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CURRICULUM VITAE

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Date & place of birth: 04/08/78, Paris, France
Citizenship: Israeli, French
Date of arrival to Israel: 12/02/2008
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1. Academic education

2006-2008: Post-doctoral Fellow, Hebrew University of Jerusalem, Department of Statistics. Advisor: Pr. Yaacov RITOV.

2002-2005: Ph.D in Signal Processing, (Sauma Cum Laude); Telecom ParisTech – Department of Signal Processing. Advisor: Pr Eric MOULINES. Title: "Statistical signal processing for spectrometry: application to pileup correction for Gamma spectrometry"

2000-2001: M.Sc. in Applied Probability ; Paris 6 University – Department Probability and Statistics. Advisor: Pr Eric Moulines. Title: "On the asymptotic properties of Hill's estimator"

1998-2001: M.Sc in Electrical Engineering (Cum Laude): Telecom ParisTech - Signal Processing, Majors in Signal and Image Processing.

1995-1998: B.S. in Mathematics (Cum Laude) Paris 7 University – Mathematics.

2. Academic employment

Current position: Senior Lecturer, SCE, Department of Electrical Engineering.

2008-2012: Lecturer, SCE, Department of Electrical Engineering.

2007-2008: Adjunct lecturer, SCE, Department of Electrical Engineering.

2006-2008: Post-Doctoral position, Hebrew University, department of Statistics.

2003-2005: Teaching Assistant, Paris 9 University, France

3. Industrial engineering experience

2018-2019 : Part-time back-end developer in Deep Learning, Yoobic, Israel

2015-2018: Part-time algorithm developer in Computer Vision, Aetrex Israel

2001-2002 : R&D engineer – Dialoca, ENST Paris

4. Academic activities

4.1. Previous research and development activities

2010-2012: Methods for adaptive power allocation for satellite communication, 2 journal papers,

2007-2010: Semiparametric methods for ECG signal processing – 1 book chapter, 1 conference paper, 1 journal paper.

2002-2007: Analytical statistical methods for pileup correction – 2 journal papers, 4 conference papers, 1 patent.

2001-2002 : Conception of a speaker verification system based on a speaker classification tree and Gaussian Mixture Models - 2 conference papers.

4.2. Present research and development activities

2010-current: New sparse reconstructions methods for gamma spectrometry, speech processing and biomedical data – 4 conference papers, 6 journal papers accepted, 1 journal paper sent, 3 in preparation.

2015-current: Image processing methods for full 3D-reconstruction, 1 journal paper sent, 1 patent application sent.

4.3. Other relevant activities

2018: Writing of a booklet in Introduction in Random Processes

2016: Writing of a booklet in Information Theory

2014: Writing of a booklet in Signal Processing

2009-2012: Writing of a booklet of introduction in Probability and Statistics and a booklet of Digital Signal Processing for SCE

5. Grants and awards

5.1. Grants

2017 : Erasmus mobility grant with Politechnica de Madrid, Spain

2017 : Erasmus capacity grant with Politechnica de Madrid, Spain, BIOART project (135.000 Euros)

2006-2008 : Golda Meir grant, from the Lady Davis Fellowship Trust - Post-doctoral fellowship

6. List of publications

6.1. Peer reviewed papers

1. T. Trigano, S. Vaknin and D. Luengo, “Fast Proximal Optimization for Sparse Reconstruction with Dictionaries Based on Translated Waveforms”, in Signal Processing, Vol 169(4), paper 107379, April 2020.

2. T. Trigano and Y. Bechor, “Fast Background Removal of JPEG Images Based on HSV Polygonal Cuts for a Foot Scanner Device”, Journal of Real-Time Image Processing, 2019.

3. D. Luengo, D. Meltzer and T. Trigano, “An Efficient Method to Learn Overcomplete Multi-Scale Dictionaries of ECG Signals”, Applied Science, 8(12), 2018

4. T. Trigano and Y. Sepulcre, « Data-driven Parameter Selection in Activity Estimation for Nuclear Spectroscopy » , Signal Processing, 151, 99-106, 2018.

5. D. Bykhovsky and T. Trigano, « Numerical Generation of Compound Random Processes with Arbitrary Autocorrelation Functions », Fluctuations and Noise Letters, Nov. 2017.

6. T. Trigano, I. Shevtsov and D. Luengo, « CoSA : an Accelerated ISTA Algorithm for Dictionaries Based on Translated Waveforms », Signal Processing, 139, 131-135, Oct. 2017.

7. T. Trigano and Y. Cohen, "Intensity Estimation of Spectroscopic Signals with an Improved Sparse Reconstruction Algorithm", IEEE Signal Processing Letters, Vol. 24(5), pp. 530-534, 2017.

8. T. Trigano, Y. Sepulcre and Y. Ritov, "Sparse Reconstruction Algorithm for Nonhomogeneous Counting Rate Estimation", IEEE Transactions in Signal Processing, Vol. 65(2), pp 372-385, 2017.

9. T. Trigano, I. Gildin and Y. Sepulcre, "Pileup Correction Algorithm Using an Iterated Sparse Reconstruction Method", IEEE Signal Processing Letters, Vol. 22(9), pp. 1392-1396, 2015.

10. T. Trigano, E. Barat, T. Dautremer and T. Montagu, "Fast Digital Filtering of Spectrometric Data for Pile-Up Correction", IEEE Signal Processing Letters, Vol. 22(7), pp. 973-977, July 2015.

11. D. Luengo, S. Monzon, T. Trigano, J. Via and A. Artes-Rodrigues, "Blind Analysis of Atrial Fibrillation Electrograms: Sparsity-Aware Formulation", Integrated Computer Aided Engineering, Vol. 22-1, pp.71-85, 2015.

12. Y. Sepulcre, T. Trigano and Y. Ritov, "Sparse Regression Algorithm for Counting Rate Estimation in Nuclear Spectrometry", IEEE Transactions on Signal Processing, Vol 61(17), 4347-4359, September, 2013.

13. R. Goot, T. Trigano, S. Tapuchi and J. Gavan, "Adaptative Allocation of Power Transmission for HAPs", in Annals of Telecommunications, Vol 67, 1-7, June 2012.

14. J. Gavan, T. Trigano, S. Tapuchi and A. Kuperman, "Mitigation of Mobile Radio Parasitic Radiations Effect: a Review", in Journal of Communication Engineering Systems, Vol 2(1), 1-11 2012.

15. T. Trigano, U. Isserles and Y. Ritov, "Semiparametric curve alignment and shift density estimation for biological data", IEEE Transactions in Signal Processing, Vol 59(5), 1970-1984, May, 2011.

16. T. Trigano, T. Montagu, E. Moulines, F. Roueff and A. Souloumiac, "Analytical Pile-Up Correction Method for HPGe Detectors", IEEE Transactions on Signal Processing, Vol 55(10), 4871-4881, 2008.

17. E. Moulines, F. Roueff, A. Souloumiac and T. Trigano, 2007, "Nonparametric Inference about Photon Energy from Indirect Measurements", Bernoulli 13(2), 365-388, 2007.

6.2. Books/collective volumes

6.2.1. Books/collective volumes (Authorship or editorship)

6.2.2. Chapters in books

1. T. Trigano, U. Isserles, T. Montagu and Y. Ritov : Semiparametric curve alignment and shift density estimation : ECG data processing revisited, in Signal Processing, In-TechWeb, 217-240, 2010.

6.2.3. Articles in refereed conference volumes

1. D. Luengo, J. Via and T. Trigano, "Efficient Iteratively Rewighted LASSO Algorithm for Cross-Products Penalized Sparse Solutions", EURASIP Conference in Signal Processing (EUSIPCO), 5 pages, 2020

2. D. Luengo, D. Meltzer and T. Trigano, "Overcomplete Multiscale Dictionaries for Efficient Representations of ECG Signals", 19th EUROCAST conference, Lecture Notes in Computer Science, Springer 2019.

3. D. Luengo, D. Meltzer and T. Trigano, "Sparse ECG Representation with a Multi-Scale Dictionary Derived from Rel-World Signals", 41th International Conference on Telecommunications and Signal Processing, 4 pages, 2018.

4. T. Trigano, V. Kolesnikov, D. Luengo Garcia and A. Artes_Rodrigues, "Grouped Sparsity Algorithm for Multichannel Intracardiac ECG Synchronization", EURASIP Signal Processing Conference, 2014.

5. D. Luengo Garcia, J. Via, S. Monzon, T. Trigano and A. Artes-Rodrigues, "Cross-Products LASSO", in IEEE International Conference on Acoustics, Speech and Signal Processing, 4 pages, 2013.

6. M. Lopatin, N. Moskovitch, T. Trigano and Y. Sepulcre, "Pileup Attenuation for Spectroscopic Signals Using A Sparse Reconstruction", in Proceedings of 27-th IEEE Convention of Electrical and Electronics Engineers in Israel, 5 pages, 2012.

7. S. Monzon, D. Luengo Garcia, T. Trigano and A. Artes-Rodrigues, "Sparse Spectral Analysis Of Atrial Fibrillation Electrograms", in 2012 IEEE International Workshop on Machine Learning for Signal Processing, 5 pages, 2012.

8. Y. Sepulcre and T. Trigano, "Iterated Sparse Reconstruction for Activity Estimation in Nuclear Spectroscopy", EURASIP Signal Processing Conference, 5 pages, 2012.

9. T. Trigano and Y. Sepulcre, "Regularized Sparse Representation for Spectrometric Pulse Separation and Counting Rate Estimation", in Lecture Notes in Computer Science, Vol 7191, 188-195, 2012.

10. T. Trigano, Y. Sepulcre, M. Roitman and U. Aferiat, "On Nonhomogeneous Activity Estimation in Gamma Spectrometry using Sparse Signal Representation", in IEEE International Workshop on Statistical Signal Processing, 649-652, 2011.

11. T. Trigano, Y. Sepulcre, M. Tal and Y. Mashiach, Sparse Regression Algorithm for Activity Estimation in Gamma Spectrometry}, in Proceedings of 26th IEEE Convention of Electrical and Electronics Engineers in Israel, 268-272, 2010.

12. T. Trigano, U. Isserles and Y. Ritov, "Semiparametric Density Estimation of Shifts for alignment of ECG data, in EURASIP Signal Processing Conference", 1-5, 2008.

13. T. Dautremer, E. Barat and T. Trigano, "Nonparametric Bayesian Estimation of Censored counters Intensity from the indicator data, International Workshop on Bayesian Inference and Maximum Entropy Methods in Science and Engineering", 8 pages, 2006.

14. T. Trigano, F. Roueff, E. Moulines, A. Souloumiac and T. Montagu, “Energy Spectrum Reconstruction for HPGe Detectors Using Analytical Pile-Up Correction”, Proceedings of the IEEE International Conference on Acoustics, Speech and Signal Processing, IEEE, Volume 3, III-VII, 2006.

15. T. Trigano, F. Roueff, A. Souloumiac and E. Moulines, “Nonparametric Inference for Pile-up Correction in Nuclear Spectrometry”, IEEE International Workshop on Statistical Signal Processing, IEEE, 754-750, 2005.

16. T. Trigano, E. Barat, T. Dautremer and A. Souloumiac, “Pile-up Correction Algorithms for Nuclear Spectrometry”, Proceedings of the IEEE International Conference on Acoustics, Speech and Signal Processing, IEEE, iv/441 – iv/444, 2005.

17. T. Trigano, D. Mostefa and G. Chollet, “Implementation of a classification tree in a ASV system”, roceedings of the COST-275 Workshop, 6 pages, 2002.

18. T. Trigano, D. Mostefa, G. Chollet and D. Petrovska, “Description of the ENST Speaker Verification System”, NIST Speaker Recognition Workshop, 5 pages, 2002.

6.3. Papers and abstracts – proceedings of conferences

6.3.1. Invited conference plenary lectures

2018: Image Segmentation, practical aspects, Erasmus mobility lectures

2016 : Sparse Signal Processing of Intracardiac ECG, Afeka Conference for Speech Processing, Tel-Aviv, Israel

2007: Semiparametric Density Estimation of Shifts between Curves 2nd Young Statisticians SFdS Meeting – Aussois, France.

2006 : Nonparametric Density Estimation from Indirect Measurements With Application To Pileup Correction, 1st Young Statisticians SFdS Meeting – Aussois, France.

6.3.2. Contributed conference presentations

1. Y. Sepulcre and T. Trigano, “Iterated Sparse Reconstruction for Activity Estimation in Nuclear Spectroscopy”, in EURASIP Signal Processing Conference, Bucarest, pp. 2367-2371, 2012

2. T. Trigano and Y. Sepulcre, “Regularized Sparse Representation for Spectrometric Pulse Separation and Counting Rate Estimation”, in Lecture Notes in Computer Science, 2012.

3. T. Trigano, Y. Sepulcre, M. Roitman and U. Aferiat, “On Nonhomogeneous Activity Estimation in Gamma Spectrometry using Sparse Signal Representation”, in IEEE International Workshop on Statistical Signal Processing, 2011.

4. T. Trigano, Y. Sepulcre, M. Tal and Y. Mashiach, Sparse Regression Algorithm for Activity Estimation in Gamma Spectrometry}, in Proceedings of 26th IEEE Convention of Electrical and Electronics Engineers in Israel, 5 pages, 2010.

5. T. Trigano, U. Isserles and Y. Ritov, “Semiparametric Density Estimation of Shifts for alignment of ECG data, in EURASIP Signal Processing Conference”, Lausanna, 2008.

6. T. Trigano, F. Roueff, E. Moulines, A. Souloumiac and T. Montagu, “Energy Spectrum Reconstruction for HPGe Detectors Using Analytical Pile-Up Correction”, Proceedings of the IEEE International Conference on Acoustics, Speech and Signal Processing,Toulouse, 2006.

7. T. Trigano, F. Roueff, A. Souloumiac and E. Moulines, “Nonparametric Inference for Pile-up Correction in Nuclear Spectrometry”, IEEE International Workshop on Statistical Signal Processing, Bordeaux, 2005.

8. T. Trigano, E. Barat, T. Dautremer and A. Souloumiac, “Pile-up Correction Algorithms for Nuclear Spectrometry”, Proceedings of the IEEE International Conference on Acoustics, Speech and Signal Processing, IEEE, iv/441 – iv/444, 2005.

6.3.3. Seminar presentations

2011: Sparse signal estimation for activity estimation in Gamma Spectrometry, ENST, France, and Hebrew University of Jerusalem, Department of Statistics.

2009 : Semiparametric approach for curve alignment with application to ECG data, ENST, France.

2007 : Pileup correction methods for nulcear science :

Department of Industrial Engineering – Ben Gurion University

Department of Statistics – University of Haifa

Department of Statistics – Hebrew University of Jerusalem

Department of Industrial Engineering – Technion

Department of Statistics – Tel-Aviv University

2006 : Nonparametric Bayesian Techniques for Counting processes

Department of Statistics – Hebrew University of Jerusalem

2005 : Gamma spectrometry and pile up correction : probabilistic results

Department of Electrical Engineering – CEA Saclay, France

Department of Signal Processing – ENST Paris, France

Hebrew University of Jerusalem – Israel

6.4. Patents

1. L. Schwartz, T. Trigano, Y. Bechor. “Process to isolate object of interest in image”, US Patent US10417772B2, https://patents.google.com/patent/US10417772B2/en, 2019

2. T. Trigano, M. Tal, Y. Masiach and Y. Sepulcre, “Method for Improving the Precision of Counting Rate Estimation of Radioactive Sources”, accepted, 2013.

3. E. Barat, T. Dautremer, T. Trigano and T. Brisset, “Measurement and treatment of a signal comprising stacks of elementary pulses”, US patent 11579757, 40 pages, 2008.

4. E. Barat, T. Dautremer, T. Trigano and T. Brisset, “System and apparatus of processing of a signal consisting in pileups of individual pulses”, European patent 2005773039, 49 pages, 2007.

6.5. Other publications/reports

1. T. Trigano, “Deconvolution methods for discrete histograms: multiplicative gradient algorithm for denoising energy spectra”, CEA Saclay, Technical Report 05-031, 29 pages, 2005.

2. T. Trigano, “Numerical inversion of the Laplace transform: application for pileup correction of continuous-time signals for spectrometry”, CEA Saclay, Technical Report 04-015, 44 pages, 2004.

3. E. Barat, T. Dautremer and T. Trigano, “Stochastic modeling for the photonic signal: pileup correction algorithm for discrete-time signals from spectrometry”, CEA Saclay, Technical Report 03-018, 44 pages, 2003.

7. Academic roles

2009-2010: Member of the academic council of the electrical engineering department

2009-Present: Administrator of the projects committee, member of the academic board

8. Preparation of academic programs

9. Courses taught

2019: Numerical Methods with Python – B.Sc. Level - SCE

2018-Present: Introduction to Random Processes – B.Sc. Level - Afeka

2016-2018 : Information Theory – B. Sc. Level – SCE

2015-2019 : Introduction to Image Processing – B.Sc. Level – SCE

2009-Present: Project’s Seminar – B.Sc Level - SCE

2008-Present: Digital Signal Processing – B.Sc Level - SCE

2007-Present : Signals and Systems – B.Sc Level – SCE, Afeka, Ben-Gurion University and Tel-Aviv University

2008-Present : Probability and Statistics – B.Sc Level - SCE

2006-2008 : Introduction to Statistical Signal Processing – M.Sc. level – Hebrew University

2004-2005 : Introduction to Statistics – B.Sc. level – Paris 9 University (Teaching Assistant)

2004 : Analysis – B.Sc. level – Paris 9 University (Teaching Assistant)

10. Editorial roles

10.1. Editor/member of editorial board of journal

10.2. Editorship in journals/collective volumes

10.3. Manuscripts reviewer

2008-present: Reviewer for IEEE Transactions in Signal Processing

2009-present: Reviewer for Bernoulli

2010-present: Reviewer for Journal of Statistical Planning and Inference

2010-2011: Reviewer for Advances in Signal Processing

2015-Present: Reviewer for Signal Processing and IET Signal Processing

11. Positions in conferences

Chairman of the signal processing panel of the EMC 2010 Conference

Reviewer of the ICPSA 2012 Conference

12. Membership in professional/scientific societies

Member of the IEEE Signal Processing Society, of the IEEE Communications Society and the IEEE Bioengineering Society since 2009.

13. Additional activities

Main developer of the GSL Sparse Library, a C++ library of functions for sparse representation and compressive sensing.