

Themelis Konstantinos

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| Current position | Postdoctoral research associate | |
| Contact information | CEA Saclay, Service d'Astrophysique Orme des Merisiers, Building 709 91191 Gif-sur-Yvette, France | phone: +30 697 643 9027 email: konstantinos.themelis@cea.fr web: https://themelis.github.io/ |
| Date of birth | 23 December 1981 | |
| Nationality | Greek | |
| Military obligations | Fullfilled | |
| Education | University of Athens 10.2005 - 01.2012 Ph.D. in Bayesian methods for hypersectral image unmixing "Bayesian signal processing techniques for hyperspectral image unmixing" Department of Informatics and Telecommunications Supervisor: Sergios Theodoridis, Professor, UOA | |
| | University of Patras 09.2000 - 09.2005 Diploma degree in Computer Engineering and Informatics Thematic area: "Decision feedback equalization of MIMO channels" GPA: 8.49/10 | |
| Research interests | Statistical signal processing with emphasis on Bayesian modelling and approximate inference methods. Probabilistic machine learning with application to image processing and adaptive estimation. Bayesian inverse problems for applications to remote sensing, e.g. development of (un/semi)supervised methods for hyperspectral image unmixing. | |
| Awards | 10.2003 - 09.2004 Hellenic State Scholarship Foundation Honorary Distinction Award for academic excellence | |
| Fellowships | 08.2017 - 12.2018 Participant of the Enhanced Eurotalents Marie Skłodowska-Curie Actions Programm co-funded by the European Commission and managed by the French Atomic Energy and Alternative Energies Commission (CEA) with the research proposal "PRobabilistic cOMponent separaTion tEchniqUes with application to aStrophysical data analysis - PROTEUS". | |
| Working experience | University of Piraeus 11.2005 - 12.2006 Web developer, linux system administrator | |
| | National Observatory of Athens 01.2007 - 12.2010 Linux system administrator High-Performance Computing Cluster development | |
| | National Observatory of Athens 05.2013 - 09.2014 Linux system administrator Java, OpenSSO developer | |

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| Teaching experience | University of Athens 09.2009 - 02.2010 "Introduction to Matlab", self-paced introduction to Matlab, supporting the course "Digital signal processing" by Prof. S. Theodoridis |
| Programming skills | Scientific computing: C++, Python 3, and Matlab Programming: C, PHP, Java, Javascript, MySQL, programming Systems: Experienced Unix/Linux system administrator, Debian HPC cluster developer |
| Peer reviewing | Journals IEEE Transactions on Image Processing IEEE Transactions on Neural Networks and Learning Systems IEEE Transactions on Signal Processing IEEE Signal Processing Letters IEEE Transactions on Geoscience and Remote Sensing IEEE Journal of Selected Topics in Signal processing IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing Elsevier Signal Processing Journal Conferences MLSP, IEEE Workshop on Machine Learning and Signal Processing SSP, IEEE Workshop on Statistical Signal Processing EUSIPCO, European Signal Processing Conference ICASSP, IEEE International Conference on Acoustics, Speech, and Signal Processing DSP, International Conference on Digital Signal Processing |
| Project participation | <u>Greek & EU funded projects</u> <div> <div> 11.2012 THALES: "Secure wireless nonlinear communications at the physical layer." Nov. 2012 - 2015 </div> <div> 9.2012 ARISTEIA: "Advancing Hyperspectral Image Processing for Planetary Mineral Exploration and Thematic Mapping: the Case of Planet Mars." Sep. 2012 - 2015. </div> </div> <u>EU funded projects</u> <div> <div> 1.2014 EIS: European Ionosode and Neutron Monitor Service, 2014-2015. </div> <div> 9.2014 A-Effort: Athens Effective Solar Flare Forecasting, 2014-2015. </div> <div> 3.2015 PHySIS: Sparse signal processing technologies for hyperspectral imaging systems, 2015-2017. </div> <div> 3.2017 DEDALE: Data Learning on Manifolds and Future Challenges, 2017-2018. </div> </div> |
| Attended seminars and conferences | Conferences DEDALE workshop, Nice, 2017 (tutorial on ABC) EUSIPCO Nice, 2016, (poster presentation) WHISPERS Tokyo, 2015 (oral talk) Sustain Workshop Bristol, 2014 (poster presentation) ICASSP Florence, 2014 (oral talk) WHISPERS Florida, 2013 (oral talk) EPSC Rome, 2012, (oral talk) Eusipco 2008, Lausanne (poster presentation) |

Seminars

Convex optimization
Compressive sensing

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| Memberships | Member of EURASIP Member of the Technical Chamber of Greece |
| Languages | Greek (native), English (fluently), German (decent), French (decent) |
| Phd thesis | K. E. Themelis, "Bayesian signal processing techniques for hyperspectral image unmixing", Department of Informatics and Telecommunications, University of Athens, Jan. 2012. http://goo.gl/mkbswl |
| Referees | Athanasios A. Rontogiannis, Senior researcher NOA, email: tronto@noa.gr Sergios Theodoridis, Professor UOA, email: stheodor@di.uoa.gr Konstantinos K. Koutroumbas, Senior researcher, NOA, email: koutroum@noa.gr Jean-Luc Starck, head of Cosmostat lab, CEA, Saclay, email: jean-luc.starck@cea.fr |
| Peer reviewed publications | Journals <ol style="list-style-type: none">1. P. V. Giampouras, A. A. Rontogiannis, K. E. Themelis, K. D. Koutroumbas, "Online sparse and low-rank subspace learning from incomplete data: A Bayesian view", <i>Signal Processing</i>, vol. 137, pp. 199-212, Aug. 2017.2. P. V. Giampouras, K. E. Themelis, A. A. Rontogiannis, K. D. Koutroumbas, "Simultaneously sparse and low-rank abundance matrix estimation for hyperspectral image unmixing", <i>IEEE Transactions on Geoscience and Remote Sensing</i>, vol. 54, no. 8, pp. 4775-4789, Aug. 20163. K. E. Themelis, A. A. Rontogiannis, K. D. Koutroumbas, "Variational Bayes group sparse time-adaptive parameter estimation with either known or unknown sparsity pattern", <i>IEEE Transactions on Signal Processing</i>, vol.64, no.12, pp.3194-3206, June 2016.4. A. Belehaki, I. Tsagouri, I. Kutiev, P. Marinov, B. Zolesi, M. Pietrella, K. E. Themelis, P. Elias, K. Tziotziou, "The European Ionosonde Service: nowcasting and forecasting ionospheric conditions over Europe for the ESA Space Situational Awareness services", <i>Journal of Space Weather and Space Climate</i>, 5 A25, 2015.5. K. E. Themelis, A. A. Rontogiannis, K. D. Koutroumbas, "A variational Bayes framework for sparse adaptive estimation", <i>IEEE Transactions on Signal Processing</i>, 62(18), 4723-4736, Sept. 2014.6. K.E. Themelis, A.A. Rontogiannis, K.D. Koutroumbas, "A Novel Hierarchical Bayesian Approach for Sparse Semi-Supervised Hyperspectral Unmixing", <i>IEEE Transactions on Signal Processing</i>, 60(2), 585-599, Feb. 2011.7. K.E. Themelis, F. Schmidt, O. Sykioti, A.A. Rontogiannis, K.D. Koutroumbas, I.A. Daglis, "On the Unmixing of MEx/OMEGA Hyperspectral Data", <i>Planetary and Space Science</i>, 68, 34-41, 2012. |

Conferences

1. K. E. Themelis, A. A. Rontogiannis, and K. D. Koutroumbas, "Online Bayesian group sparse parameter estimation using a Generalized Inverse Gaussian Markov chain", in *Proceedings of the 23th European Signal Processing Conference (EUSIPCO)*, Nice, France, Sep. 2015.
2. P. V. Giampouras, A. A. Rontogiannis, K. E. Themelis and K. D. Koutroumbas, "Online Bayesian Low-Rank Subspace Learning from Partial Observations", in *Proceedings of the 23th European Signal Processing Conference (EUSIPCO)*,

Nice, France, Sep. 2015

3. P. V. Giampouras, A. A. Rontogiannis, K. D. Koutroumbas and K. E. Themelis, "A sparse reduced-rank regression approach for hyperspectral image unmixing", in Proceedings of the 3rd International Workshop on Compressed Sensing Theory and its Application to Radar, Sonar and Remote Sensing (CoSeRa), Pisa, Italy, June 2015.
4. P. V. Giampouras, K. E. Themelis, A. A. Rontogiannis and K. D. Koutroumbas, "Hyperspectral image unmixing via simultaneously sparse and low rank abundance matrix estimation", in Proceedings of the 7th Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing (IEEE WHISPERS), Tokyo, June 2015.
5. G. Papageorgiou, P. Bouboulis, S. Theodoridis, K.E. Themelis, "Robust Linear Regression Analysis - The Greedy Way", In Proceedings of the 22th European Signal Processing Conference (EUSIPCO), Lisbon, Portugal, Sep. 2014.
6. K.E. Themelis, A.A. Rontogiannis, and K.D. Koutroumbas, "Group-sparse adaptive variational Bayes estimation", In Proceedings of the 22th European Signal Processing Conference (EUSIPCO), Lisbon, Portugal, Sep. 2014.
7. P.V. Giampouras, K.E. Themelis, A.A. Rontogiannis, and K.D. Koutroumbas, "A variational Bayes algorithm for joint-sparse abundance estimation", In Proceedings of the 6th Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing (IEEE WHISPERS), Lausanne, June 2014.
8. K.E. Themelis, A.A. Rontogiannis, and K.D. Koutroumbas, "Adaptive variational sparse Bayesian estimation," Acoustics, Speech and Signal Processing (ICASSP), IEEE International Conference on, May 2014.
9. K.E. Themelis, A.A. Rontogiannis, and K.D. Koutroumbas, "Variational Bayesian sparse adaptive filtering using a Gauss-Seidel recursive approach," In Proceedings of the 21th European Signal Processing Conference (EUSIPCO), Marocco, Sep. 2013.
10. A.A. Rontogiannis, K.E. Themelis, O. Sykioti and K.D. Koutroumbas, "A fast variational Bayes algorithm for sparse semi-supervised unmixing of OMEGA/Mars data", In Proceedings of the 5th Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing (IEEE WHISPERS), Florida, June 2013.
11. A.A. Rontogiannis, K.E. Themelis, K.D. Koutroumbas, "A Fast Algorithm for the Bayesian Adaptive Lasso", In Proceedings of the 20th European Signal Processing Conference (EUSIPCO), Bucharest, Aug. 2012.
12. K.E. Themelis, A.A. Rontogiannis, K.D. Koutroumbas, "Sparse Semi-Supervised Hyperspectral Unmixing Using a Novel Iterative Bayesian Inference Algorithm", In Proceedings of the 19th European Signal Processing Conference (EUSIPCO), Barcelona, Sept. 2011.
13. K.E. Themelis, A.A. Rontogiannis, O. Sykioti, K.D. Koutroumbas, I.A. Daglis, F. Schmidt, "On the Unmixing of MEX/OMEGA Hyperspectral Data", In Proceedings of the European Planetary Science Congress (EPSC), Rome, Sept. 2010.
14. K.E. Themelis, A.A. Rontogiannis, O. Sykioti, K.D. Koutroumbas, I.A. Daglis, F. Schmidt, "On the unmixing of MEX/OMEGA hyperspectral data using a MAP Estimator", Geophysical Research Abstracts, 12, PS7.1 Spectroscopy and radiative transfer in Planetary atmospheres, EGU General Assembly, Vienna, April 2010.
15. K.E. Themelis, A.A. Rontogiannis, K.D. Koutroumbas, "Semi-Supervised Hyperspectral Unmixing via the Weighted Lasso", In Proceedings of the IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Dallas, TX, March 2010.
16. K.E. Themelis, A.A. Rontogiannis, "A Soft Constrained MAP Estimator for Supervised Hyperspectral Signal Unmixing", In Proceedings of the 16th European Signal Processing Conference (EUSIPCO), Lausanne, Aug. 2008.
17. Anogianakis G., Kapritsos E., Makris C., Mpaltas N., Themelis A., Perdikuri K., Tsakalidis A., "Identification of protein patterns in nucleic acid sequences and exploration of synonymous codons in tissue differentiation", Computational Biology and Genome Information Conference, 2005.

