

Signal Processing Tools

Free downloadable Matlab scripts for scientists

available online at:

<http://terpconnect.umd.edu/~toh/spectrum/SignalProcessingTools.html>

Last updated May, 2016

Some of the publications that cite the use of these programs

If you have published a paper using these programs that you would like me to include here, please email the paper or a citation thereto to Tom O'Haver at toh@umd.edu.

1. A Baradarani, J Sadler, JRB Taylor , [High-resolution blood flow imaging through the skull](#), Electronics Letters, vol. 40, no. 13, **2004**, pp. 798–799.
2. Richard Graham , Ring Laser Gain Media , Thesis, http://ir.canterbury.ac.nz/bitstream/10092/1377/1/thesis_fulltext.pdf (**2006**)
3. Ingersoll, Justin Edward. A Regularization Technique for the Analysis of Photographic Data Used in Chemical Release Wind Measurements. ProQuest, **2008**.
4. Jed A. Meltzer, Hitten P. Zaveri, Irina I. Goncharova, Marcello M. Distasio, Xenophon Papademetris, Susan S. Spencer, Dennis D. Spencer and R. Todd Constable, "Effects of Working Memory Load on Oscillatory Power in Human Intracranial EEG", *Cereb. Cortex* (**2008**) 18 (8): 1843-1855. doi: 10.1093/cercor/bhm213

5. "A regularization technique for the analysis of photographic data used in chemical release wind measurements", JE Ingersoll, 2008, books.google.com "An application of detection function for the eye blinking detection", Pander, T. Przybyla, T. ; Czabanski, *Human System Interactions 2008 Conference: 25-27 May 2008*, Page(s): 287- 291
6. "Isotopically labeled oxygen studies of the NO_x exchange behavior of La₂CuO₄ to determine potentiometric sensor response mechanism" F.M. Van Assche IV, E.D. Wachsman, *Solid State Ionics*, Volume 179, Issue 39, 15 December **2008**, Pages 2225–2233
7. "High-speed laryngoscopic evaluation of the effect of laryngeal parameter variation on aryepiglottic trilling." Moisik, Scott R., John H. Esling, and Lise Crevier-Buchman. *poster*, http://www.ncl.ac.uk/linguistics/assets/documents/MoisikEslingBuchman_NewcastleP_haryngealsPoster_2009.pdf (**2009**).
8. "Early age concrete strength monitoring with piezoelectric transducers by the harmonic frequencies method", Thomas J. Kelleher, **2009**
<http://www.engin.swarthmore.edu/e90/2008/reports/Thomas%20Kelleher.pdf>
9. "Information management for high content live cell imaging", Daniel Jameson, David A Turner, John Ankers, Stephnie Kennedy, Sheila Ryan, Neil Swainston, Tony Griffiths, David G Spiller, Stephen G Oliver, Michael RH White, Douglas B Kell and Norman W Paton, *BMC Bioinformatics* **2009**, 10:226 doi:10.1186/1471-2105-10-226
10. "*Human-Computer Systems Interaction: Backgrounds and Applications*", edited by Zdzislaw S. Hippe, Juliusz Lech Kulikowski, Springer (Sep 30, **2009**), page 191.
11. "Multiplexed DNA detection using spectrally encoded porous SiO₂ photonic crystal particles", SO Meade, MY Chen, MJ Sailor, *Anal. Chem.*, **2009**, 81 (7), pp 2618–2625. DOI: 10.1021/ac802538x
12. "Prolonged stimulus exposure reveals prolonged neurobehavioral response

patterns, Brett A. Johnson, Cynthia C. Woo, Yu Zeng, Zhe Xu, Edna E. Hingco, Joan Ong, Michael Leon. *The Journal of Comparative Neurology*, Volume 518, Issue 10, pages 1617–1629, 15 May **2010**

13. "Alternative Measures of Phonation: Collision Threshold Pressure and Electroglottographic Spectral Tilt: Extra: Perception of Swedish Accents." Enflo, Laura. (**2010**). [Full Text](#).
14. Botcharova, Maria. "Changes in structure of EEG-EMG coherence during brain development: analysis of experimental data and modelling of putative mechanisms." (**2010**) [[PDF](#)] from [ucl.ac.uk](#)
15. "Vowel Dependence for Electroglottography and Audio Spectral Tilt", L Enflo, *Proceedings of Fonetik*, **2010**. [Full text](#).
16. "Rapid and accurate detection of plant miRNAs by liquid northern hybridization." Wang, Xiaosu, Yongao Tong, and Shenghua Wang. *International journal of molecular sciences* 11.9 (**2010**): 3138-3148.
17. Khudaish, Emad A., and Aysha A. Al Farsi. "Electrochemical oxidation of dopamine and ascorbic acid at a palladium electrode modified with in situ fabricated iodine-adlayer in alkaline solution." *Talanta* 80.5 (**2010**): 1919-1925.
18. "Advances in Music Information Retrieval", edited by Zbigniew W. Ras, Alicja Wiczorkowska, Springer, **2010**, page 135.
19. Xiaosu Wang , Yongao Tong and Shenghua Wang, Rapid and Accurate Detection of Plant miRNAs by Liquid Northern Hybridization, *Int. J. Mol. Sci.* **2010**, 11(9), 3138-3148; doi:[10.3390/ijms11093138](#)
20. "Radio Frequency Fuel Gauging With Neuro-Fuzzy Inference Engine For Future Spacecrafts". Kumagai, A., Liu, T. I., & Sul, D. In *Proceedings of the 10th IASTED International Conference*, **2010** (Vol. 674, No. 020, p. 243).

21. "Automatic Seizure Detection in ECoG by Differential Operator and Windowed Variance," Majumdar, K.K.; Vardhan, P., *Neural Systems and Rehabilitation Engineering, IEEE Transactions on* , vol.19, no.4, pp.356,365, Aug. **2011**
22. "Genetic algorithm with peaks adaptive objective function used to fit the EPR powder spectrum", Sebastian Grzegorz Żurek, *Applied Soft Computing*, Volume 11, Issue 1, January **2011**, Pages 1000–1007
23. "Determination of sea conditions for wave energy conversion by spectral analysis", B Yagci, P Wegener, *EEE Transactions on Power Delivery*, 18(2): 372–376.
24. "Push-broom hyperspectral imaging for elemental mapping with glow discharge optical emission spectrometry", G Gamez, D Frey, J Michler - *J. Anal. At. Spectrom.*, 2012 -, Spectrosc., **2011**, 65, 85–98
25. "Dual-order snapshot spectral imaging of plasmonic nanoparticles", Gregory J. Nusz, Stella M. Marinakos, Srinath Rangarajan, and Ashutosh Chilkoti, *Applied Optics*, Vol. 50, Issue 21, pp. 4198-4206 (**2011**)
<http://dx.doi.org/10.1364/AO.50.004198>
26. Sugandharaju, Ravi Kumar Chatnahalli. "Gaussian Deconvolution and MapReduce Approach for Chipseq Analysis". Diss. University of Cincinnati, **2011**.
27. "Parallel Deconvolution Algorithm in Perfusion Imaging" F Zhu, DR Gonzalez, T Carpenter, *Healthcare Informatics, Imaging and Systems Biology (HISB)*, 2011 First IEEE International Conference, 26-29 July **2011**
28. "Field observations of infragravity waves and their behaviour on rock shore platforms" Edward P. Beetham, Paul S. Kench, *Earth Surface Processes and Landforms*, Volume 36, Issue 14, pages 1872–1888, November **2011**
29. "Majority Voting: Material Classification by Tactile Sensing Using Surface Texture", Jamali, N., Sammut, C., *IEEE Transactions on Robotics*, Volume: 27,

30. Yuan, Yuan, Yishan Luo, and Albert Chung. "VE-LLI-VO: Vessel enhancement using local line integrals and variational optimization." *IEEE Transactions on Image Processing* 20.7 (**2011**): 1912-1924.
31. "Demand Estimation with Automated Meter Reading in a Distribution Network", Aksela, K. and Aksela, M. , *J. Water Resour. Plann. Manage.*, 137(5), 456–467 (**2011**). doi: 10.1061/(ASCE) WR.1943-5452.0000131
32. "Genetic algorithm with peaks adaptive objective function used to fit the EPR powder spectrum", Sebastian Grzegorz Żurek, *Journal Applied Soft Computing archive*. Volume 11, Issue 1, January, **2011** , pages 1000-1007
33. "Development of ECG signal interpretation software on Android 2.2, Hermawan, K.; Iskandar, A.A.; Hartono, R.N., " *Instrumentation, Communications, Information Technology, and Biomedical Engineering (ICICI-BME), 2011 2nd International Conference on* , vol., no., pp.259,264, 8-9 Nov. **2011**
doi: 10.1109/ICICI-BME.2011.6108621
34. Hoffman, Galen Brandt. Direct Write of Chalcogenide Glass Integrated Optics Using Electron Beams. Diss. The Ohio State University, **2011**.
35. "Automated peak alignment for nucleic acid capillary electrophoresis data by dynamic programming". Fethullah Karabiber, Kevin Weeks, and Oleg V. Favorov. In *Proceedings of the 2nd ACM Conference on Bioinformatics, Computational Biology and Biomedicine (BCB '11)*. ACM, New York, NY, USA, **2011**. pages 544-546. DOI=10.1145/2147805.2147895
<http://doi.acm.org/10.1145/2147805.2147895>
36. "Electricity gain via integrated operation of turbine generator and cooling tower using local model network." Pan, Tian-Hong, et al. *Energy Conversion, IEEE Transactions on* 26.1 (**2011**): 245-255.

37. "Dynamic analysis of electronic devices' power signatures, Marcu, M.; Cernazanu, C., " *Instrumentation and Measurement Technology Conference (I2MTC), 2012 IEEE International* , vol., no., pp.117,122, 13-16 May **2012**
doi: 10.1109/I2MTC.2012.6229562
38. "Experimental comparison among pileup recovery algorithms for digital gamma-ray spectroscopy" El-Tokhy, M.S. Mahmoud, I.I. ; Konber, H.A. *Informatics and Systems (INFOS)*, 2012 8th International Conference on 14-16, May **2012**
39. "Distributed representation of chemical features and tunotopic organization of glomeruli in the mouse olfactory bulb" Limei Maa, Qiang Qiu, Stephen Gradwohl, Aaron Scotta, Elden Q. Yua, Richard Alexander, Winfried Wiegreaebea, and C. Ron Yu, *Proceeding of the National Academy of Sciences*, April 3, **2012** vol. 109, no. 14, pages 5481-5486.
40. "A Robust Heart Sound Segmentation and Classification Algorithm using Wavelet Decomposition and Spectrogram." Deng, Yiqi, and Peter J. Bentley. Full text: <http://www.peterjbentley.com/heartworkshop/challengepaper3.pdf>
41. "Detecting STR peaks in degraded DNA samples". Marasco, E., Ross, A., Dawson, J., Moroose, T., & Ambrose, T. Proc. of 4th International Conference on Bioinformatics and Computational Biology (BICoB), (Las Vegas, USA), March **2012**. Full text: http://www.cse.msu.edu/~rossarun/pubs/RossDNAEnhancement_BICoB2011.pdf
42. "Saccades detection in optokinetic nystagmus-a fuzzy approach." PANDER, Tomasz, et al. , *Journal of Medical Informatics & Technologies* 19 (**2012**): 33-39.
43. "Grain-size properties and organic-carbon stock of Yedoma Ice Complex permafrost from the Kolyma lowland, northeastern Siberia", J Strauss, L Schirrmeister, S Wetterich, Andreas Borchers, Sergei P. Davydov, *Global Biogeochemical Cycles*, Volume 12, **2012**.
44. "An Early Prediction of Cardiac Risk using Augmentation Index Developed based

- on a Comparative Study." Manimegalai, P., Delpha Jacob, and K. Thanushkodi. , *International Journal of Computer Applications* 50 (2012). [Abstract](#).
45. "Determinação Da Estabilidade Oxidativa De Biocombustíveis," Bruno A. F. Vitorino, Franz H. Neff, Elmar U. K. Melcher, Antonio M. N. Lima, Anais do XIX Congresso Brasileiro de Automática, CBA **2012**.
<http://www.eletrica.ufpr.br/anais/cba/2012/Artigos/100018.pdf>
46. "Efficacy of Differential Operators in Brain Electrophysiological Signal Processing: A Case Study in Epilepsy."Majumdar, Kaushik, and Pratap Vardhan. [Full text](#).
47. "9.0 Experimental–Two-Dimensional GCxGC." *Technologies towards the Development of a Lab-on-a-Chip GCxGC for Environmental Research* (2012). [Full text](#). A Thesis by Jaydene Halliday, BSc MRSC
48. "BaNa: A hybrid approach for noise resilient pitch detection," He Ba; Na Yang; Demirkol, I.; Heinzelman, W., *Statistical Signal Processing Workshop (SSP), 2012 IEEE* , vol., no., pp.369,372, 5-8 Aug. **2012**. doi: 10.1109/SSP.2012.6319706
49. Tripathi, Ashish. THE NEW IMAGE PROCESSING ALGORITHM FOR QUALITATIVE AND QUANTITATIVE STM DATA ANALYSIS. Diss. **2012**.
50. Skelton, Martin. "Diffusion of Innovation System Elements-A Novel Method to Study Technology Development and Its Application to Wind Power." (2012). [\[PDF\] from chalmers.se](#)
51. Pander, T., et al. "A new method of saccadic eye movement detection for optokinetic nystagmus analysis." Engineering in Medicine and Biology Society (EMBC), 2012 Annual International Conference of the IEEE. IEEE, **2012**.
52. Cuss, C. W., and Celine Guéguen. "Determination of relative molecular weights of fluorescent components in dissolved organic matter using asymmetrical flow field-flow fractionation and parallel factor analysis." *Analytica chimica acta* 733 (2012): 98-102.

53. Dickson, B., and M. Craig. "Deconvolving gamma-ray logs by adaptive zone refinement." *Geophysics* 77.4 (2012): D159-D169.
54. "SmartBells: RFID-Enhanced System to Monitor Free Weight Exercises." Chaudhri, Rohit, and Gaetano Borriello. [Full text](#).
55. "Diffusion of Innovation System Elements-A Novel Method to Study Technology Development and Its Application to Wind Power." Skelton, Martin. (2012). [Full text](#).
56. Grotenhuis, Michael Gary. "An Overview of the Maximum Entropy Method of Image Deconvolution." *A University of Minnesota-Twin Cities "Plan B" Master's paper*.
57. "On comet attitude determination of Rosetta lander Philae through nonlinear optimal system identification." Caputo, Gianluca. (2012). [Full text](#).
58. Phillips, James William, and Yi Jin. "Systems and methods for modulating the electrical activity of a brain using neuro-EEG synchronization therapy." U.S. Patent No. 8,465,408. 18 Jun. 2013.
59. Moon, Jim, et al. "Body-worn vital sign monitor." U.S. Patent No. 8,364,250. 29 Jan. 2013.
60. Hao, Manzhao, et al. "Corticospinal Transmission of Tremor Signals by Propriospinal Neurons in Parkinson's Disease." *PloS one* 8.11 (2013): e79829.
61. McCOMBIE, Devin, Marshal Dhillon, and Matt Banet. "Method for measuring patient motion, activity level, and posture along with PTT-based blood pressure." U.S. Patent No. 8,475,370. 2 Jul. 2013.
62. Banet, Matt, Devin McCombie, and Marshal Dhillon. "Body-worn monitor for measuring respiration rate." U.S. Patent No. 8,545,417. 1 Oct. 2013.

63. Banet, Matt, and Jim Moon. "Body-worn vital sign monitor." U.S. Patent No. 8,591,411. 26 Nov. **2013**.
64. McCombie, Devin, et al. "Alarm system that processes both motion and vital signs using specific heuristic rules and thresholds." U.S. Patent No. 8,594,776. 26 Nov. **2013**.
65. Banet, Matt, Marshal Dhillon, and Devin McCombie. "Body-worn system for measuring continuous non-invasive blood pressure (cNIBP)." U.S. Patent No. 8,602,997. 10 Dec. **2013**.
66. Moon, Jim, et al. "Body-worn pulse oximeter." U.S. Patent No. 8,437,824. 7 May **2013**.
67. Phillips, James William, and Yi Jin. "Systems and methods for neuro-EEG synchronization therapy." U.S. Patent No. 8,585,568. 19 Nov. **2013**.
68. Khvostichenko, Daria S., et al. "An X-ray transparent microfluidic platform for screening of the phase behavior of lipidic mesophases." *Analyst* 138.18 (**2013**): 5384-5395.
69. "A signal alignment method based on DTW with new modification", Karabiber, F. ; Bilgisayar Muhendisligi Bolumu ; Balcilar, M. *Signal Processing and Communications Applications Conference (SIU)*, 2013 21st , 24-26 April **2013** . ISBN: 978-1-4673-5562-9; DOI: 10.1109/SIU.2013.6531176
70. "An automated signal alignment algorithm based on dynamic time warping for capillary electrophoresis data", *Turkish Journal of Electrical Engineering & Computer Sciences* , Fethullah KARABİBER , 21, (**2013**), 851-863. Full text: [pdf](#)
71. "Traditional Asymmetric Rhythms: A Refined Model Of Meter Induction Based On Asymmetric Meter Templates, Fouloulis, Thanos, Aggelos Pikrakis, and Emiliios Cambouropoulos, " *Proceedings of the Third International Workshop on Folk Music Analysis (FMA2013)*. **2013**. ISBN 978-90-70389-78-9

72. "Comparison of two methods for measuring γ -H2AX nuclear fluorescence as a marker of DNA damage in cultured human cells: applications for microbeam radiation therapy." Anderson, D., et al. , *Journal of Instrumentation* 8.06 (2013): C06008. [Full text PDF](#).
73. "A conserved aromatic residue regulating photosensitivity in short-wavelength sensitive cone visual pigments". Kuemmel, C. M., Sandberg, M. N., Birge, R. R., & Knox, B. E. *Biochemistry*, 52(30), 5084-5091 (2013).
74. "Measurement Of The Lightweight Rotor Eigenfrequencies And Tuning Of Its Model Parameters," Luboš SMOLÍK, Michal HAJŽMAN, Transactions of the VŠB – Technical University of Ostrava, Mechanical Series, No. 1, 2013, vol. LIX. [Full English text](#).
75. "Investigation of the phase separation of PNIPAM using infrared spectroscopy together with multivariate data analysis." Munk, Tommy, et al. , *Polymer* 54.26 (2013): 6947-6953. [Abstract](#).
76. "Phase separation in $\text{In}_x\text{Ga}_{1-x}\text{N}$ ($0.10 < x < 0.40$).” Belyaev, K. G., Rakhlin, M. V., Jmerik, V. N., Mizerov, A. M., Kuznetsova, Y. V., Zamoryanskaya, M. V., ... & Toropov, A. A. (2013). *physica status solidi (c)*, 10 (3), 527-531.
77. "Corticomuscular Transmission of Tremor Signals by Propriospinal Neurons in Parkinson's Disease." Hao, Manzhao, et al. , *PloS one* 8.11 (2013): e79829.
78. "Sickle-shaped voxel approach to enhance automatic reclaiming operation using bucket wheel reclaimer," Maung Thi Rein Myo; Tien-Fu Lu, *Industrial Electronics and Applications (ICIEA), 2013 8th IEEE Conference on* , vol., no., pp.1700,1705, 19-21 June 2013. doi: 10.1109/ICIEA.2013.6566642
79. "Review of software tools for design and analysis of large scale MRM proteomic datasets." Colangelo, Christopher M., et al., *Methods* 61.3 (2013): 287-298.
80. Carabetta, Valerie J., et al. "A complex of YlbF, YmcA and YaaT regulates

sporulation, competence and biofilm formation by accelerating the phosphorylation of Spo0A." *Molecular microbiology* 88.2 (2013): 283-300.

81. Web, N. L. P. M. L., and Andrew Rosenberg. "Ensemble Methods." (2013).
82. Cannon, Robert William, "Automated Spectral Identification of Materials using Spectral Identity Mapping", 2013, Master of Science in Chemistry, Cleveland State University, College of Sciences and Health Professions.
83. MS Freeman, ZI Cleveland, Y Qi , [Enabling hyperpolarized ¹²⁹Xe MR spectroscopy and imaging of pulmonary gas transfer to the red blood cells in transgenic mice expressing human hemoglobin](#)", *Magnetic Resonance in Medicine*, Volume 70, Issue 5, pages 1192–1199, November 2013
84. SMOLÍK, Luboš, and Michal HAJ ŹZMAN. "MEASUREMENT OF THE LIGHTWEIGHT ROTOR EIGENFREQUENCIES AND TUNING OF ITS MODEL PARAMETERS . Transactions of the VSB – Technical University of Ostrava, Mechanical Series Ź No. 1, 2013, vol. LIX article No. 1942
85. Kumssa, Aida Meredassa. "Tablet User Interface Evaluation for a Portable Ultrasound System and Real time Doppler SpectrumProcessing." (2013).
86. "Demonstration of Large Coupling-Induced Phase Delay in Silicon Directional Cross-Couplers," Westerveld, W.J.; Pozo, J.; Leinders, S.M.; Yousefi, M.; Urbach, H.P., *Selected Topics in Quantum Electronics, IEEE Journal of* , vol.20, no.4, pp.1,6, July-Aug. 2014, doi: 10.1109/JSTQE.2013.2292874
87. "Probabilistic peak detection for first-order chromatographic data", M. Lopatka, G. Vivo-Truyols, M.J. Sjerps, *Analytical Chemica Acta*, 2014 DOI: <http://dx.doi.org/10.1016/j.aca.2014.02.015>
88. "A recursive algorithm for optimizing differentiation." Mashreghi, Ali, and Hadi Sadoghi Yazdi. *Journal of Computational and Applied Mathematics* 263 (2014): 1-13.

89. Grubišić, Vladimir, et al. "Heterogeneity of myotubes generated by the MyoD and E12 basic helix-loop-helix transcription factors in otherwise non-differentiation growth conditions." *Biomaterials* 35.7 (2014): 2188-2198.
90. "Comparison of Signal Smoothing Techniques for Use in Embedded System for Monitoring and Determining the Quality of Biofuels", Dalton Cézane Gomes Valadares , Rute Cardoso Drebes, Elmar Uwe Kurt Melcher, Sérgio de Brito Espínola, Joseana Macêdo Fachine Régis de Araújo, *Applied Mechanics and Materials*, Vols. 448-453, pages 1679-1688, Trans Tech Publications, Switzerland, 2014. DOI: [10.4028/www.scientific.net/AMM.448-453.1679](http://dx.doi.org/10.4028/www.scientific.net/AMM.448-453.1679)
91. "Characterization of Integrated Optical Strain Sensors Based on Silicon Waveguides," Westerveld, W.J.; Leinders, S.M.; Muilwijk, P.M.; Pozo, J.; van den Dool, T.C.; Verweij, M.D.; Yousefi, M.; Urbach, H.P., , *Selected Topics in Quantum Electronics, IEEE Journal of* , vol.20, no.4, pp.1,10, July-Aug. 2014. doi: 10.1109/JSTQE.2013.2289992
92. "Gaussian-function-based deconvolution method to determine the penetration ability of petrolatum oil into in vivo human skin using confocal Raman microscopy", Chun-Sik Choe, Jürgen Lademann, and Maxim E Darwin, *Laser Phys.* 24 10560, 2014. (<http://iopscience.iop.org/1555-6611/24/10/105601>)
93. "Borosilicate Glass Containing Bismuth and Zinc Oxides as a Hot Cell Material for Gamma-Ray Shielding". H. A. Saudi, H. A. Sallam, K. Abdullah. *Physics and Materials Chemistry*. 2014; 2(1):20-24. doi: 10.12691/pmc-2-1-4.
94. "Theta-Burst Stimulation of Hippocampal Slices Induces Network-Level Calcium Oscillations and Activates Analogous Gene Transcription to Spatial Learning", Graham K. Sheridan , Emad Moeendarbary, Mark Pickering, John J. O'Connor, and Keith J. Murphy, *PLOS One*, June 20, 2014. DOI: 10.1371/journal.pone.0100546
95. M. Rahmat, W. Maulina, Isnaeni, Miftah, N. Sukmawati, E. Rustami, M. Azis, K.B. Seminar, A.S. Yuwono, Y.H. Cho, H. Alatas, Development of a novel ozone gas sensor based on sol-gel fabricated photonic crystal, *Sensors and Actuators A: Physical*, Volume 220, 1 December 2014, Pages 53–61

96. "Bacteria-instructed synthesis of polymers for self-selective microbial binding and labelling", E. Peter Magennis, Francisco Fernandez-Trillo, Cheng Sui, Sebastian G. Spain, David J. Bradshaw, David Churchley, Giuseppe Mantovani, Klaus Winzer & Cameron Alexander, *Nature Materials* 13, 748–755 (**2014**)
doi:10.1038/nmat3949
(<http://www.nature.com/nmat/journal/v13/n7/extref/nmat3949-s1.pdf>)
97. A COMPUTERIZED DATABASE FOR BULLET COMPARISON BY CONSECUTIVE MATCHING, Ashley Chu, David Read and David Howitt, Federally funded grant report, U.S. Department of Justice, Document No. 247771, July **2014**.
(<http://www.crime-scene-investigator.net/computerized-database-for-bullet-comparison-by-consecutive-matching.pdf>)
98. Circuit level defects in the developing neocortex of Fragile X mice, [J Tiago Gonçalves](#), [James E Anstey](#), [Peyman Golshani](#) , [Carlos Portera-Cailliau](#), *Nature Neuroscience* 16, 903–909 (**2013**) doi:10.1038/nn.3415
99. Cade David E., Benoit-Bird Kelly J., (2014), An automatic and quantitative approach to the detection and tracking of acoustic scattering layers, *Limnology and Oceanography: Methods*, 12, doi: 10.4319/lom.**2014**.12.742.
100. Blake, Phillip, et al. "Diffraction in nanoparticle lattices increases sensitivity of localized surface plasmon resonance to refractive index changes." *Journal of Nanophotonics* 8.1 (**2014**): 083084-083084.
101. Sprinkhuizen, Sara M., Jerome L. Ackerman, and Yi-Qiao Song. "Influence of bone marrow composition on measurements of trabecular microstructure using decay due to diffusion in the internal field MRI: Simulations and clinical studies." *Magnetic Resonance in Medicine* 72.6 (**2014**): 1499-1508.
102. Canlas, Reich Rechner D., Carlo Noel E. Ochotorena, and Elmer P. Dadios. "Fuzzy-genetic photoplethysmograph peak detection." *Humanoid, Nanotechnology, Information Technology, Communication and Control, Environment and Management (HNICEM)*, 2014 International Conference on. IEEE, **2014**.

103. Duenas, J. A., et al. "Dependency on the silicon detector working bias for proton–deuteron particle identification at low energies." *Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment* 714 (2013): 48-52.
104. Sterling, Ryan, and Nathaniel Todd. "USING NEURAL SIGNALS TO PROVIDE INPUT FOR COMPUTING APPLICATIONS IN AUTONOMOUS PROSTHETICS." [\[PDF\] from 136.142.82.187](#)
105. Wang, Xiao, Yi-Qing Ni, and Ke-Chang Lin. "Comparison of statistical counting methods in SHM-based reliability assessment of bridges." *Journal of Civil Structural Health Monitoring*: 1-12.
106. González-Sáiz, J. M., et al. "Modulation of the phenolic composition and colour of red wines subjected to accelerated ageing by controlling process variables." *Food chemistry* 165 (2014): 271-281.
107. Kurniawan, Itmy Hidayat, and Sahat Simbolon. "Deteksi dan Pengukuran Spektra dalam Analisis Spektrografi Emisi dengan Pengolahan Citra." *Jurnal Nasional Teknik Elektro dan Teknologi Informasi (JNTETI)* 3.1 (2014).
108. Souri, Zoha. EEG-BASED ASSESSMENT OF DRIVER'S PERCEPTION OF TRAFFIC ENVIRONMENT. Diss. Lamar University, 2014.
109. Lin, Junfang, et al. "Novel method for quantifying the cell size of marine phytoplankton based on optical measurements." *Optics express* 22.9 (2014): 10467-10476.
110. Hammonds Jr, James S., Kimani A. Stancil, and Charlezetta E. Stokes. "Quality factor temperature dependence of a surface phonon polariton resonance cavity." *Applied Physics Letters* 105.11 (2014): 114107.
111. Mall, U., et al. "Characterization of lunar soils through spectral features extraction in the NIR." *Advances in Space Research* 54.10 (2014): 2029-2040.

112. Bai, Er-Wei, et al. "Detection of radionuclides from weak and poorly resolved spectra using Lasso and subsampling techniques." *Radiation Measurements* 46.10 (2011): 1138-1146.
113. Sugandharaju, Ravi Kumar Chatnahalli. *Gaussian Deconvolution and MapReduce Approach for Chipseq Analysis*. Diss. University of Cincinnati, 2011.
114. Mukhopadhyay, C. K., et al. "Acoustic emission during fracture toughness tests of SA333 Gr. 6 steel." *Engineering Fracture Mechanics* 96 (2012): 294-306.
115. van de Voort, Frederik R., and David Pinchuk. "System and Method for Determining Base Content of a Hydrophobic Fluid." U.S. Patent Application 13/171,566.
116. Sirotin, Yevgeniy B., Martín Elias Costa, and Diego A. Laplagne. "Rodent ultrasonic vocalizations are bound to active sniffing behavior." *Frontiers in behavioral neuroscience* 8 (2014).
117. Hoerndli, Frédéric J., et al. "Kinesin-1 regulates synaptic strength by mediating the delivery, removal, and redistribution of AMPA receptors." *Neuron* 80.6 (2013): 1421-1437.
118. Brockie, Penelope J., et al. "Cornichons control ER export of AMPA receptors to regulate synaptic excitability." *Neuron* 80.1 (2013): 129-142.
119. Žáčik, Michal. *Šumová spektroskopie pro biologii*. Diss. Vysoké učení technické v Brně. Fakulta elektrotechniky a komunikačních technologií, 2013.
120. Bucur, R. V. "Structure of the Voltammograms of the Platinum-Black Electrodes: Derivative Voltammetry and Data Fitting Analysis." *Electrochimica Acta* 129 (2014): 76-84.
121. Teixeira, Carlos Esteves. "Sobre a teoria da difração de raios-X em

- estruturas tridimensionais." (2014). [\[PDF\] from ufmg.br](#)
122. Moon, Jim, et al. "Cable system for generating signals for detecting motion and measuring vital signs." U.S. Patent No. 8,738,118. 27 May 2014.
123. Oliveira, Raphael Rocha de. "Modelos de calibração multivariada por NIRS para a predição de características de qualidade da carne bovina." (2014). [PDF\] from ufg.br](#)
124. Anderson, Danielle L., et al. "Spatial and temporal distribution of γ H2AX fluorescence in human cell cultures following synchrotron-generated X-ray microbeams: lack of correlation between persistent γ H2AX foci and apoptosis." *Synchrotron Radiation 21.4* (2014).
125. Maxfield, Dane Arthur. [KINESIN-1 REGULATES SYNAPTIC STRENGTH BY MEDIATING DELIVERY, REMOVAL AND REDISTRIBUTION OF AMPARS](#). Diss. The University of Utah, 2014.
126. Zou, Xiaoyu, Magneto-optical properties of ferromagnetic nanostructures on modified nanosphere templates. Thesis, CALIFORNIA STATE UNIVERSITY, LONG BEACH, 2014, 87 pages; 1591619
127. A Carrasco, TA Brown, SG Lomber, [Spectral and Temporal Acoustic Features Modulate Response Irregularities within Primary Auditory Cortex Columns](#), *PLoS one*, 2014, DOI: 10.1371/journal.pone.0114550
128. Luo, Changtong, et al. "Wave system fitting: A new method for force measurements in shock tunnels with long test duration." *Mechanical Systems and Signal Processing* (2015).
129. Möbius, Klaus, et al. "Möbius–Hückel topology switching in an expanded porphyrin cation radical as studied by EPR and ENDOR spectroscopy." *Physical Chemistry Chemical Physics* 17.9 (2015): 6644-6652.

130. Nystad, Helle Emilia. Comparison of Principal Component Analysis and Spectral Angle Mapping for Identification of Materials in Terahertz Transmission Measurements. Diss. Master's thesis, Norwegian University of Technology and Science, **2015**.
131. Hahn, Christian, et al. "Adjusting rheological properties of concentrated microgel suspensions by particle size distribution." *Food Hydrocolloids* 49 (**2015**): 183-191.
132. Chiuchiú, D. "Time-dependent study of bit reset." *EPL (Europhysics Letters)* 109.3 (**2015**): 30002.
133. Taghizadeh, Mohammad Taghi, Nazanin Yeganeh, and Mostafa Rezaei. "The investigation of thermal decomposition pathway and products of poly (vinyl alcohol) by TG-FTIR." *Journal of Applied Polymer Science* 132.25 (**2015**).
134. P Sevusu , [Real-time air quality measurements using mobile platforms](#), **2015**, Thesis, [\[PDF\] from rutgers.edu](#)
135. D. S. Khvostichenko, J. D. D. Ng, S. L. Perry, M. Menon, P. J. A. Kenis, Effects of detergent β -octylglucoside and phosphate salt solutions on phase behavior of monoolein mesophases , [PDF\] from researchgate.net](#)
136. Mahmoud, Imbaby I., and Mohamed S. El_Tokhy. "Advanced signal separation and recovery algorithms for digital x-ray spectroscopy." *Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment* 773 (**2015**): 104-113.
137. Ubnoske, Stephen M., et al. "Role of nanocrystalline domain size on the electrochemical double-layer capacitance of high edge density carbon nanostructures." *MRS Communications* (**2015**): 1-6.
138. MUHAMMAD MUFTI AZIS, "Experimental and kinetic studies of H₂ effect on lean exhaust aftertreatment processes: HC-SCR and DOC" CHALMERS

139. Kühbach, Markus, Brüggemann, Thiemo, Molodov, Konstantin, Gottstein, Günter. "On a Fast and Accurate In Situ Measuring Strategy for Recrystallization Kinetics and Its Application to an Al-Fe-Si Alloy", *Metallurgical and Materials Transactions A*, March **2015**, Volume 46, Issue 3, pp 1337-1348
140. D. Y. Lipatov, Y. R. Shaltaeva, V. V. Belyakov, A. V. Golovin, V. S. Pershenkov, V. V. Shurenkov, D. Y. Yakovlev, "Modeling of IMS Spectra in Medical Diagnostic Purposes", [3rd International Conference on Nanotechnologies and Biomedical Engineering](#), Volume 55 of the series [IFMBE Proceedings](#), pp 404-408
141. Y. Meerten, , Y. Swolfs , J. Baets , L. Gorbatikh , I. Verpoebucurst , "Penetration impact testing of self-reinforced composites", *Composites Part A: Applied Science and Manufacturing*, Volume 68, January **2015**, Pages 289–295
142. Ivanov, I , Optimal filtering of synchronized current phasor measurements in a steady state, 2015 IEEE International Conference on [Industrial Technology \(ICIT\)](#), Pages 1362 - 1367 , 17-19 March **2015**
143. L Farge, J Boisse, J Dillet, S André , [Wide-angle X-ray scattering study of the lamellar/fibrillar transition for a semi-crystalline polymer deformed in tension in relation with the evolution of volume strain](#), *Journal of Polymer Science B*, Volume 53, Issue 20, 15 October **2015**, Pages 1470–1480
144. [Patrick Schloth](#) , Precipitation in the high strength AA7449 aluminium alloy: implications on internal stresses on different length scales, Thesis, [École Polytechnique Fédérale de Lausanne](#), Lausanne, Switzerland, June **2015**.
145. FlavonQ: An Automated Data Processing Tool for Profiling Flavone and Flavonol Glycosides with Ultra-High-Performance Liquid Chromatography–Diode Array Detection–High Resolution Accurate Mass–Mass Spectrometry, [Mengliang Zhang](#), [Jianghao Sun](#), and [Pei Chen*](#), *Anal. Chem.*, **2015**, 87 (19), pp 9974–9981, DOI: 10.1021/acs.analchem.5b02624

146. Schulze, H. Georg, and Robin FB Turner. "Development and Integration of Block Operations for Data Invariant Automation of Digital Preprocessing and Analysis of Biological and Biomedical Raman Spectra." *Applied spectroscopy* 69.6 (2015): 643-664.
147. Chen, Rex Chin-Hao. "Spectral and Temporal Interrogation of Cerebral Hemodynamics Via High Speed Laser Speckle Contrast Imaging." (2015).
148. Parker, Michael J. Coupling Nuclear Induced Phonon Propagation with Conversion Electron Moessbauer Spectroscopy. No. AFIT-ENP-MS-15-J-054. AIR FORCE INSTITUTE OF TECHNOLOGY WRIGHT-PATTERSON AFB OH GRADUATE SCHOOL OF ENGINEERING AND MANAGEMENT, 2015.
149. Maistry, Nattele. Investigating the concept of Fraunhofer lines as a potential method to detect corona in the wavelength region 338nm-405nm during the day. Diss. 2015.
150. Liu, Yanping, et al. "Applications of Savitzky-Golay Filter for Seismic Random Noise Reduction." *Acta Geophysica* (2015).
151. Swoboda, Daniel Maximilian, et al. "A Comprehensive Study of Simple Digital Filters for Botball IR Detection Techniques."
152. CE Funes, EF Cromwell [System and method for determining a baseline measurement for a biological response curve](#), US Patent App. 13/308,021, 2
153. AD Beyene, R Bluffstone, Z Gebreegziabher , [The Improved Biomass Stove Saves Wood, But How Often Do People Use It?](#), [TXT] from worldbank.com
154. Alt, Daniel M. Design and Commissioning of a 16.1 MHz Multiharmonic Buncher for the ReAccelerator at NSCL. ProQuest, 2016.
155. Lipatov, D. Y., et al. "Modeling of IMS Spectra in Medical Diagnostic Purposes." 3rd International Conference on Nanotechnologies and Biomedical Engineering. Springer Singapore, 2016.

156. Performance evaluation and optimization of X-ray stress measurement for nickel aluminium bronze based on the Bayesian method. *Journal of Applied Crystallography*, **2016** – scripts.iucr.org
157. [Top-down modulation of stimulus drive via beta-gamma cross-frequency interaction](#). CG Richter, WH Thompson, [CA Bosman](#), [P Fries](#) - bioRxiv, **2016** – biorxiv.org
158. Azpúrua, Marco A., Marc Pous, and Ferran Silva. "Decomposition of Electromagnetic Interferences in the Time-Domain." (**2016**).
159. Barros, Rodrigo Emanuel de Britto Andrade. SISTEMA DE INTERROGAÇÃO DE REDES DE BRAGG: PRIMEIROS PASSOS NA CRIAÇÃO DE UM PROTÓTIPO. Diss. Universidade Federal do Rio de Janeiro, **2016**.
160. Li, Yuanlu, et al. "A novel signal enhancement method for overlapped peaks with noise immunity." *Spectroscopy Letters* 49.4 (**2016**): 285-293.
161. Hatterschide, Joshua. "Retroviral-RNA Structure and Function: Investigating the role of aminoacyl-tRNA synthetases and retroviral-RNA structural elements in the initiation of reverse transcription." (**2016**).