium Tracking with MRI Phase Contrast Velocities: A Stochastic Approach,” *Current and Future Application of Magnetic Resonance in Cardiovascular Disease, American Heart Association, 1996.*
- [1] Meyer F.G., Constable R.T., Sinusas A.J., Duncan J.S., “Tracking Myocardial Deformation Using Spatially-Constrained MRI Phase Contrast Velocities,” *Third Meeting of the Society of Magnetic Resonance, Nice, August 1995.*

PUBLISHED BOOK REVIEW

- [1] Meyer F.G., “Book review of *The World According to Wavelets: The Story of a Mathematical Technique in the Making*, by Barbara Hubbard, A.K. Peters Press,” *Nature*, Vol. 385 No 6612, January 9, 1997.

INVITED LECTURES

- [78] “A Graph Metric for the Structural Analysis of Dynamic Networks”, *INRIA Saclay, France, January 31, 2017.*
- [77] “A Graph Metric for the Structural Analysis of Dynamic Networks”, *Multifractal Analysis Seminar, Department of Applied Mathematics, University Paris XIII, France, March 2, 2017.*
- [76] “Detecting Structural Changes in Dynamic Community Networks”, *CosmoStat Laboratory, CEA Saclay, France, March 27, 2017.*
- [75] “Tracking the Evolution of Dynamic Networks”, *Departement of Signal Processing, Networks, Information and Communication, University Paris-Saclay, France, April 6, 2017.*
- [74] “Detecting Structural Changes in Dynamic Community Networks”, *Colloquium, Data Science Research Day, University Paris-Saclay, France, April 25, 2017.*
- [73] “Detecting Topological Changes in Dynamic Community Networks”, *Compressed Sensing in Information Processing Seminar Series, Technische Universität Berlin, Germany, March 2017.*
- [72] “The Resistance Perturbation Distance: A Metric for the Analysis of Dynamic Networks”, *Applied Mathematics Colloquium, University of Colorado at Boulder, August 2016.*
- [71] “The Resistance Perturbation Distance: A Metric on the Space of Connected Graphs of a Fixed Size”, *Data Science Lecture Series, Berkeley Institute for Data Science, April 2016.*
- [70] “A Computational Biomarker for Epileptogenesis”, *Computer Science, Tel Aviv University, Israel, Feb. 2016.*
- [69] “Learning the Dynamics of Epileptogenesis: A Geometric Approach”, *INRIA, Rennes, France, Feb. 2016.*

- [68] “A Biomarker for Epileptogenesis”, *Neurospin, CEA, Paris, France*, Feb. 2016.
- [67] “Decoding Epileptogenesis: A Dynamical System Approach” *Center for Neuroprosthetics, EPFL, Genève, Switzerland*, Feb. 2016.
- [66] “A Biomarker for Epileptogenesis”, *Swammerdam Institute for Life Sciences, University of Amsterdam, The Netherlands*, Feb. 2016.
- [65] “Decoding Epileptogenesis in a Reduced State Space”, *Biomedical Imaging Group EPFL, Lausanne Switzerland*, Feb. 2016.
- [64] “Decoding Epileptogenesis in a Reduced State Space”, *Complex and Dynamical Systems Seminar, Applied Mathematics, University of Colorado at Boulder*, 2015.
- [63] “Analysis of Datasets: a Panoramic View”, *Introduction to Research Seminar, Applied Mathematics, University of Colorado at Boulder*, 2015.
- [62] “Random Graph Models for Image Patches” *Controls, Dynamics, and Systems seminar, Department of Electrical Engineering Seminar, University of Colorado at Boulder*, Dec. 2014.
- [61] “Low-dimensional Representations of High-Dimensional Datasets: A Geometric Perspective”, *Qualcomm’s University Symposium, San Diego, 2014*.
- [60] “Random Graph Models for Image Patches”, *ICERM, Brown University; Research Cluster: Geometric analysis methods for graph algorithms*, 2014.
- [59] “Nonlinear Dimensionality Reduction: The Inverse Map”, *Department of Mathematics Colloquium, Washington University in St. Louis*, November 7, 2013.
- [58] “Low-Dimensional Representations of High-Dimensional Datasets: A Geometric Perspective”, *Department of Electrical Engineering Seminar, University of Colorado at Boulder*, Nov. 2012.
- [57] “A Random Walk on Image Patches”, *Electrical & Computer Engineering Seminar, Colorado State University*, April 2, 2012.
- [56] “A Random Walk on Image Patches”, *Applied Mathematics Seminar, Yale University*, February 22, 2012.
- [55] “A Random Walk on Image Patches”, *PACM/Applied Mathematics Colloquium, Princeton University*, February 20, 2012.
- [54] “A Random Walk on Image Patches”, *Department of Mathematics Colloquium, Washington University in St. Louis*, February 16, 2012.
- [53] “Image Manifolds: Processing Along the Tangent Plane”, *Department of Mathematics Seminar, Washington State University*, January 2011
- [52] “A random walk on image patches”, *Applied Mathematics Colloquium, University of Colorado at Boulder*, October 2011
- [51] “Exploring the manifold of patches: a spectral approach”, *Bigroup Seminar, University of Colorado at Boulder and JILA*, March 2011.

- [50] “Exploring the Manifold of Seismic Waves: Application to Phase Detection”, *Applied Mathematics Seminar, Yale University*, March 2010.
- [49] “Exploring the Manifold of Seismic Waves”, *CARDI seminar, Colorado School of Mines*, Feb 2010.
- [48] “We can read your mind!”, Guest lecture on the role of engineers in biology and medicine to an audience of female high school students, *Explore Engineering Day for Women, University of Colorado at Boulder*, Nov. 2010.
- [47] “Image de-noising on the manifold of patches: a spectral approach”, *COSI Seminar Series, University of Colorado at Boulder*, March 2009.
- [46] “Decoding Human Behavior from fMRI Data”, *Institute of Cognitive Science, University of Colorado at Boulder*, 2008.
- [45] “From fMRI to Behavior and Back: The Decoding of fMRI Datasets”, *Complex Systems Seminar, Applied Mathematics, University of Colorado at Boulder*, 2008.
- [44] “Image de-noising on the manifold of patches: a spectral approach”, *Mathematics Colloquium Washington State University, Pullman*, 2008.
- [43] “From fMRI to Behavior and Back: The Decoding of large fMRI Datasets”, *Mathematics Department, Washington State University, Pullman*, 2008.
- [42] “From fMRI to Behavior and Back: The Decoding of fMRI Datasets”, *Redwood Center for Theoretical Neuroscience, University of California, Berkeley*, 2008.
- [41] “We can read your mind: the decoding of fMRI datasets”, *Colloquium in Applied Mathematics, University of Colorado, Boulder*. Nov. 2007.
- [40] “Prediction of natural experience from fMRI”, *Department of Radiology, Yale University*, August 2007.
- [39] “Charting a functional atlas from an fMRI dataset”, *Service Hospitalier Frédéric Joliot, Département de Recherche Médicale - CEA, Orsay, France*, Nov. 2006.
- [38] “NeuroImaging Analysis Methods”, *Center for the Study of Brain, Mind and Behavior, Princeton University*, Oct. 2006.
- [37] “Exploring high-dimensional biomedical datasets”, *Renaissance Technologies Corp.*, May 2006.
- [36] “Charting a functional atlas from an fMRI dataset”, *Applied Mathematics Seminar, Yale University*, March 2006.
- [35] “Charting a Functional Atlas: The Manifold of an fMRI Dataset”, *Center for the Study of Brain, Mind and Behavior, Princeton University*, Oct. 2006.
- [34] “Charting a Functional Atlas: The Manifold of an fMRI Dataset”, *Helen Wills Neuroscience Institute, University of California, Berkeley*, Sept. 2005.
- [33] “In Search of Efficient Representation of fMRI Data”, *Data Driven Modeling and Analysis Speaker Series, Los Alamos National Laboratory*, April 2005.

- [32] “Multiscale Analysis of fMRI Data”, *Department of Electrical and Computer Engineering, North Carolina State University*, March 2005.
- [31] “Exploratory Analysis of fMRI,” *Time Frequency Seminar, Program in Applied and Computational Mathematics, Princeton University*, Feb. 2005.
- [30] “Multiscale Analysis of fMRI Data”, *Applied Mathematics Colloquium, Department of Mathematics, UCLA*, November 2004.
- [29] “Multiscale Analysis of fMRI Data with Mixture of Gaussian Densities,” *Department of Statistics Seminar, Colorado State University*, April 2004.
- [28] “Analysis of Functional Magnetic Resonance Images,” *Department of Electrical Engineering Seminar, University of Colorado at Boulder*, June 2004.
- [27] “Functional Brain Imaging,” *Freshman Seminar (ECEN1000), Electrical Engineering, University of Colorado at Boulder*, Nov. 2003.
- [26] “Multiscale Clustering of Spatiotemporal Signals Application to the Analysis of functional MRI Data,” *Third Annual Coleman Institute Conference , University of Colorado*, Oct. 2003.
- [25] “Wavelet based estimation of a semi parametric model of brain imaging time-series,” *Probability and Statistics Seminar, Applied Mathematics, University of Colorado at Boulder*, Jan. 2003.
- [24] “Representation of Textured Images,” *Department of Applied Mathematics Colloquium, University of Colorado at Boulder*, Sept. 2002.
- [23] “Functional Brain Imaging,” *Coleman Institute Conference, University of Colorado*, Sept. 2002.
- [22] “Analysis of event-related fMRI data with local clustering bases,” *Applied Mathematics Colloquium, Yale University*, Sept. 2002
- [21] “Representation of Textured Images,” *Department of Mathematics Colloquium, Washington University*, Feb. 2002.
- [20] “Image Compression with Adaptive Local Cosines: A Comparative Study,” *Wavelet Seminar, Department of Mathematics, Washington University*, Feb. 2002.
- [19] “From Image Coding to fMRI Analysis: In search of Efficient Representations,” *Division of Engineering, Brown University*, May 2002.
- [18] “Multiscale Analysis of fMRI Data,” *Whitaker Foundation Biomedical Engineering Conference, La Jolla, CA*, July, 2001.
- [17] “Coding of highly oscillatory images : Can LCT bases compete with Wavelets ?,” *Fast Algorithms Seminar, Applied Mathematics, University of Colorado at Boulder* , Nov. 2000.
- [16] “Multi-layered analysis of fMRI data,” *Department of Radiology Colloquium, The University of Chicago*, Jan. 2000.
- [15] “Image Compression using Multi-layered Representations,” *Computer Science, Stanford University*, April 1999.

- [14] “Human Brain Mapping and Image Compression using Multi-layered Representations,” *School of Computer Science Seminar, Queen’s University, Canada*, March 1999.
- [13] “Multi-layered Signal and Image Representation: Application Human Brain Mapping,” *Biomedical Engineering Seminar, Duke University*, Feb. 1999.
- [12] “Analysis of fMRI data using Multi-layered representations,” *Computer and Information Science, New Jersey Institute of Technology*, Jan. 1999.
- [11] “Brushlets: a tool for directional image analysis,” *Mathematical Sciences Research Center, Bell Laboratories, Lucent Technologies*, Jan. 1999.
- [10] “Directional Image Compression with Brushlets,” *Analysis and Applications Seminar, Applied Mathematics, Princeton University*, Feb. 1999.
- [9] “Multi-layered Image Representation,” *Time Frequency Seminar, Applied Mathematics, Princeton University*, Feb. 1999.
- [8] “Multi-layered Image Representation,” *Computer Science, University of Alberta*, April 1998.
- [7] “Proposals for a Universal Image compression standard,” *JPEG 2000 committee algorithm (NCITS/L3.2)*, Phoenix, AZ, Sept. 1997.
- [6] “Brushlets for image compression,” *Laboratory for Information and Decision Systems, MIT*, Oct. 1996.
- [5] “Tracking of Myocardial Motion from a Sequence of Velocity Fields,” *INRIA, Medical Image Group, Sophia-Antipolis, France*, May 1996.
- [4] “Dense Nonrigid Motion Tracking from a Sequence of Velocity Fields,” *David Sarnoff Research Center, Advanced Image Processing Research Group*, April 1996.
- [3] “Tracking Myocardial Deformation,” *NIH-Wide Image Processing Group Seminar, NIH, Bethesda*, Oct. 1995.
- [2] “Region-Based Tracking with Affine Motion Models,” *Computer Vision Seminar, Yale University*, Feb. 1993.
- [1] “Motion Estimation and Tracking Using Multiresolution Techniques,” *Advanced Image Processing Research Group, David Sarnoff Research Center, Princeton, NJ*, Feb. 1993.

GRADUATE STUDENTS CURRENTLY IN MY GROUP

- [3] Erik Johnson, Ph.D. Applied Mathematics, 2018–
- [2] Nicholas Landry, Ph.D. Applied Mathematics, 2018–
- [1] Lledó Esquerra Ortells, Ph.D., Electrical Engineering, 2012- ; scheduled graduation date: Spring 2019;

PH.D. STUDENTS SUPERVISED

- [10] Peter Wills, Ph.D. Applied Mathematics, 2018; *Studies in the Analysis of Stochastic Processes*. Now: Data Scientist Engineer at FullContact Inc.
- [9] Nathan Monnig, Ph.D. Applied Mathematics, 2015; *From Nonlinear Embedding to Graph Distances: a Spectral Perspective*. Now: Senior Data Scientist, Kount.
- [8] Michael Brutz, Ph.D. Applied Mathematics, 2014; *Mathematical Modelling and Analysis of Several Diffusive Processes*. Now: Data Scientist, KPMG.
- [7] Daniel Kaslovsky, Ph.D. Applied Mathematics, 2012 ; *Geometric Sparsity in High Dimension*. Now Data Science Team Lead at LogRhythm, Boulder, CO.
- [6] Nathan Halko, Ph.D. Applied Mathematics, (co-advised with Prof. Per-Gunnar Martinsson), 2012; *Randomized methods for computing low-rank approximations of matrices*. Now Senior Software Engineer at Salesforce.
- [5] Kye Taylor, Ph.D. Applied Mathematics, 2011; *The geometry of signal and image patch-sets*. Now Machine Learning Scientist at Cogito Corp.
- [4] Mabel Ramirez-Velez, (co-advised with Prof. Zoya Popovic), Ph.D. Electrical Engineering, 2009. Now at MIT Lincoln Labs.
- [3] Xilin Shen, Ph.D. Electrical Engineering, 2007; *Multiscale Analysis of High Dimensional Data*. Now Associate Research Scientist at Yale University.
- [2] Jatuporn Chinrungrueng, Ph.D. Electrical Engineering, 2003. *Features Selection for Clustering of Functional Magnetic Resonance Imaging Data*. Now Research Scientist at National Electronics and Computer Technology Center, Thailand.
- [1] Nasir Rajpoot, (co-avised with Prof. Rolland Wilson, University of Warwick), Ph.D. Computer Science, University of Warwick, UK, 2001. *Adaptive Wavelet Image Compression*. Now Professor, Dept. of Computer Science, University of Warwick, UK.

M.S. STUDENTS SUPERVISED

- [11] Lukas Goetz-Weiss, M.S. Applied Mathematics, 2017. *Dimensionality Detection and the Geometric Median on Data Manifolds*. Now Associate Data Scientist at HomeAdvisor.
- [10] Ankit Saxena, M.S. Electrical Engineering, 2016. *Design of a Computational Biomarker for Epileptogenesis: A Machine Learning Approach*. Now at Qualcomm.
- [9] Laura Bernabé, M.S., Electrical Engineering, 2012, *FMRI decoding using sparse neuronal networks*. Now Firmware Engineer at Intel.
- [8] Nicholas Bertrand, M.S., Applied Mathematics, 2012; *Sparse Encoding of Observations from a Smooth Manifold via Locally Linear Approximation*. Now Ph.D. student at Georgia Tech.
- [7] Juan Ramirez, M.S., Electrical Engineering, 2012; *Learning from Manifold-Valued Data: An Application to Seismic Signal Processing*. Now: Ph.D. student at Duke University.

- [6] Pradeep Narayan Radhakrishna, M.S. Electrical Engineering, 2008; *Manifold Based Multistage Music Genre Classification*. Now at Truevision Systems, CA.
- [5] Kye Taylor, M.S. Applied Mathematics, 2008; *Diffusion on graphs and spectral clustering*. Now at Tufts University.
- [4] Pascal Getreuer, M.S. Applied Mathematics, 2006; *Essentially non oscillating techniques with general discretization*. Now at Google.
- [3] Sonia Gandhi, M.S. Electrical Engineering, 2005; *ENO interpolation for image compression*. Now Digital Product Manager at Pearson.
- [2] Rahul Dabane, M.S. Electrical Engineering 2004; *Image Compression using a Multilayered Approach*. Now at Conexant Systems, Boulder, CO.
- [1] Aditya Dalvi, M.S. Electrical Engineering, 2004; *Selection of an Optimal Set of Wavelet Packets for fMRI Analysis*. Now at Gambro BCT Lakewood, CO.

UNDERGRADUATE STUDENTS SUPERVISED

- [12] Jeremy Rapp (Applied Mathematics), 2016. *Markov-dependent Mixtures: Application to Epileptogenesis*.
- [11] Courtnie Paschall (Neuroscience), 2015. *Spectral Analysis of Hippocampal Recording during Epileptogenesis*.
- [10] Conrad Hougen (Applied Mathematics), 2013-2015. *Epidemics on networks: a spectral approach*.
- [9] Nicholas Bertrand (Applied Mathematics), 2011. *Introduction to Compressive Sensing*.
- [8] Armeen Taeb (Electrical Engineering), Summer Undergraduate Research Fellowship (SURF) at the National Institute of Standards and Technology, 2010.
- [7] Amit Halevi (Electrical Engineering), 2010. *Analysis of EEG Recordings using Nonlinear Dimension Reduction*.
- [6] Owen Lewis (Mathematics), 2008, *Randomized Methods for Dimensions Reduction*.
- [5] Kye Taylor (Applied Mathematics), 2007, *Analysis of hyperspectral images*
- [4] Pascal Getreuer (Applied Mathematics), 2004, *Image interpolation with essentially non oscillating techniques*.
- [3] Stephen Mobley (Summer Multicultural Access to Research Training (SMART) student), 2005, *User Interface for the Visualization and Analysis of EEG Recordings for Predicting Epileptic Seizures*.
- [2] Deborah Hinck (Applied Mathematics), 2002. *Enhancing of fingerprint images using spectral methods*.
- [1] Michael Vincent (Electrical Engineering), 2001. *Modulated lapped transform for audio coding*.

READER AND EXTERNAL EXAMINER FOR PH.D. THESIS

- [5] Ofir Lindenbaum, School of Computer Science, Tel Aviv University, Israel, 2017.
- [4] Moshe Salhov, School of Computer Science, Tel-Aviv University, Israel, 2016.
- [3] Salima Makni, Department of Electrical Engineering, Universite Paris-Sud, Orsay, France, 2006.
- [2] Yoel Shkolnisky, School of Computer Science, Tel-Aviv University, Israel, 2005.
- [1] Arie Pikz, School of Computer Science, Tel-Aviv University, Israel, 1998.

PANEL REVIEW

- [23] Pazy Foundation, Israel, 2018.
- [22] Israel Science Foundation, 2017.
- [21] National Science Foundation (BIO BigData), 2017.
- [20] Israeli Ministry of Science and Technology, 2017.
- [19] National Science Foundation (Big Data), 2014.
- [18] National Science Foundation (DMS-Applied Mathematics), 2014.
- [17] Department of Energy, Office of Science, 2014
- [16] The German Israeli Foundation For Scientific Research and Development, 2014.
- [15] National Science Foundation (ABI, Advances in Biological Informatics), 2013.
- [14] Austrian Science Fund (FWF), 2013.
- [13] The German Israeli Foundation For Scientific Research and Development, 2012.
- [12] National Science Foundation (ABI, Advances in Biological Informatics), 2010.
- [11] United States-Israel Binational Science Foundation (BSF), 2009.
- [10] Austrian Science Fund (FWF), 2009.
- [9] National Science Foundation, Cyber-Enabled Discovery and Innovation, 2008.
- [8] NIH, NIGMS, minority biomedical research support (MBRS program), 2005.
- [7] United States-Israel Binational Science Foundation (BSF), 2005
- [6] U.S. Civilian Research and Development Foundation (CRDF) Cooperative Grants Program competition, 2005.
- [5] NIH, Innovations in Biomedical Computational Science and Technology Study Section, 2004.
- [4] NIH, National Institute of Neurological Disorders and Stroke, "A" Study Section, 2003.

- [3] United States-Israel Binational Science Foundation (BSF), 2003
- [2] South Carolina Collaborative Research Program (funded by NSF and NIH), 2002.
- [1] National Research Council, COBASE grant program, 2002

REGULAR JOURNAL REVIEWER FOR THE FOLLOWING JOURNALS

Applied and Computational Harmonic Analysis
BioMedCentral: BioInformatics
Information and Inference: A Journal of the IMA
Medical Image Analysis
Neuroimage
PLOS ONE
PNAS
SIAM Journal on Imaging Sciences
Statistica Sinica

CONSULTING ACTIVITIES

GeoEnergy, Inc., 3000 Wilcrest Drive, Suite 241, Houston, TX 77042, 2008-2009.

Design and development of denoising algorithms for seismic data (oil exploration). Implementation (in Fortran 95) and optimization of fast algorithms using vectorization and multi-threading. Testing and evaluation. Delivered source code and documentation.

Adapted Wave Technologies, 44 Encina Av, Palo Alto CA, 2000-2001.

Design and development of audio compression algorithms based on novel local trigonometric (time-frequency) transforms and wavelet-packets transforms. Implementation in C of the algorithms. Testing and evaluation. Delivered source code and documentation.

Fast Mathematical Algorithm & Hardware, Hamden,(Fortran 95) CT, 1993-1999.

Design and development of imaging compression algorithms based on fast wavelet and wavelet packet transforms. Implementation in C of the algorithms. Testing and evaluation. Delivered source code and documentation.

Boulder, CO, October 16, 2018.