

Nicolas Dobigeon

Professor
Univ. of Toulouse, IRIT/INP-ENSEEIH

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Positions

- Since 2016 **Professor**
IRIT/INP-ENSEEIH, University of Toulouse, France
- 2008–2016 **Assistant/Associate Professor**
IRIT/INP-ENSEEIH, University of Toulouse, France
- 2007–2008 **Post-doctoral research associate**
Dept. of EECS, University of Michigan, USA
- 2004–2007 **Research assistant**
IRIT - Institut de Recherche en Informatique de Toulouse, France
- 2004–2007 **Assistant lecturer**
INP - Institut National Polytechnique de Toulouse, France

Academic background

- 2012 **Habilitation à Diriger les Recherches (HDR)**
INP - Institut National Polytechnique de Toulouse, France
- 2007 **Ph.D. in “Signal, Image, Acoustics”**
INP - Institut National Polytechnique de Toulouse, France
- 2004 **M.Sc. in “Signal, Image, Acoustics”**
INP - Institut National Polytechnique de Toulouse, France
- 2004 **Eng. degree in “Electronics and Signal Processing”**
INP - ENSEEIH Toulouse, France

Main courses taught

Complex analysis – Laplace Transform and Z Transform
Inverse problems in signal and image processing
Probability & Statistics
Signal Processing
Digital Signal Processing

Main educational responsibilities

- Since 2011 **Head of the “Signal and Image Processing” specialization**
3rd year, “Electronics & Signal Processing” Dept., INP-ENSEEIH
- Since 2011 **Responsible of the Teaching Unit “Signal Processing”**
1st year, “Electronics & Signal Processing” Dept., INP-ENSEEIH
- 2010-2011 **Responsible of the “Signal and Image Processing” major program**
2nd year, “Electronics & Signal Processing” Dept., INP-ENSEEIH

Institutional advisory boards

- Since 2016 **Member**, *Strategic Intelligence Unit*, IRIT
- Since 2015 **Member**, *EDSYS Doctoral School Council*, INP Toulouse
- 2014-2016 **Elected member**, *Scientific council*, INP Toulouse
- Since 2011 **Elected member**, *Electronics Dept. council*, INP-ENSEEIH

Community service

- Since 2014 **Affiliate Member**, *Signal Processing Theory and Methods Technical Committee*
IEEE Signal Processing Society
- Since 2013 **Member of the steering committee of the French research group GdR-ISIS**
In charge of the Ph.D student network
- 2012-2016 **Member of the French National Council of Universities**
Section 61 - Computer sciences, Automatic Control and Signal Processing

Event organization

Meetings, workshops and conferences

- 2016/04 **Co-organizer**, *One-day meeting at GdR ISIS*, Toulouse, France
"Imagerie hyperspectrale : quelles données ? quels traitements ? quelles applications ?"
- 2015/11 **Co-organizer**, *One-day meeting at GdR ISIS à destination des doctorants*, Paris, France
"Carrières en Signal, Image & Vision"
- 2014/11 **Co-organizer**, *One-day meeting at GdR ISIS*, Paris, France
"Problèmes inverses: approches myopes et aveugles, semi-et non-supervisées"
- 2013/10 **Co-organizer**, *One-day meeting at GdR ISIS à destination des doctorants*, Paris, France
"Carrières en Signal, Image & Vision"
- 2013/07 **Member of the local committee**, *CIMI Thematic Trimester on Image Processing*
Workshop on "Optimization and Statistics in Image Processing"
- 2011/02 **Co-organizer**, *Réunion GdR ISIS*, Paris, France
"Contraintes de non-négativité en traitement du signal et des images"
- 2006/05 **Volunteer**, *International conference IEEE ICASSP 2006*, Toulouse, France

Special sessions

- 2015/06 **IEEE WHISPERS**, *"Hyperspectral pansharpening and fusion"*, Tokyo, Japan
- 2013/09 **EUSIPCO**, *"Recent advances in spectral unmixing for hyperspectral imagery"*, Marrakech, Morocco
- 2010/07 **MaxEnt**, *"Bayesian algorithms for multi-channel image analysis"*, Chamonix, France

Session chairs

- 2015/09 **EUSIPCO**, *"Image enhancement"*, Nice, France
- 2015/06 **IEEE WHISPERS**, *"Hyperspectral pansharpening and fusion"*, Tokyo, Japan
- 2013/07 **Workshop on "Optimization and Statistics in Image Processing"**, *"Bayesian methods"*, Toulouse, France
- 2010/07 **MaxEnt**, *"Bayesian algorithms for multi-channel image analysis"*, Chamonix, France
- 2009/08 **IEEE WHISPERS**, *"Recent Advances in Spectral Mixture Analysis of Hyperspectral Data"*

Evaluation and review panels

Editorial Boards

- Since 2016 **Associate Editor**, *EURASIP Signal Processing*
2013-2014 **Associate Editor**, *The Scientific World Journal*, Probability and Statistics Area

Technical Program Committees (TPC)

- 2017/09 **Area Chair**, *EUSIPCO*, Kos, Greece
2017/02 **TPC Member**, *LVA/ICA*, Grenoble, France
2015/09 **Area chair**, *EUSIPCO*, Nice, France
2014/08 **TPC member**, *EUSIPCO*, Lisbonne, Portugal
2013/08 **TPC member**, *EUSIPCO*, Marrakech, Maroc
2012/08 **TPC member**, *EUSIPCO*, Bucharest, Roumanie

Project review panels

Agence Nationale de la Recherche (ANR), France
Institut National des Sciences de l'Univers (CNRS INSU), France
Icelandic Research Fund (IRF), Iceland
Israel Science Foundation (ISF), Israel
Belgian Science Policy Office (BELSPO), Belgium
Research Foundation - Flanders (FWO), Belgium
Portuguese Foundation for Science and Technology (FCT), Portugal
National Council for Development and Innovation (UEFISCDI), Romania
Instituto de Telecomunicacoes (IT), Portugal
Grenoble Alpes Université (AGIR), France
University of Technology of Troyes (UTT), France

Refereeing activities

- Journals Nature Communications, IEEE Trans. Biomedical Engineering, IEEE Trans. Geoscience and Remote Sensing, IEEE Trans. Image Processing, IEEE Trans. Neural Networks & Learning Systems, IEEE Trans. Signal Processing, IEEE J. Sel. Topics Signal Processing, IEEE J. Sel. Topics Applied Earth Observations and Remote Sensing, IEEE J. Biomed. Health Informat. (formerly IEEE Trans. Inf. Technol. BioMed.), IEEE Signal Processing Magazine, IEEE Signal Processing Letters, IEEE Geoscience and Remote Sensing Letters, EURASIP Signal Processing, EURASIP Journal on Advances in Signal Processing, Journal of Signal Processing Systems (formerly VLSI), Recent Patents on Signal Processing, Journal of Electronic Imaging, Pattern Recognition Letters, Mathematical Reviews, SIAM Journal on Imaging Sciences, Computational Statistics and Data Analysis, Statistics and Computing, Journal of Applied Statistics, Journal of Global Optimization, Remote Sensing, International Journal of Digital Earth, Journal of Applied Meteorology and Climatology, Journal of Microscopy, Technometrics, AEU International Journal of Electronics and Communications, Ain Shams Engineering Journal, Traitement du Signal, Journal Européen des Systèmes Automatisés.
- Conferences AISTATS Conferences, NIPS Conferences, IEEE ICASSP Conferences, IEEE ISIE Symposiums, IEEE SSP Workshops, IEEE WHISPERS Workshops, EUSIPCO Conferences, LVA/ICA Conferences, MaxEnt Workshops, Colloques GRETSI

Recruiting committees

- 2016/04 Univ. Claude Bernard, Lyon (member of the external pool)
- 2014/05 INP-ENSEEIH Toulouse (member of the internal pool)
- 2013/05 INP-ENSEEIH Toulouse (member of the internal pool)
- 2012/05 Université Joseph Fourier, Grenoble (member of the external pool)

Ph.D. committees

- 2016/12 Stéphanie Bernhardt, Supelec (examiner)
- 2016/09 Lin Nguyen, University of Lille (examiner)
- 2016/02 Muhammad Awais Akhter, University of Antwerp (external opponent)
- 2014/09 Cornelia Vacar, Univ. Bordeaux (reviewer)
- 2013/11 Simon Henrot, Université de Nancy (examiner)
- 2013/03 Bertrand Coppa, Grenoble INP (reviewer)

Diffusion of scientific knowledge for broad audience

- 2012/03 **Invited speaker**, *K'es Kafé?*, IRIT, France
"Imagerie hyperspectrale: quand les pixels ont beaucoup de couleurs..."
- 2012/03 **Invited speaker & co-organizer**, *Médiation Scientifique*, INP Toulouse, France
"Les mathématiques au service de la santé"
- 2011/11 **Interviews**, *on the paper published in PLoS Genetics [J140]*
"Pourquoi certaines personnes ne tombent pas malades de la grippe...", Press release.
"Un chercheur toulousain perce le mystère de la grippe", La Dépêche du Midi.
"Nous ne sommes pas tous égaux devant la grippe", Le Figaro.
"Grippe : Pourquoi certains l'attrapent et d'autres pas ?", Santé Magazine
"Pourquoi certaines personnes ne tombent pas malades de la grippe ?", Magazine Meilleure Santé.
- 2011/05 **Interview**, *"Science & Vie"*, Special issue on Bayesian statistics
"Une formule au coeur des enjeux scientifiques du siècle" (by F. Lassagne)
- 2006/11 **Co-organizer & co-chairman**, *"Rencontres CNRS Jeunes"*, Toulouse, France

Thematic school lectures

- 2015/02 Invited lecturer, Winter School "Search for Latent Variables: ICA, Tensors, and NMF", Villard-de-Lans, France
"Bayesian fusion of multi-band images"
- 2012/06 Invited lecturer, Thematic School on Image Reconstruction, Fréjus, France,
"Algorithme MCMC pour le démixage linéaire d'images hyperspectrales"
- 2009/11 Invited co-lecturer, CNRS Summer school on image processing, Figeac, France,
"MCMC methods for image processing applications" (with J.-Y. Tourneret)

Supervised theses

- Since 2016 **Adrien Lagrange**, *INP Toulouse*, co-advised with M. Fauvel
"Multi-scale analysis of hyperspectral and hypertemporal images"
- Since 2016 **Etienne Monier**, *INP Toulouse*, co-advised with T. Oberlin
"Adaptive sampling and reconstruction of hyperspectral images"
- Since 2015 **Vinicius Ferraris**, *INP Toulouse*, co-advised with M. Chabert
"Change detection for heterogeneous images"

- Since 2015 **Yanna Cruz Cavalcanti**, *INP Toulouse*, co-advised with C. Tauber and T. Oberlin
"Bayesian unmixing of dynamic TEP images"
- Since 2014 **Clément Elvira**, *Univ. Lille*, co-advised with P. Chainais
"Nonparametric Bayesian methods for hyperspectral image unmixing"
- Since 2014 **Jessica Sodjo**, *Univ. Bordeaux*, co-advised with J.-F. Giovannelli and A. Giremus
"Nonparametric Bayesian methods for image deconvolution"
- Since 2014 **Pierre-Antoine Thouvenin**, *INP Toulouse*, co-advised with J.-Y. Tournet
"Modeling spectral and temporal variabilities in hyperspectral image unmixing"
- 2012-2015 **Qi Wei**, *INP Toulouse*, co-advised with J.-Y. Tournet
"Bayesian fusion of multi-band images"
- 2010-2013 **Yoann Altmann**, *INP Toulouse*, co-advised with J.-Y. Tournet
"Nonlinear unmixing of hyperspectral images"
- 2009-2013 **Cécile Bazot**, *INP Toulouse*, co-advised with J.-Y. Tournet
"Bayesian methods for gene expression factor analysis"
- 2007-2010 **Olivier Eches**, *INP Toulouse*, co-advised with J.-Y. Tournet
"Bayesian methods for hyperspectral image unmixing"

Supervised Post-doctoral researchers

- Since 2017 **Tatsumi Uezato**, *INP Toulouse*, co-advised with M. Fauvel
- 2015-2016 **Shaheera Rashwan**, *City of Scientific Research and Technology Applications (Egypt)*
- 2013-2014 **Abderrahim Halimi**, *INP Toulouse*, co-advised with J.-Y. Tournet

Research projects

- 2017-2019 **ANR Project**
"MULTIFRACS - Multifractal theory and methods for large size multivariate systems - Applications to scale free analysis of brain dynamics analysis",
Partners: ENS Lyon, LAMA (Univ. Paris-Est Créteil) and CEA-Neurospin
- 2016-2019 **CNES/Occitanie Région**
"DEPICT - From pixelwise unmixing to thematic classification",
Partners: CNES and Dynafor (INRA/INP Toulouse)
- 2016-2019 **ERANETMED JC-WATER program, EU FP7**
"MapInvPlnt - Monitoring the Water Hyacinth Using Hyperspectral Imagery",
Partners: MuCSAT (Alexandria, Egypt), NARSS (Cairo, Egypt), IT (Lisboa, Portugal)
- 2015-2018 **Actions Thématiques Stratégiques, IDEX Toulouse**
"MUESLI - Multiscale mapping of ecosystem services by very high spatial resolution hyperspectral and LiDAR remote sensing imagery",
Partners: Dynafor (INRA/INP Toulouse), CESBIO (CNRS/CNES/IRD/UPS)
- 2013-2017 **ANR Project**
"BNPSI - Bayesian nonparametric methods for signal and image processing",
Partners: LAGIS Lab. (University of Lille), INRIA Bordeaux, IMS Lab. (University of Bordeaux) and CEA-LIST
- 2012-2015 **ANR Project**
"Hypanema - Nonlinear unmixing algorithms for hyperspectral data analysis",
Partners: Lagrange Lab. (University of Nice), GIPSA-lab (Grenoble INP) and SMTR (Université Technologique de Troyes)
- 2011-2012 **PEPS-Rupture project supported by CNRS**
"ESTOMAT - Order estimation in matrix factorization models",
Partner: Cédric Févotte (CNRS/LTCl, Telecom ParisTech, France)

- 2010-2011 **BQR project supported by INP Toulouse**
 “MADONNA - Acquisition of hyperspectral and lidar data with airborne sensors”,
 Partners: DYNAFOR (INRA/INP, France), Purpan Agricult. Eng. School (France)
- 2007-2008 **“Young Researcher” project supported by GdR-ISIS**
 “MCMC methods for hyperspectral image analysis”,
 Partner: ADTSI Team, IRCCyN (CNRS/ECN, France)

Industrial partnerships

- 2016-2017 **CNES**, “Débruitage d’images hyperspectrales”
- 2013-2014 **CNES**, “Détection de mélanges non-linéaires dans les images hyperspectrales”
- 2011-2012 **CNES**, “Apprentissage de dictionnaire pour l’analyse d’images de télédétection”
- 2012 **CLS/CNES**, “Algorithmes complémentaires de reconstruction des données MADRAS”
- 2012 **CLS/CNES**, “Algorithmes de reconstruction des données MADRAS”
- 2009-2010 **CNES**, “Désentrelacement des mesures TDOA et FDOA”

Supports, grants and awards

- 2015 Finalist, Student Paper Contest (for Qi Wei), IEEE CAMSAP 2015.
- 2014 Highly Cited Paper, Web of Science
- 2014 Top 10% Paper Award, IEEE ICIP
- 2013 IEEE Senior Member
- 2013 Best Paper Award, IEEE WHISPERS
- 2012 Highly Cited Paper, Web of Science
- 2011 Best Reviewer Award, IEEE Geosci. Remote Sensing Letters
- 2011-2015 Holder, French Ministry of Research “Prime d’Excellence Scientifique” (PES)
- 2009 Finalist, ASTI Ph.D. Prize 2009
- 2007-2008 Recipient, French Ministry of Defence post-doctoral fellowship
- 2007 Recipient, Léopold Escande Ph.D. Prize
- 2007/08 Recipient, Workshop Travel Grant, IEEE SSP 2007
- 2007/04 Finalist, Student Paper Contest, IEEE ICASSP 2007
- 2005/07 Recipient, Ph.D. Student Travel Grant, GdR-ISIS
- 2004-2007 Recipient, French Ministry of Research doctoral scholarship

Memberships

- Since 2008 Member of the IRIT laboratory, SC group
 Faculty member of the TeSA cooperative laboratory
 Member of the “Signal & image processing” CNES Technical Chapter
- Since 2005 Member of the IEEE Signal Processing Society
 Member of the IEEE Geoscience & Remote Sensing Society
- Since 2004 Member of the French research group GdR-ISIS

Seminars and invited talks

- 2016/11 **Invited talk**, *Chemometrics and Statistics in Image Analysis*, Institut Henri Poincaré (IHP), Paris, France,
 “Spectral Mixture Analysis - Beyond the Linear Mixing Model”

- 2015/11 **Seminar**, *CCT CNES TSI*, IAS, Toulouse, France,
"A short tutorial on Bayesian methods"
- 2014/12 **Seminar**, *Séminaires Signal & Image*, Lille, France,
"Bayesian fusion of multi-band images"
- 2014/04 **Invited talk**, *Symposium on Hyperspectral Imaging in Research and Engineering (SHIRE 2014)*,
Sheffield, UK,
"Bayesian linear unmixing for spectral mixture analysis - Application to hyperspectral imagery"
- 2013/04 **Seminar**, *"Signal & Image Processing" CNES Technical Chapter*, IAS, Toulouse, France,
"Démélange (non-)linéaire d'images hyperspectrales"
- 2012/12 **Seminar**, *Séminaires Problèmes Inverses*, Bordeaux, France
"Bayesian approaches for subspace estimation"
- 2012/12 **Invited talk**, *International PICS 2012 Workshop on Chemometrics in time-resolved and imaging
spectroscopy - Instrumental measurements and data analysis*, Lille, France
"Bayesian linear unmixing for spectral mixture analysis"
- 2012/07 **Talk**, *Journée GdR-ISIS "Imagerie multi/hyperspectrale : problématiques et nouveaux do-
maines d'applications"*, TelecomParisTech, Paris, France
"Détection de mélanges non-linéaires pour l'analyse d'images hyperspectrales" (by Yoann Altmann)
- 2012/01 **Seminar**, *Groupe de Travail Image*, IMT, University of Toulouse, France
"(Non-)linear unmixing of hyperspectral images"
- 2011/12 **Invited talk**, *Atelier "Astrostatistique en France"*, Grenoble, France
"MCMC algorithms for spectral unmixing"
- 2011/11 **Invited talk**, *Journée GdR-ISIS "Méthodes de Monte Carlo pour les problèmes inverses
bayésiens"*, TelecomParisTech, Paris, France
"MCMC algorithms for spectral unmixing"
- 2011/03 **Seminar**, LPS Laboratory, Université de Paris-Sud 11, France
"Bayesian linear unmixing for spectral mixture analysis"
- 2011/02 **Talk**, *Journée GdR-ISIS "Contraintes de non-négativité en traitement du signal et des image"*,
TelecomParisTech, Paris, France
"Simulation bayésienne pour la séparation de sources non-négatives" (by Said Moussaoui)
- 2010/12 **Seminar**, Université de Pau, France
"Algorithmes bayésiens pour le démelange supervisé, semi-supervisé et non-supervisé d'images hyper-
spectrales"
- 2011/03 **Talk**, *Journée "Mathématiques pour l'Ingénierie : de la Modélisation à la Résolution de Prob-
lèmes Concrets"*, INP-ENSEEIH, Toulouse, France
"Reconstruction bayésienne d'images parcimonieuses. Application à l'imagerie MRFM"
- 2010/03 **Seminar**, Supélec, Gif-sur-Yvette, France
"Méthodes MCMC pour l'analyse d'images hyperspectrales"
- 2009/05 **Talk**, *Assemblée Générale du GdR ISIS*, Batz-sur-mer, France
"Méthodes MCMC pour l'analyse d'images hyperspectrales"
- 2009/03 **Talk**, *Journée GdR-ISIS "Problèmes inverses - Estimation des hyperparamètres"*, TelecomPar-
isTech, Paris, France
"Reconstruction bayésienne d'images MRFM parcimonieuses"
- 2009/03 **Talk**, *Journée GdR-ISIS "Modèle stochastique multivarié en traitement des images"*, Telecom-
ParisTech, Paris, France
"Extraction de composants purs et démelange linéaire bayésiens en imagerie hyperspectrale"
- 2008/07 **Invited talk**, *Workshop on change-point detection methods and applications*, AgroParisTech,
Paris, France
"Joint segmentation of wind speed and direction using a hierarchical model"
- 2008/07 **Invited talk**, *ARO-MURI MRFM Program Progress Review*, Cornell University, Ithaca, USA
"Sparsity constrained image reconstruction for MRFM" (by Alfred O. Hero)

- 2008/04 **Seminar**, GIPSA-lab, Grenoble, France
 “Segmentation conjointe de signaux multi-capteurs par échantillonnage bayésien”
- 2006/12 **Seminar**, IRCCyN Lab., Nantes, France
 “Un modèle bayésien hiérarchique pour la segmentation conjointe de séries astronomiques”
- 2005/04 **Talk**, *Colloque EDIT*, Toulouse, France
 “Segmentation conjointe de données astrophysiques”

Publications

Synthetic table of the scientific production

	total		2017	2016	2015	2014	2013	2012	2011	≤ 2010
international journal	50	=	1	6	8	7	5	8	4	11
national journal	1	=								1
book chapter	3	=		2			1			
international conference	82	=		6	8	10	5	7	20	27
national conference	14	=			2		1	1	5	5
patent	1	=					1			

Bibliometric indicators, Source : *Google Scholar*, November 2016

Citations : 3406

H-index : 28

Full list of publications

Submitted papers

- [JS1] P.-A. Thouvenin, N. Dobigeon, and J.-Y. Tourneret, “Robust unmixing of multitemporal hyperspectral images,” submitted. [Online]. Available: <http://arxiv.org/abs/1609.07792/>
- [JS2] V. Ferraris, N. Dobigeon, Q. Wei, and M. Chabert, “Robust fusion of multi-band images with different spatial and spectral resolutions for change detection,” submitted. [Online]. Available: <http://arxiv.org/abs/1609.06076/>
- [JS3] S. Rashwan and N. Dobigeon, “A split-and-merge approach for hyperspectral band selection,” submitted.
- [JS4] V. Ferraris, N. Dobigeon, Q. Wei, and M. Chabert, “Detecting changes between optical images of different spatial and spectral resolutions: a fusion-based approach,” submitted. [Online]. Available: <http://arxiv.org/abs/1609.06074/>
- [JS5] J. Frecon, N. Pustelnik, N. Dobigeon, H. Wendt, and P. Abry, “Bayesian selection for the regularization parameter in tv_{ℓ_0} denoising problems,” submitted. [Online]. Available: <http://arxiv.org/abs/1608.07739/>
- [JS6] S. Rashwan, W. Sheta, and N. Dobigeon, “Spectral weighted image fusion using nature-inspired algorithms,” submitted.
- [JS7] C. Elvira, P. Chainais, and N. Dobigeon, “Bayesian anti-sparse coding,” submitted. [Online]. Available: <http://arxiv.org/abs/1512.06086/>
- [JS8] Q. Wei, J. M. Bioucas-Dias, N. Dobigeon, and J.-Y. Tourneret, “Fast spectral unmixing based on Dykstra’s alternating projection,” submitted. [Online]. Available: <http://arxiv.org/abs/1505.01740/>

International journal papers

- [JI1] A. Halimi, J. Bioucas-Dias, N. Dobigeon, G. S. Bullet, and S. McLaughlin, “Fast hyperspectral unmixing in presence of nonlinearity or mismodelling effects,” *IEEE Trans. Computational Imaging*, 2017, to appear. [Online]. Available: <http://arxiv.org/abs/1607.05336/>
- [JI2] Q. Wei, J. M. Bioucas-Dias, N. Dobigeon, J.-Y. Tourneret, M. Chen, and S. Godsill, “Multi-band image fusion based on spectral unmixing,” *IEEE Trans. Geoscience and Remote Sensing*, vol. 54, no. 12, pp. 7236–7249, Dec. 2016.

- [JI3] N. Pustelnik, H. Wendt, P. Abry, and N. Dobigeon, "Combining local regularity estimation and total variation optimization for scale-free texture segmentation," *IEEE Trans. Computational Imaging*, vol. 4, no. 2, pp. 468–479, Dec. 2016.
- [JI4] Q. Wei, N. Dobigeon, J.-Y. Tourneret, J. M. Bioucas-Dias, and S. Godsill, "R-FUSE: Robust fast fusion of multi-band images based on solving a Sylvester equation," *IEEE Signal Processing Letters*, vol. 23, no. 11, pp. 1632–1636, Nov. 2016.
- [JI5] P.-A. Thouvenin, N. Dobigeon, and J.-Y. Tourneret, "Online unmixing of multitemporal hyperspectral images accounting for spectral variability," *IEEE Trans. Image Processing*, vol. 25, no. 9, pp. 3979–3990, Sept. 2016.
- [JI6] N. Zhao, Q. Wei, A. Basarab, N. Dobigeon, D. Kouamé, and J.-Y. Tourneret, "Fast single image super-resolution using a new analytical solution for $\ell_2 - \ell_2$ problems," *IEEE Trans. Image Processing*, vol. 25, no. 8, pp. 3683–3697, Aug. 2016.
- [JI7] H. Wendt, N. Dobigeon, J.-Y. Tourneret, M. Albinet, C. Goldstein, and N. Karouche, "Detection and correction of glitches in a multiplexed multi-channel data stream – application to the madras instrument," *IEEE Trans. Geoscience and Remote Sensing*, vol. 54, no. 5, pp. 2803–2811, May 2016.
- [JI8] P.-A. Thouvenin, N. Dobigeon, and J.-Y. Tourneret, "Hyperspectral unmixing with spectral variability using a perturbed linear mixing model," *IEEE Trans. Signal Processing*, vol. 64, no. 2, pp. 525–538, Feb. 2016.
- [JI9] A. Halimi, N. Dobigeon, and J.-Y. Tourneret, "Unsupervised unmixing of hyperspectral images accounting for endmember variability," *IEEE Trans. Image Processing*, vol. 24, no. 12, pp. 4904–4917, Dec. 2015.
- [JI10] C. Févotte and N. Dobigeon, "Nonlinear hyperspectral unmixing with robust nonnegative matrix factorization," *IEEE Trans. Image Processing*, vol. 24, no. 12, pp. 4810–4819, Dec. 2015.
- [JI11] Q. Wei, N. Dobigeon, and J.-Y. Tourneret, "Fast fusion of multi-band images based on solving a Sylvester equation," *IEEE Trans. Image Processing*, vol. 24, no. 11, pp. 4109–4121, Nov. 2015.
- [JI12] L. Loncan, L. B. Almeida, J. M. Bioucas-Dias, X. Briottet, J. Chanussot, N. Dobigeon, S. Fabre, W. Liao, G. Licciardi, M. Simoes, J.-Y. Tourneret, M. Veganzones, G. Vivone, Q. Wei, and N. Yokoya, "Hyperspectral pansharpening: a review," *IEEE Geoscience and Remote Sensing Magazine*, vol. 3, no. 3, pp. 27–46, Sept. 2015.
- [JI13] S. Combexelle, H. Wendt, N. Dobigeon, J.-Y. Tourneret, S. McLaughlin, and P. Abry, "Bayesian estimation of the multifractality parameter for image texture using a Whittle approximation," *IEEE Trans. Image Processing*, vol. 24, no. 8, pp. 2540–2551, Aug. 2015.
- [JI14] Q. Wei, N. Dobigeon, and J.-Y. Tourneret, "Bayesian fusion of multi-band images," *IEEE J. Sel. Topics Signal Processing*, vol. 9, no. 6, pp. 1117–1127, Sept. 2015.
- [JI15] Q. Wei, J. M. Bioucas-Dias, N. Dobigeon, and J.-Y. Tourneret, "Hyperspectral and multispectral image fusion based on a sparse representation," *IEEE Trans. Geoscience and Remote Sensing*, vol. 53, no. 17, pp. 3658–3668, Jul. 2015.
- [JI16] O. Chabiron, F. Malgouyres, J.-Y. Tourneret, and N. Dobigeon, "Toward fast transform learning," *Int. J. Comp. Vision*, vol. 114, no. 2, pp. 195–216, Sept. 2015.
- [JI17] N. Dobigeon, L. Tits, B. Somers, Y. Altmann, and P. Coppin, "A comparison of nonlinear mixing models for vegetated areas using simulated and real hyperspectral data," *IEEE J. Sel. Topics Appl. Earth Observations Remote Sensing*, vol. 7, no. 6, pp. 1869–1878, June 2014.
- [JI18] Y. Altmann, N. Dobigeon, and J.-Y. Tourneret, "Unsupervised post-nonlinear unmixing of hyperspectral images using a Hamiltonian Monte Carlo algorithm," *IEEE Trans. Image Processing*, vol. 23, no. 6, pp. 2663–2675, June 2014.
- [JI19] Y. Altmann, N. Dobigeon, S. McLaughlin, and J.-Y. Tourneret, "Residual component analysis of hyperspectral images – Application to joint nonlinear unmixing and nonlinearity detection," *IEEE Trans. Image Processing*, vol. 23, no. 5, pp. 2148–2158, June 2014.
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