






**François G. Meyer**  
PROFESSOR OF APPLIED MATHEMATICS

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 EDUCATION

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|-----------------|---------------------------|------|---|
| POSTDOCTORAL    | YALE UNIVERSITY           | 1995 | MATHEMATICS                               |
| PH.D.           | INRIA, FRANCE             | 1993 | ELECTRICAL ENGINEERING                    |
| M.S.            | ENSIMAG, GRENOBLE, FRANCE | 1987 | APPLIED MATHEMATICS<br>& COMPUTER SCIENCE |
| MAGNA CUM LAUDE |                           |      |   |

EMPLOYMENT

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|---------------------------------------|---|--------------------|
| PROFESSOR                             | University of Colorado at Boulder<br><i>Applied Mathematics</i>                   | Aug 2019–          |
| INTERIM DEPARTMENT CHAIR              | University of Colorado at Boulder<br><i>Applied Mathematics</i>                   | Jan 2023–June 2023 |
| PROFESSOR, BY COURTESY                | University of Colorado at Boulder<br><i>Applied Mathematics</i>                   | Jun 2013–Jul 2019  |
| DEPARTMENT CHAIR                      | University of Colorado at Boulder<br><i>Electrical &amp; Computer Engineering</i> | Jun 2017–Sep 2018  |
| PROFESSOR                             | University of Colorado at Boulder<br><i>Electrical &amp; Computer Engineering</i> | Jun 2013–Jul 2019  |
| ASSOCIATE PROFESSOR                   | University of Colorado at Boulder<br><i>Electrical &amp; Computer Engineering</i> | Aug 2005–May 2013  |
| ASSISTANT PROFESSOR                   | University of Colorado at Boulder<br><i>Electrical &amp; Computer Engineering</i> | Aug 1999–Jul 2005  |
| ASSISTANT PROFESSOR                   | Yale University<br><i>Diagnostic Radiology &amp; Computer Science</i>             | Jun 1997–Jul 1999  |
| ASSOCIATE RESEARCH SCIENTIST          | Yale University<br><i>Diagnostic Radiology &amp; Mathematics</i>                  | Jul 1995–May 1997  |
| RESEARCH ASSISTANT                    | INRIA, Rennes, France   | Oct 1990–Jun 1993  |
| SOFTWARE ENGINEER                     | Alcatel, Paris  | Sep 1989–Sep 1990  |
| RESEARCH ENGINEER                     | Institute Gustave Roussy, Villejuif, France<br><i>Department of Radiotherapy</i>  | Aug 1988–Aug 1989  |
| RESEARCH ENGINEER<br>MILITARY SERVICE | French Nuclear Energy Agency<br><i>Department of Thermonuclear Fusion</i>         | Aug 1987–Jul 1988  |
| RESEARCH ASSISTANT                    | LETI, Grenoble, France<br><i>Department of Computer Tomography</i>                | Jan 1987–Jun 1987  |

## VISITING POSITIONS, FELLOWSHIPS AND AWARDS

|   |  |                   |
|---|--|-------------------|
| BEST PAPER AWARD  | SIAM International Conference on Data Mining                 | 2022              |
| JEAN D'ALEMBERT FELLOWSHIP <sup>1</sup>                                       | INRIA Paris-Saclay and NeuroSpin                             | Jan–Jun 2017      |
| FELLOWSHIP DEUTSCHE FORSCHUNGSGEMEINSCHAFT                                    | Technische Universität Berlin                                | Mar 2017          |
| HOLLAND TEACHING AWARD  | University of Colorado at Boulder                            | 2016              |
| VISITING SCHOLAR  | ICERM, Brown University                                      | Jan- May 2014     |
| HOLLAND TEACHING AWARD  | University of Colorado at Boulder                            | 2013              |
| HOLLAND TEACHING AWARD  | University of Colorado at Boulder                            | 2010              |
| RESEARCH SCHOLAR  | Princeton University   | Sep 2006–Sep 2007 |
| SENIOR FELLOW   | IPAM, UCLA   | Spring 2007       |
| VISITING FELLOW   | Isaac Newton Institute                                       | Spring 2007       |
| SENIOR FELLOW   | IPAM, UCLA   | Fall 204          |
| INVITED PROFESSOR   | International Center for Theoretical Physics, Trieste, Italy | Sep 2000          |
| INVITED PROFESSOR   | Institut Henri Poincaré<br>Paris, France                     | Sep–Dec 1998      |
| NOMINATED FOR THE BEST INDUSTRY-RELATED PAPER AWARD                           | International Conference on Pattern Recognition              | 1992              |
| GRADUATE RESEARCH FELLOWSHIP  | INRIA  | 1990–1993         |
| FRENCH NATIONAL SCIENCE FOUNDATION MEMBER, SIGMA XI HONORARY RESEARCH SOCIETY | Yale University  | 1993–             |

## LEADERSHIP, ADMINISTRATION, AND SERVICE EXPERIENCE

|               |  |
|---------------|--|
| 2023-2024     | APPM, faculty search committee, chair.   |
| 2022-2023     | Natural Sciences Council. The council is the highest level committee in the division of natural sciences in all matters related to budget, faculty lines, planning, etc. The council advises the college administration. |
| Jan-June 2023 | APPM, Interim Department Chair.  |
| 2019-2021     | Vice Chancellor's Advisory Committee. This is the highest campus level committee in all matters related to promotion, and tenure. The committee advises the Provost in making recommendations for tenure and promotion.  |
| 2020          | Facial recognition working group (for University of Colorado President Mark Kennedy).  |
| 2019-present  | Conflicts of Interest and Commitment Committee, member.  |
| 2019-2024     | APPM, chair's advisory, member.  |
| 2020-present  | APPM Statistics and Data Science Steering Committee, chair.  |

<sup>1</sup>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.

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| 2019-2021    | APPM, award committee, chair.  |
| 2019         | Oversight Committee of the Online M.S. degree in Electrical Engineering (offered by Coursera), member.   |
| 2019         | School of Computing and Information (Computing+ Academy) Committee, member.  |
| 2019-present | Conflicts of Interest and Commitment Committee, member.  |
| 2017-2018    | Member of the Administrative Council of the College of Engineering and Applied Science   |
| 2017-2018    | ECEE, Department Chair. During my tenure as chair, four assistant professors were hired; our two undergraduate degrees were accredited by ABET; the department underwent the campus review of our academic program (conducted on a seven-year cycle); the departmental staff was completely re-organized with the creation of two main positions: a finance and accounting program manager, and a manager of operations. |
| 2017         | Academic Review and Planning Advisory Committee: reviewer for the Mathematics Department.  |
| 2016         | ECEE, Curriculum Committee, member.  |
| 2015-2016    | ECEE, search committee, member.  |
| 2014-2015    | ECEE, search committee, chair.   |
| 2012-2014    | ECEE, search Committee, member.  |
| 2014-2015    | College of Engineering, Bio-engineering Task Force, member.  |
| 2011-2015    | ECEE, executive committee, member.   |
| 2001-2009    | College of Engineering, College Committee on Bio-engineering, member.  |
| 2007-2008    | ECEE, search committee, chair.   |

## PUBLICATIONS

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### MANUSCRIPTS SUBMITTED TO PEER-REVIEWED JOURNALS AND CONFERENCE PROCEEDINGS

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- [2] **Meyer F.G.**, A Best Soules Basis to Compute a Laplacian Spectral Barycentre Graph, submitted for publication in *Applied and Computational Harmonic Analysis*. Available: <https://arxiv.org/abs/2502.00038>.
- [1] **Meyer F.G.**, Computation of the Laplacian Spectral Barycentre Network in a Soules Basis, submitted for publication in *Proceedings of 20th Workshop on Modeling and Mining Networks (WAW 2025)*, Vilnius University, July 2025.

### PEER-REVIEWED TEXTBOOK

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

### EDITED BOOK

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- [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

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- [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.

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PEER-REVIEWED JOURNAL PAPERS AND JOURNAL EQUIVALENT CONFERENCE PROCEEDINGS<sup>2</sup>

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- [50] **Meyer F.G.**, “When does the mean network capture the topology of a sample of networks?”, *Frontiers in Physics*, Volume 12, pp 1-12, 2024. <https://doi.org/10.3389/fphy.2024.1455988>
- [49] Daniel Ferguson and **Meyer F.G.**, “Theoretical analysis and computation of the sample Fréchet mean of sets of large graphs for various metrics”, *Information and Inference: a Journal of the IMA*, 58 pages, September 2023, Volume 12, Issue 3, <https://doi.org/10.1093/imaiai/iaad002>.
- [48] Daniel Ferguson & **Meyer F.G.**, “Computation of the Empirical Fréchet Mean for Sets of Large Graphs with Applications to Regression”, *Proceedings of SIAM International Conference on Data Mining (SDM22)*, pp 1–9, [Acceptance rate: 26.5%]; **Recipient of the SDM’22 Best Paper Award**. <https://epubs.siam.org/doi/10.1137/1.9781611977172.43>.
- [47] Daniel Ferguson & **Meyer F.G.**, “On the Number of Edges of the Fréchet Mean and Median Graphs”, *Proceedings of NetSci-X, International Winter School and Conference on Network Science, 2022*, pp 1–14, [Acceptance rate for full papers: 8%]; [https://link.springer.com/chapter/10.1007/978-3-030-97240-0\\_3](https://link.springer.com/chapter/10.1007/978-3-030-97240-0_3).
- [46] Wills P. and **Meyer F.G.**, “Metrics for graph comparison: A practitioner’s guide”, *PLOS ONE*, Vol 15(2), pp. 1–54, 2020, <https://doi.org/10.1371/journal.pone.0228728>.
- [45] Paria Rezaeinia, Kim Fairley, Piya Pal, **Meyer F.G.** and R. McKell Carter, “Identifying brain network topology changes in task processes and psychiatric disorders” *Network Neuroscience*, 4(1), pp. 257–273, 2020, [https://direct.mit.edu/netn/article-pdf/4/1/257/1866785/netn\\_a\\_00122.pdf](https://direct.mit.edu/netn/article-pdf/4/1/257/1866785/netn_a_00122.pdf).
- [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, Vol 8(2), June 2019, pp 289–312, <https://doi.org/10.1093/imaiai/iay010>
- [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 <https://doi.org/10.1016/j.dam.2017.10.007>.
- [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”, in *Proc. IEEE International Conference on Machine Learning and Applications*, Anaheim, CA, 2016, pp 152-157, [Acceptance rate: 24%]. <https://doi.org/10.1109/ICMLA.2016.0033>.
- [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>.

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<sup>2</sup>acceptance rate < 30%

- [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>
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- [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 **Meyer F.G.**, “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 **Meyer F.G.**, “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>.
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- [31] D.N. Kaslovsky and **Meyer F.G.**, “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, and **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%]
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- [25] **Meyer F.G.**, “It is not a wavelet analysis”, *Journal of Applied Physiology*, 105(5):1677; 2008.

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- [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

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- [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](http://www.google.com/patents/US6594394)

#### PAPERS PUBLISHED IN CONFERENCE PROCEEDINGS

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- [39] **Meyer F.G.**, “When the Metric Matters: a Study on the Location of the Frechet Mean Network”, *Complex International School and Conference on Network Science, NetSci 2025*, June 2025, Maastricht, the Netherlands.
- [38] **Meyer F.G.**, "The Best Soules Basis to Compute the Spectral Barycentre of a Set of Networks", *Complex International School and Conference on Network Science, NetSci 2025*, June 2025, Maastricht, the Netherlands.
- [37] Courtney, O., **Meyer F.G.**, "Fast Computation of the Barycenter Graph in the Spectral Domain", *Complex International School and Conference on Network Science, NetSci 2025*, June 2025, Maastricht, the Netherlands.
- [36] **Meyer F.G.**, “The Fréchet Mean of Inhomogeneous Random Graphs”, *Complex Networks & Their Applications X*, pp. 207–219, 2021, [Acceptance rate: 32%]; [https://link.springer.com/chapter/10.1007/978-3-030-93409-5\\_18](https://link.springer.com/chapter/10.1007/978-3-030-93409-5_18)



- [35] Wills P., **Meyer F.G.** “Change Point Detection in a Dynamic Stochastic Blockmodel”. *Complex Networks & Their Applications*, pp. 211–222, 2020, [Acceptance rate: 34%]; [https://link.springer.com/chapter/10.1007/978-3-030-36687-2\\_18](https://link.springer.com/chapter/10.1007/978-3-030-36687-2_18)
- [34] 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; <https://doi.org/10.1109/SSP.2012.6319851>
- [33] 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. <https://doi.org/10.1109/IEMBS.2011.6090638>.
- [32] **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.
- [31] **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>.
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- [26] **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.
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- [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. <https://doi.org/10.1109/SSP.2003.1289453>
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- [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., and **Meyer F.G.**, “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. **Nominated for the Best Industry-Related Paper Award.**

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INVITED CONFERENCE PRESENTATIONS WITHOUT PROCEEDINGS

- [37] “Multiscale Analysis of the Pattern of Connectivity in Dynamic Community Networks”, **Meyer F.G.**, *MSRI Special Session on Resistance Distance and Other Metrics on Graphs and Network*, Joint Mathematics Meetings, Seattle, WA, January 08, 2022.
- [36] “Detecting Topological Changes in Dynamic Graphs”, Wills P. and **Meyer F.G.**, *Workshop on Graph Spectra, Combinatorics and Optimization*, <http://wgsc2018.web.ua.pt/>, University of Aveiro, Portugal, 2018.
- [35] **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.
- [34] **Meyer F.G.**, (Invited Speaker), “Adaptive Time-Frequency Analysis of Sleep EEG”, Second Annual Colorado Sleep and Circadian Research Symposium, June 2015.
- [33] **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.
- [32] 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.
- [31] **Meyer F.G.**(Invited Speaker), “Nonlinear Dimensionality Reduction: The Inverse Map”, *5th International Conference on Computational Harmonic Analysis*, Vanderbilt University, May 2014.
- [30] Monnig N.D. and **Meyer F.G.**, “The Restricted Walker: A Fast Algorithm for Large Network Eigenvector Approximation”, SIAM Annual Meeting, Chicago, 2014.
- [29] 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.

- [28] 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.
- [27] **Meyer F.G.** “Random Graph Models for Image Patches”, ICERM, Brown University; Research Cluster: Geometric analysis methods for graph algorithms, 2014.
- [26] N.D Monnig, and **Meyer F.G.**, “The Restricted Walker: A Fast Algorithm for Large Network Eigenvector Approximation”, SIAM Annual Meeting, Chicago, 2014.
- [25] **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.
- [24] 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.
- [23] **Meyer F.G.**, Kaslovsky D.N., and B. Wohlberg, “Analysis of image patches: a unified geometric perspective”, *SIAM Conference on Imaging Science*, 2012.
- [22] 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).
- [21] Kaslovsky D.N. and **Meyer F.G.**, “Image Manifolds: Processing Along the Tangent Plane”, *International Congress on Industrial and Applied Mathematics*, 2011.
- [20] **Meyer F.G.**, “Image de-noising on the manifold of patches: a spectral approach”, *SIAM Conference on Imaging Science*, 2010.
- [19] **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
- [18] **Meyer F.G.**, “Learning Behavior as a Function of Brain Dynamics”, *American Mathematical Society (AMS) Joint Meetings; The Mathematics of Information and Knowledge*, 2008.
- [17] **Meyer F.G.**, “Decoding brain activity in natural environments”, *SIAM Conference on Imaging Science*, 2008.
- [16] **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/>.
- [15] **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/>
- [14] **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>.

- [13] 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.
- [12] Meyer F.G., "Exploration of high dimensional biomedical datasets with low-distortion embeddings", *Information Theory and Applications Workshop*, 2007.
- [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.

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#### PEER-REVIEWED ABSTRACTS

- [18] 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.

- [17] 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.
- [16] 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.
- [15] 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.
- [14] 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*.
- [13] 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*.
- [12] Mottram CJ, Wallace CL, Chikando CN, **Meyer F.G.**, 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
- [11] Kornatz K., Semmler J., **Meyer F.G.**, Pascoe J., and Enoka R.M., “Correlated motor unit activity has only a minor influence on the fluctuations in acceleration during anisometric contractions”, *Neuroscience 2004: Abstracts of the Society for Neuroscience 34th Annual Meeting*, 2004.
- [10] Moritz, C. T., E. A. Christou, **Meyer F.G.**, 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* pp. 154-154, 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 in young and old adults for slow concentric, but not eccentric, contractions of a hand muscle”, *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.

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#### 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.

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#### INVITED LECTURES

- [82] “The Analysis of Network-Valued Datasets”, *Introduction to Research Seminar, Applied Mathematics, University of Colorado at Boulder*, February 5, 2025.
- [81] “The Analysis of Modern Data Set: A Panoramic View”, *Applied Mathematics Colloquium, University of Colorado at Boulder*, March 12, 2021.
- [80] “Tracking the Evolution of Dynamic Networks”, *Yale School of Medicine*, March 3, 2021.
- [79] “Tracking the Evolution of Dynamic Networks”, *Applied Mathematics Seminar, Department of Mathematics, University at Buffalo, The State University of New York*, November 6, 2018.
- [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”, *Department 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.

#### GRANTS AWARDED

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Source: National Science Foundation

Title: *CIF: Small: Learning on Graphs*

Amount: \$426,527

Period: 7/18- 06/24

Role: PI

co-PI: NA

My share: \$426,527

Source: University Paris-Saclay (France)  
Title: *Jean d'Alembert Fellowship (this French fellowship is similar to a German Humboldt Research Award).*  
Amount: €24,580  
Period: 1/17- 06/17  
Role: PI  
co-PI: NA  
My share: €24,580

Source: National Science Foundation  
Title: *EXTREEMS – QED: Directions in Data Discovery (Data Cubed) in Undergraduate Education*  
Amount: \$949,675  
Period: 6/14- 05/19  
Role: Co-PI  
PI: Prof. Anne Dougherty  
My share: \$37,143

Source: National Science Foundation  
Title: *Geometrical Image Processing with Fast Randomized Algorithms*  
Amount: \$535,784  
Period: 9/09- 05/14  
Role: PI  
co-PI: Prof. Gunnar Martinsson  
My share: \$273,908

Source: Department of the Navy, SBIR with Numerica Corporation  
Title: *Interactive Generative Manifold Learning*  
Amount: \$50,000  
Period: 12/01/12 - 11/30/13  
Role: PI  
co-PI: Prof. Shannon Hughes  
My share: \$25,000

Source: Department of Energy (subcontract from Washington State University)  
Title: *Geometric Analysis for Data Reduction and Structure Discovery*  
Amount: \$117,363  
Period: 05/15/10-04/31/13  
Role: PI  
co-PI: NA  
My share: \$117,363

Source: Sandia National Laboratories  
Title: *Time Frequency Analysis Techniques for Regional Seismic Phase Detection and Identification (II)*  
Amount: \$63,676  
Period: 8/1/09- 7/31/11  
Role: PI

co-PI: NA  
My share: \$63,676

Source: Sandia National Laboratories  
Title: *Time Frequency Analysis Techniques for Regional Seismic Phase Detection and Identification*  
Amount: \$51,844  
Period: 9/1/08- 5/30/09  
Role: PI  
co-PI: NA  
My share: \$51,844

Source: National Science Foundation  
Title: *Submillimeter-Wave Imaging*  
Amount: \$240,000  
Period: 05/05-05/08  
Role: PI  
co-PI: Prof. Zoya Popovic  
My share: \$120,000  
Source: Lockheed Martin Corporation  
Title: *Dimensionality Reduction and Wavelet Analysis Applications to ONIR and Multi-spectral Processing (II)*  
Amount: \$33,699  
Period: 06/06-11/06  
Role: PI  
co-PI: NA  
My share: \$33,699

Source: National Institutes of Health  
Title: *Steadiness in Older Adults*  
Amount: \$1,849,068  
Period: 01/05-01/11  
Role: Co-PI  
PI: Prof. Roger Enoka  
My share: \$120,516

Source: Lockheed Martin Corporation  
Title: *Dimensionality Reduction and Wavelet Analysis Applications to ONIR and Multi-spectral Processing*  
Amount: \$12,000  
Period: 10/05-12/05  
Role: PI  
co-PI: NA  
My share: \$12,000

Source: National Science Foundation  
Title: *Multiresolution Methods for Detecting the Impact of Volcanic and Solar Forcings on Climate*  
Amount: \$298,897  
Period: 09/03-08/06

Role: Co-PI  
PI: Prof. Philippe Naveau  
My share: \$26,285

Source: Institute for Pure and Applied Mathematics (UCLA) & National Science Foundation  
Title: *Multiscale Geometry and Analysis in High Dimensions*  
Amount: \$21,000 (no indirect-costs)  
Period: 09/03-12/03  
Role: PI  
co-PI: NA  
My share: \$21,000

Source: The Whitaker Foundation  
Title: *Spatio-temporal model of fMRI data*  
Amount: \$80,000 (indirect-costs limited to 20 %)  
Period: 01/03-07/04  
Role: PI  
co-PI: NA  
My share: \$80,000

Source: The Whitaker Foundation  
Title: *Adaptive Extraction and Classification of Waveforms in Functional Images for Human Brain Mapping*  
Amount: \$209,195 (indirect-costs limited to 20 %)  
Period: 12/98-12/02  
Role: PI  
co-PI: NA  
My share: \$209,195

## TEACHING

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- Nominated for the 2021 John and Mercedes Peebles Innovation in Education Award. Quote from nominating student:

*All teachers and faculty should be commended for their efforts this past 14 months, but of the classes I've taken over the past two and a half semesters – Professor Meyer's APPM 5515 class was exceptional and by far the most successful in their transition to remote lectures.*

*Teaching a rigorous, theoretical math course is tough enough with 3 blackboards, in person office hours, and a live audience. But to have to constrain proofs and lengthy derivations to the canvas of an iPad with an 11-inch diagonal, while taking technical questions in a chat window where greek letters aren't easily to type or format, all the while subconsciously wondering which students with videos off are actually paying attention versus wondering the internet is a entirely different beast.*

*Professor Meyer handled all of this with the upmost grace and tact.*

- Holland Teaching Excellence Award in Electrical and Computer Engineering, University of Colorado at Boulder, 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.
- Nominated for the 2009 John and Mercedes Peebles Innovation in Education Award.
- Nominated for the 2009 Sullivan-Carlson Innovation in Teaching Award. Quote from nominating students: *Dr. Meyer has developed a very effective teaching method which not only transmits information about a subject, but encourages interest and provides pathways for independent study beyond the required class material.*

#### PH.D. STUDENTS SUPERVISED

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- [11] Daniel Ferguson, Ph.D., Applied Mathematics, 2022, *Machine Learning on Network-Valued Data: The Spectral Way*. Now: Data and Applied Scientist, Microsoft.
- [10] Peter Wills, Ph.D. Applied Mathematics, 2018; *Studies in the Analysis of Stochastic Processes*. Now: Senior Machine Learning Engineer at Abnormal Security.
- [9] Nathan Monnig, Ph.D. Applied Mathematics, 2015; *From Nonlinear Embedding to Graph Distances: a Spectral Perspective*. Now Lead Data Scientist at Lovevery.
- [8] Michael Brutz, Ph.D. Applied Mathematics, 2014; *Mathematical Modelling and Analysis of Several Diffusive Processes*. Now: Lead Specialist/Manager Data Scientist at KPMG.
- [7] Daniel Kaslovsky, Ph.D. Applied Mathematics, 2012 ; *Geometric Sparsity in High Dimension*. Now Director of Engineering & Principal Engineer, runZero.
- [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 Principal Machine Learning Scientist and Tech Lead 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

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- [13] Adam Sanchez, M.S. Statistics & Data-Science, 2022; *Estimation of Sample Fréchet Mean for Sets of Graphs: a Convolutional Neural Net Approach*. Now: Assistant Vice President – Risk Data Science at Regions Bank.
- [12] Finley, Brandon, M.S. Applied Mathematics, 2022, *Optimal Preprocessing Transformations through Deep RL and Manifold Learning Metrics*. Now: Ph.D. student at Université de Lausanne.



- [11] Lukas Goetz-Weiss, M.S. Applied Mathematics, 2017. *Dimensionality Detection and the Geometric Median on Data Manifolds*. Now: Data Scientist at Eppo.
- [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 Lead Machine Learning & Data Science Engineer at UserZoom.
- [8] Nicholas Bertrand, M.S., Applied Mathematics, 2012; *Sparse Encoding of Observations from a Smooth Manifold via Locally Linear Approximation*. Now: Machine Learning Software Engineer at Google.
- [7] Juan Ramirez, M.S., Electrical Engineering, 2012; *Learning from Manifold-Valued Data: An Application to Seismic Signal Processing*. Now: Senior Artificial Intelligence Research Engineer, The Johns Hopkins University Applied Physics Laboratory.
- [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*.
- [4] Pascal Getreuer, M.S. Applied Mathematics, 2006; *Essentially non oscillating techniques with general discretization*. Now: Senior Software Engineer 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: Principal Member of Technical Staff at GEO Semiconductor, Inc.
- [1] Aditya Dalvi, M.S. Electrical Engineering, 2004; *Selection of an Optimal Set of Wavelet Packets for fMRI Analysis*. Now: Vice President of Engineering at BrainScope.

#### UNDERGRADUATE STUDENTS SUPERVISED

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- [13] Olivia Courtney (Mathematics, Honor Thesis), 2024, *The Fréchet Mean of Graph Ensembles*.
- [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

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- [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

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- [35] National Science Foundation (Safe Learning-Enabled Systems), 2024.
- [34] National Science Foundation (Community Infrastructure for Research in Computer and Information Science and Engineering), 2024.
- [33] National Science Foundation (Accelerating Computing-Enabled Scientific Discovery), 2024.
- [32] National Science Foundation (Safe Learning-Enabled Systems), 2023
- [31] The Israel Science Foundation, 2023
- [30] Israeli Ministry of Innovation, Science and Technology, 2022,
- [29] Natural Sciences and Engineering Research Council of Canada, 2021.
- [28] Israel Science Foundation, 2021.
- [27] Natural Sciences and Engineering Research Council of Canada, 2020.
- [26] Blavatnik Interdisciplinary Cyber Research Center, Tel Aviv University, Israel, 2019.
- [25] Israel Science Foundation, 2019
- [24] Israeli University Planning and Budgeting Committee (UPBC) and the Israeli Atomic Energy Commission (IAEC), 2018
- [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

#### PROGRAM COMMITTEES

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- [22] Co-organizer of the Mini-Symposium on "Geometric Analysis for Data Reduction and Structure Discovery", International Congress on Industrial and Applied Mathematics– ICIAM 2011, Vancouver, BC.
- [21] Fall Symposium on Manifold Learning and its Applications, Association for the Advancement of Artificial Intelligence (AAAI), 2010.
- [20] Digital Image Processing and Analysis (DIPA) conference, Optical Society of America (OSA), June 7-10, 2010.
- [19] Workshop on Data Mining for Biomedical Informatics held in conjunction with the 8th SIAM International Conference on Data Mining, 2008.
- [18] Workshop on "Manifolds in Medical Imaging: Metrics, Learning and Beyond", held during the International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI), 2008

- [17] Workshop on Data Mining for Biomedical Informatics, 7th SIAM International Conference on Data Mining, April 2007.
- [16] Wavelet XII, SIAM/SPIE, part of SPIE's International Symposium on Optical Science and Technology, San Diego, 2007.
- [15] IEEE International Symposium on Computer-based Medical Systems (CBMS 2006), Salt Lake City, UT, June 22-23, 2006.
- [14] Symposium on the "Interpretation of the Surface EMG", Annual Meeting of the American College of Sports Medicine, 2005.
- [13] Scientific Review Committee for the International Conference on Information Processing in Medical Imaging, 2005.
- [12] Wavelet Applications in Signal and Image Processing, SIAM/SPIE, part of SPIE's International Symposium on Optical Science and Technology, San Diego, 2005.
- [11] Second International Conference on Computational Harmonic, 2004
- [10] Program on "Multiscale Geometry and Analysis in High Dimensions", Institute for Pure and Applied Mathematics, UCLA, <http://www.ipam.ucla.edu/programs/mga2004/>, September 7 - December 17, 2004.
- [9] Chair of the Organizing Committee of the Workshop "Multiscale Geometry in Image Processing and Coding", <http://www.ipam.ucla.edu/programs/mgaws1/>, Institute for Pure and Applied Mathematics, UCLA, Sept. 2004.
- [8] Second International Conference on Harmonic Analysis, Vanderbilt, May 2004.
- [7] International Conference of the IEEE Engineering in Medicine and Biology Society, Istanbul, Turkey, 2001.
- [6] Wavelet Applications in Signal and Image Processing, SIAM/SPIE, part of SPIE's International Symposium on Optical Science and Technology, San Diego, 2003.
- [5] Chair of the mini-Symposium "What lies beyond wavelets," Society for Industrial and Applied Mathematics (SIAM) annual meeting, San Diego, July 2001.
- [4] Wavelet Applications in Signal and Image Processing, SIAM/SPIE, part of SPIE's International Symposium on Optical Science and Technology, San Diego, 2001.
- [3] Wavelet Applications in Signal and Image Processing, SIAM/SPIE, part of SPIE's International Symposium on Optical Science and Technology, San Diego, 2000.
- [2] Wavelet Applications in Signal and Image Processing, SIAM/SPIE, part of SPIE's International Symposium on Optical Science and Technology, Denver, 1999.
- [1] Wavelet Applications in Signal and Image Processing, SIAM/SPIE, part of SPIE's International Symposium on Optical Science and Technology, San Diego, 1998.

#### REGULAR JOURNAL REVIEWER FOR THE FOLLOWING JOURNALS

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

#### CONSULTING ACTIVITIES

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*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, 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.