

Themelis Konstantinos

Current position	Postdoctoral research associate, CosmoStat lab., CEA Saclay	
Contact information	CEA Saclay, Service d'Astrophysique Orme des Merisiers, Building 709 91191 Gif-sur-Yvette, France	Phone: +33 68 16 39 268 email: k.e.themelis@gmail.com web: https://themelis.github.io/
Date of birth	23 December 1981	
Nationality	Greek	
Military obligations	Fulfilled	
Languages	Greek (native), English (fluently), German (decent), French (decent)	
Education	University of Athens 10.2005 - 01.2012 Ph.D. in Bayesian methods for hypersectral image unmixing <i>"Bayesian signal processing techniques for hyperspectral image unmixing"</i> 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	
Phd thesis	K. E. Themelis, <i>"Bayesian signal processing techniques for hyperspectral image unmixing"</i> , Department of Informatics and Telecommunications, University of Athens, Jan. 2012. http://goo.gl/mkbswl	
Research interests	Statistical signal processing with emphasis on Bayesian modelling and approximate inference methods. Stochastic variational inference for big data. 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	
Programming skills	Scientific computing: C++, Python, Matlab Programming: C, PHP, Java, Javascript, MySQL Systems: Experienced Unix/Linux system administrator, Debian HPC cluster developer 08.2017 - 12.2018	
Fellowships	Participant of the <i>Enhanced Eurotalents Marie Skłodowska-Curie Actions</i> Program 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".	

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
Project participation	<u>Greek & EU funded projects</u> 11.2012 THALES: "Secure wireless nonlinear communications at the physical layer." Nov. 2012 - 2015 9.2012 ARISTEIA: "Advancing Hyperspectral Image Processing for Planetary Mineral Exploration and Thematic Mapping: the Case of Planet Mars." Sep. 2012 - 2015. <u>EU funded projects</u> 1.2014 EIS: European Ionosode and Neutron Monitor Service, 2014-2015. 9.2014 A-Effort: Athens Effective Solar Flare Forecasting, 2014-2015. 3.2015 PhySIS: Sparse signal processing technologies for hyperspectral imaging systems, Oct. 2015-2017. 3.2017 DEDALE: Data Learning on Manifolds and Future Challenges, Apr. 2017-2018.
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
Attended conferences	Conferences EUSIPCO Rome, 2018, (poster) DEDALE workshop, Nice, 2017 (tutorial on Approximate Bayesian Computation) EUSIPCO Nice, 2016, (poster) WHISPERS Tokyo, 2015 (talk) Sustain Workshop Bristol, 2014 (poster) ICASSP Florence, 2014 (talk) WHISPERS Florida, 2013 (talk) EPSC Rome, 2012, (talk) Eusipco 2008, Lausanne (poster)

Memberships	Member of EURASIP Member of the Technical Chamber of Greece	
Working experience	University of Piraeus Web developer, linux system administrator	11.2005 - 12.2006
	National Observatory of Athens Linux system administrator High-Performance Computing Cluster development	01.2007 - 12.2010
	National Observatory of Athens Linux system administrator Java, OpenSSO developer	05.2013 - 09.2014
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. 2016 3. 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 <ol style="list-style-type: none"> 1. K. E. Themelis, F. Lanusse, N. Jeffrey, A. Peel, J.-L. Starck, and F. B. Abdalla, "Modelling Data with Both Sparsity and a Gaussian Random Field: Application to Dark Matter Mass Mapping in Cosmology," in <i>Proceedings of the 26th European Signal Processing Conference (EUSIPCO)</i>, Rome, Italy, September 3-7, 2018. 	

2. 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.
3. 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
4. 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.
5. 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.
6. 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.
7. 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.
8. 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.
9. 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.
10. 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.
11. 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.
12. 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.
13. 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.
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", In *Proceeding of the European Planetary Science Congress (EPSC)*, Rome, Sept. 2010.
15. 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.
16. 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.
17. 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.
18. 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.