Olivier **Lézoray**

PROFESSOR OF COMPUTER SCIENCE · UNIVERSITY OF CAEN NORMANDY

Teaching[1]: Cherbourg Institute of Technology, Multimedia and Internet Department, 120 Rue de l'exode, F-50000 SAINT-LÔ, France
Research[2]: GREYC UMR CNRS 6072, Image Team, ENSICAEN, 6 Bd. Marechal Juin, F-14000 CAEN, France

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Personal Information

Last name	Lézoray
First name	Olivier
Birth date	September 12, 1972
Birth place	Lannion, Brittany, France
Nationality	French
Marital Status	Married, three childrens
Society Memberships	IEEE (Senior Member), EURASIP, IAPR, GFINC

Education

University of Caen Normandy — *Caen, France*
HABILITATION THESIS IN COMPUTER SCIENCE, GRADUATED WITH HONORS — *2007*
- Image processing by discrete models on graphs and image data classification by machine learning

University of Caen Normandy — *Caen, France*
PH.D. THESIS IN COMPUTER SCIENCE, GRADUATED WITH HIGHEST HONORS — *1997-2000*
- Color Image Morphological Segmentation and Data Classification with neural networks: application to cellular sorting in serous cytology

University of Caen Normandy — *Caen, France*
MASTER IN COMPUTER SCIENCE (ALGORITHMICS, ARTIFICIAL INTELLIGENCE), GRADUATED WITH HONORS — *1994-1995*

University of Caen Normandy — *Caen, France*
BACHELOR OF SCIENCE IN MATHEMATICS AND COMPUTER SCIENCE — *1993*

Professional Appointments

Multimedia and Internet Department, Cherbourg Institute Of Technology, University of Caen Normandy — *Saint-Lô, France*
FULL PROFESSOR OF COMPUTER SCIENCE — *2009-*

Cherbourg Institute Of Technology, University of Caen Normandy — *Cherbourg, France*
ASSOCIATE PROFESSOR OF COMPUTER SCIENCE, COMMUNICATION NETWORKS AND SERVICES DEPARTMENT — *2000-2009*

Computer Science Department, University of Caen Normandy — *Caen, France*
ASSISTANT PROFESSOR OF COMPUTER SCIENCE — *1999-2000*

French National League against Cancer — *Cherbourg, France*
PH.D. STUDENT AND TEACHING ASSISTANT OF COMPUTER SCIENCE — *1997-2000*

501-503th Regiment of tanks — *Mourmelon-le-Grand, France*
MILITARY SERVICE, FRENCH ARMY, RANK: MASTER CORPORAL — *1996*

Skills

Teaching	Object Oriented Programming, Web Development, Image Processing, Machine Learning
Research	Graph-based signal processing, adaptive and multidimensional mathematical morphology, and machine learning
Applications	Computational Photography, Computer-Aided Diagnosis
Programming	C++, C, Java, R
Web Development	HTML, CSS, JavaScript, Php, SQL
Languages	French (native speaker), English (near native / fluent), German and Spanish (basic communication skills)
Sports	Judo (Black Belt First Dan), Running, Cardio training, Tennis

Responsabilities

UNIVERSITY

2015-	**Head of the Multimedia and Internet Department,** Cherbourg Institute Of Technology, University of Caen Normandy	*Saint-Lô, France*
2012-	**Elected member of the GREYC research laboratory council,** University of Caen Normandy	*Caen, France*
2011-	**Head of the Committee of Computer Science Professors,** University of Caen Normandy	*Caen, France*
2008-2016	**Chair of the Institute Research Committee,** Cherbourg Institute Of Technology, University of Caen Normandy	*Cherbourg, France*
2009-2011	**Director of Graduate Studies - Communication Networks and Services Department,** Cherbourg Institute Of Technology, University of Caen Normandy	*Saint-Lô, France*
2012-	**Elected member of the institute council,** Cherbourg Institute Of Technology	*Cherbourg, France*
2007-2009	**Deputy Head of the Committee of Computer Science Professors,** University of Caen Normandy	*Caen, France*
2000-2006	**Director of Graduate Studies - Communication Networks and Services Department,** Cherbourg Institute Of Technology, University of Caen Normandy	*Saint-Lô, France*
2000-	**Supervision of 13 Ph.D. and 3 Post -Doc Students,** University of Caen Normandy	*Caen, France*

NATIONAL

	National research evaluation, French National Research Agency (2015-), High Council for Evaluation of Research and Higher Education (2017), Technological Research Agency (2012-2015), Université Cote d'Azur (2017)	*France*
	Member of the organizing committees of national conferences, JNCN 2008&2014, CNRIUT 2011, CORESA 2006&2017	*France*
	Reviewer for 17 PhD and 4 Habilitation thesis committees.	*France*
2009-2016	**Scientific animator in the CNRS National Research Group ISIS,** Color and multimodality theme	*France*
2018	**Referee for the "Web Design and Development" skill,** WorldSkills France	*France*

INTERNATIONAL

	International research evaluation, United States-Israel Binational Science Foundation (2017), UK Medical Research Council (2013, 2014), Marie-Curie European Post-Doctoral Fellowship (2016-), Netherlands Organisation for Scientific Research (2017)	
	Program Chair of International Conferences, ICISP 2008, 2010, 2012, and 2014	
	Co-organization of International Conferences, ICISP 2008, 2010, 2012, and 2014	
	Reviewer for major international conferences and journals of the field, See publons profile at https://publons.com/author/786085/olivier-lezoray	
2010-	**IEEE Multimedia Communications Technical Committee (MMTC) Member**	
2008-	**EURASIP Local Liaison Officer**	

Editorial activities

Associate Editor

IEEE TRANSACTIONS ON SIGNAL PROCESSING   *2016-*

Associate Editor

IET IMAGE PROCESSING   *2013-*

Guest Editor of special issues in international journals

JOURNAL OF ELECTRONIC IMAGING (2017), SIGNAL IMAGE AND VIDEO PROCESSING (2016), COMPUTERIZED MEDICAL IMAGING AND GRAPHICS (2011), SIGNAL PROCESSING (2010), EURASIP JOURNAL ON ADVANCES IN SIGNAL PROCESSING (2008)

Editor of Proceedings

ICISP 2008, 2010, 2012, 2014 PROCEEDINGS - LNCS VOLUMES NUMBER 8509, 7340, 6134, 5099

Editor of the book on "Image Processing and Analysis with Graphs: Theory and Practice"

PUBLISHER: CRC PRESS / TAYLOR AND FRANCIS, SERIES: DIGITAL IMAGING AND COMPUTER VISION   *2012*

Visiting Positions

Brown University   *Providence, USA*

VISITING SCIENTIST, INSTITUTE FOR COMPUTATIONAL AND EXPERIMENTAL RESEARCH IN MATHEMATICS   *Apr 29 - May 3, 2019*

• Workshop "Optimization Methods in Computer Vision and Image Processing" of the semester program on "Computer Vision"

Brown University   *Providence, USA*

VISITING SCIENTIST, INSTITUTE FOR COMPUTATIONAL AND EXPERIMENTAL RESEARCH IN MATHEMATICS   *February 10-15, 2014*

• Workshop "Semidefinite Programming and Graph Algorithms" of the semester program on "Network Science and Graph Algorithms"

Universities of Oslo and Bergen   *Norway*

VISITING RESEARCH FELLOW (ASGARD PROGRAM OF THE FRENCH EMBASSY)   *September 23-29, 2012*

University of Alicante
Visiting professor (Erasmus faculty exchange program)

University of Sydney
Visiting Research Fellow

Honors & Awards

National

2013	**Best paper award,** Conference COmpression et REprésentation des Signaux Audiovisuels	*Le Creusot, France*
2006-	**Premium for distinguished research activity,** Ministry of Education	*France*

International

2017	**IEEE Senior Member,** Elevation to the grade of	*USA*
2016	**Sentinel of Science Award,** Recognized as one of the top 10% of researchers contributing to the peer review of the field of Computer Science	*USA*
2014	**Best paper Award finalist,** IEEE International Conference on Image Processing, for the paper "Graph signal decomposition for multi-scale detail manipulation" authored by M. Hidane, O. Lézoray, A. Elmoataz,	*Paris, France*
2013	**Laureate of the Asgard Research Fellowship,** French-Norwegian Foundation for scientific and technical research and industrial development	*Oslo, Norway*
2008	**IBM Best student paper award,** IEEE International Conference on Image Processing, for the paper "Partial difference equations on graphs for mathematical morphology operators over images and manifolds" authored by V.-T. Ta, A. Elmoataz, O. Lézoray	*San Diego, USA*

Research grants

Normandy Regional Council

2016-2018	**Graph Signal Processing for 3D colored Point Clouds.** Total award: 215593€, Role: Principal Investigator	*France*
2013-2015	**Software optimization of gynecological cytology.** Total award: 139580€, Role: Co-Investigator	*France*
2010-2012	**Automated cellular Sorting validation in tumoral cytopathology.** Total award: 270000€, Role: Co-Investigator	*France*
2007-2008	**Cytological Image Analysis software.** Total award: 120000€, Role: Principal Investigator	*France*
2005-2006	**Passport photographs on mobile devices.** Total award: 4000€, Role: Principal Investigator	*France*

French National Research Agency

2015-2018	**Graph Signal Processing.** Total award: 498509€, Role: Principal Investigator	*France*
2011-2015	**Compact professional stereoscopic camera for 3D Shooting in television and cinema.** Role: participant	*France*
2011-2014	**Innovative solution for screening and monitoring in vivo cancer skin, standardized for general practitioners and specialists.** Total award: 1860487€, Role: Co-Investigator	*France*
2007-2010	**Mining large microscopic breast whole slide images.** Total award: 286000€, Role: Principal Investigator	*France*

International

2017-2018	**Nvidia Academic Hardware Grant scheme: Editing of 3D colored meshes** Total award: a Nividia GPU Titan Graphic Card, Role: Principal Investigator	*USA*

Teaching experience

Bachelor of Science Level
Multimedia and Internet Department, Cherbourg Institute Of Technology, University of Caen Normandy

Office Tools (2000-2009), Databases (2000-2009), Image Processing (2003-), Operating Systems (2000-2015), Algorithms and Data Structures (2000-), Web front and back end development (2002-), Web Design (2000-2001), Object Oriented Programming (2015-), Mobile Android Programming (2016-)

Master of Science Level
Computer Science Departement, University of Caen Normandy
Machine Learning and Neural Networks

Publications

Publications (available at https://lezoray.users.greyc.fr/publicationsList.php)	Number
Books	1
Edited Proceedings and Special issues	9
Book Chapters	10
International Journals	40
International Conferences	103
Software Licences	4

Publications

Books

[1] O. Lézoray and L. Grady. *Image Processing and Analysis with Graphs: Theory and Practice.* Digital Imaging and Computer Vision. CRC Press / Taylor and Francis, 2012.

Articles in international journals

[2] O. Lezoray, A. Elmoataz, H. Cardot, G. Gougeon, M. Lecluse, H. Elie, and M. Revenu. Segmentation of cytological images using color and mathematical morphology. *Acta Stereologica*, 18(1):1–14, 1999. Selected papers of the 7th European Congress of Stereology.

[3] O. Lezoray, A. Elmoataz, H. Cardot, and M. Revenu. Segmentation of color images from serous cytology for an automatic cellular classification. *Analytical and quantitative cytology and histology*, 22(4):311–323, 2000.

[4] O. Lezoray and H. Cardot. A neural network architecture for data classification. *International Journal of Neural Systems*, 11(1):33–42, 2001.

[5] O. Lezoray and H. Cardot. Cooperation of color pixel classification schemes and color watershed : a study for microscopical images. *IEEE transactions on Image Processing*, 11(7):783–789, 2002.

[6] O. Lezoray. Supervised automatic histogram clustering and watershed segmentation. application to microscopic medical images. *Image Analysis and Stereology*, 22:113–120, 2003.

[7] O. Lezoray, A. Elmoataz, and H. Cardot. A color object recognition scheme: application to cellular sorting. *Machine Vision and Applications*, 14:166–171, 2003.

[8] C. Meurie, G. Lebrun, O. Lezoray, and A. Elmoataz. A comparison of supervised pixels-based color image segmentation methods. application in cancerology. *WSEAS Transactions on Computers*, 2(3):739–744, jul 2003. ISSN 1109-2750.

[9] O. Lezoray, D. Fournier, and H. Cardot. Neural network induction graph for pattern recognition. *Neurocomputing*, 57:257–274, 2004.

[10] C. Meurie, O. Lezoray, C. Charrier, and A. Elmoataz. Combination of multiple pixel classifiers for microscopic image segmentation. *IJRA (IASTED International Journal of Robotics and Automation)*, 20(2):63–69, 2005. Special issue on Colour Image Processing and Analysis for Machine Vision, ISSN 0826-8185.

[11] C. Charrier, G. Lebrun, and O. Lezoray. Evidential segmentation of microscopic color images with pixel classification posterior probabilities. *Journal of Multimedia*, 2(3):57–65, 2007.

[12] G. Lebrun, C. Charrier, O. Lezoray, and H. Cardot. A fast and efficient segmentation scheme for cell microscopic image. *Cellular and Molecular Biology*, 53, Biomedical Signal and Image Processing Series(2):51–61, 2007.

[13] O. Lezoray, A. Elmoataz, and S. Bougleux. Graph regularization for color image processing. *Computer Vision and Image Understanding (CVIU)*, 107(1-2):38–55, 2007.

[14] O. Lezoray and M. Lecluse. Automatic segmentation and classification of cells from broncho alveolar lavage. *Image Analysis and Stereology*, 26:111–119, 2007.

[15] A. Elmoataz, O. Lezoray, and S. Bougleux. Nonlocal discrete p-laplacian driven image and manifold processing. *Comptes Rendus de l'Académie des Sciences - Mécanique*, 336(5):428–433, 2008.

[16] A. Elmoataz, O. Lezoray, and S. Bougleux. Nonlocal discrete regularization on weighted graphs: a framework for image and manifold processing. *IEEE transactions on Image Processing*, 17(7):1047–1060, 2008.

[17] G. Lebrun, C. Charrier, O. Lezoray, and H. Cardot. Tabu search model selection for SVM. *International Journal of Neural Systems*, 18(1):19–31, 2008.

[18] O. Lezoray and H. Cardot. Comparing combination rules of pairwise neural networks classifiers. *Neural Processing Letters*, 27(1):43–56, 2008.

[19] O. Lezoray, C. Meurie, and A. Elmoataz. Graph-based ordering scheme for color image filtering. *International Journal of Image and Graphics*, 8(3):473–493, July 2008.

[20] O. Lezoray and C. Charrier. Color image segmentation using morphological clustering and fusion with automatic scale selection. *Pattern Recognition Letters*, 30(4):397–406, 2009.

[21] V.-T. Ta, O. Lezoray, A. Elmoataz, and S. Schupp. Graph-based tools for microscopic cellular image segmentation. *Pattern Recognition Special Issue on Digital Image Processing and Pattern Recognition Techniques for the Detection of Cancer*, 42(6):1113–1125, 2009.

[22] D.-N. Truong Cong, L. Khoudour, C. Achard, C. Meurie, and O. Lezoray. People re-identification by spectral classification of silhouettes. *Signal Processing*, 90(8):2362–2374, 2010.

[23] O. Lezoray, V.-T. Ta, and A. Elmoataz. Partial differences as tools for filtering data on graphs. *Pattern Recognition Letters*, 31(14):2201–2213, 2010.

[24] B. Meftah, O. Lézoray, and A. Benyettou. Segmentation and edge detection based on spiking neural network model. *Neural Processing Letters*, 32(2):131–146, 2010.

[25] C. Meurie, O. Lezoray, L. Khoudour, and A. Elmoataz. Morphological hierarchical segmentation and color spaces. *International Journal of Imaging Systems and Technology*, 20(2):167–178, 2010.

[26] V. Roullier, O. Lézoray, V.-T. Ta, and A. Elmoataz. Multi-resolution graph-based analysis of histopathological whole slide images: application to mitotic cell extraction and visualization. *Computerized Medical Imaging and Graphics*, 35:603–615, 2011.

[27] V.-T. Ta, A. Elmoataz, and O. Lézoray. Nonlocal pdes-based morphology on weighted graphs for image and data processing. *IEEE transactions on Image Processing*, 20(6):1504–1516, June 2011.

[28] C. Charrier, O. Lézoray, and G. Lebrun. Machine learning to design full-reference image quality assessment algorithm. *Signal Processing: Image Communication*, 27(3):209–219, 2012.

[29] A. Elmoataz, X. Desquesnes, and O. Lézoray. Non-local morphological pdes and p-laplacian equation on graphs with applications in image processing and machine learning. *IEEE Journal of Selected Topics in Signal Processing*, 6(7):764–779, 2012.

[30] X. Desquesnes, A. Elmoataz, and O. Lézoray. Eikonal equation adaptation on weighted graphs: fast geometric diffusion process for local and non-local image and data processing. *Journal of Mathematical Imaging and Vision*, 46(2):238–257, 2013.

[31] M. Hidane, O. Lézoray, and A. Elmoataz. Nonlinear multilayered representation of graph-signals. *Journal of Mathematical Imaging and Vision*, 45(2):114–137, 2013.

[32] A. Elmoataz, X. Desquesnes, Z. Lakhdari, and O. Lézoray. Nonlocal infinity laplacian equation on graphs with applications in image processing and machine learning. *Mathematics and Computers in Simulation*, 102:153–163, 2014.

[33] F. Lozes, A. Elmoataz, and O. Lézoray. Partial difference operators on weighted graphs for image processing on surfaces and point clouds. *IEEE transactions on Image Processing*, 23(9):3896 – 3909, 2014.

[34] P. Buyssens, M. Daisy, D. Tschumperlé, and O. Lézoray. Exemplar-based inpainting: Technical review and new heuristics for better geometric reconstructions. *IEEE transactions on Image Processing*, 24(6):1809–1824, 2015.

[35] F. Lozes, A. Elmoataz, and O. Lézoray. Pde-based graph signal processing for 3d color point clouds: Opportunities for cultural heritage. *IEEE Signal Processing Magazine*, 32(4):103–111, 2015.

[36] A. Nouri, C. Charrier, and O. Lézoray. Multi-scale mesh saliency with local adaptive patches for viewpoint selection. *Signal Processing: Image Communication*, 38:151–166, 2015.

[37] O. Lézoray. Complete lattice learning for multivariate mathematical morphology. *Journal of Visual Communication and Image Representation*, 35:220–235, 2016.

[38] B. Meftah, O. Lézoray, and A. Benyettou. Novel approach using echo state networks for microscopic cellular image segmentation. *Cognitive Computation*, 8(2):237–245, 2016.

[39] P. Buyssens, O. Le Meur, M. Daisy, D. Tschumperlé, and O. Lézoray. Depth-guided disocclusion inpainting of synthesized rgb-d images. *IEEE Transactions on Image Processing*, 26(2):525–538, 2017.

[40] C. Coniglio, C. Meurie, O. Lézoray, and M. Berbineau. People silhouette extraction from people detection bounding boxes in images. *Pattern Recognition Letters*, 93:182–191, 2017.

[41] H. Yedjour, B. Meftah, O. Lézoray, and A. Benyettou. Edge detection based on hodgkin-huxley neuron model simulation. *Cognitive Processing*, 18(3):315–323, 2017.

[42] C. Meurie, O. Lézoray, C. Coniglio, and M. Berbineau. Graph-based people segmentation using a genetically optimized combination of classifiers. *Journal of Electronic Imaging*, 27(5):16–47, 2018.

Papers in refereed international conferences

[43] O. Lezoray, A. Elmoataz, H. Cardot, G. Gougeon, M. Lecluse, H. Elie, and M. Revenu. Segmentation of cytological images using color and mathematical morphology. In *Abstract Book of the 7th European Congress of Stereology*, page 52, 1998.

[44] O. Lezoray, A. Elmoataz, H. Cardot, and M. Revenu. A.R.C.T.I.C : Un système de tri cellulaire par analyse d'images. In *Vision Interface*, pages 312–319, 1999.

[45] O. Lezoray, H. Cardot, D. Fournier, and M. Revenu. MONNA : a Multiple Ordinate Neural Network Architecture. In *EIS (Engineering of Intelligent Systems)*, pages 47–53, 2000.

[46] O. Lezoray, A. Elmoataz, H. Cardot, and M. Revenu. A color morphological segmentation. In *CGIP (Color in Graphics and Image Processing)*, pages 170–175, 2000.

[47] O. Lezoray, A. Elmoataz, and H. Cardot. Automatic cellular recognition in serous cytology. In *Abstract Book of the 7th ESACP, Analytical and Cellular Pathology*, volume 22, page 70, 2001.

[48] O. Lezoray, M. Lecluse, and H. Elie. Study of the texture of cells in serous cytology by image analysis. In *Abstract Book of the 7th ESACP, Analytical and Cellular Pathology*, volume 22, page 74, 2001.

[49] J. Thuillier, B. Plancoulaine, O. Lezoray, P. Herlin, and D. Bloyet. Building of a microscopical acquisition device dedicated to clinical oncology. In *Abstract Book of the 7th ESACP, Analytical and Cellular Pathology*, volume 22, page 77, 2001.

[50] H. Cardot and O. Lezoray. Graph of neural networks for pattern recognition. In *International Conference on Pattern Recognition (ICPR)*, volume 2, pages 873–876, Août 2002.

[51] O. Lezoray and H. Cardot. Bayesian marker extraction for color watershed in segmenting microscopic images. In *International Conference on Pattern Recognition (ICPR)*, volume 1, pages 739–742, Août 2002.

[52] O. Lezoray and H. Cardot. Histogram and watershed based segmentation of color images. In *CGIV (Color in Graphics, Imaging and Vision)*, pages 358–362, Avril 2002.

[53] C. Charrier and O. Lezoray. Influence of JPEG2000 standard compression on color image segmentation quality. In *International Conference on Image and Signal Processing (IAPR)*, volume 2, pages 389–396, juin 2003.

[54] O. Lezoray. Unsupervised 2d multiband histogram clustering and region merging for color image segmentation. In *International Symposium on Signal Processing and Information Technology (IEEE)*, pages 267–270, 2003.

[55] O. Lezoray and H. Cardot. Hybrid color image segmentation using 2D histogram clustering and region merging. In *International Conference on Image and Signal Processing (IAPR)*, volume 1, pages 22–29, juin 2003.

[56] O. Lezoray and A. Elmoataz. Graph based smoothing and segmentation of color images. In *International Symposium on Signal Processing and its Applications (IEEE)*, volume 1, pages 22–29, 2003.

[57] C. Meurie, G. Lebrun, O. Lezoray, and A. Elmoataz. A comparison of supervised pixels-based color image segmentation methods. application in cancerology. In *SSIP (WSEAS International Conference On Signal, Speech and Image Processing)*, pages 463–468, 2003.

[58] C. Meurie, G. Lebrun, O. Lezoray, and A. Elmoataz. A supervised segmentation scheme for cancerology color images. In *International Symposium on Signal Processing and Information Technology (IEEE)*, pages 664–667, 2003.

[59] C. Meurie, O. Lezoray, H. Cardot, and A. Elmoataz. Comparaison de classifieurs non-supervisés pour la segmentation d'images couleur : Application en imagerie biomédicale. In *International Conference on Image and Signal Processing (IAPR)*, volume 1, pages 30–37, juin 2003.

[60] O. Lezoray. An unsupervised color image segmentation based on morphological 2D clustering and fusion. In *CGIV (Color in Graphics, Imaging and Vision)*, pages 173–177, 2004.

[61] C. Meurie, O. Lezoray, and A. Elmoataz. Multiple pixel classifier combination for bronchial tumors image segmentation. In *CSIMTA (International Conference on Complex Systems Intelligence and Modern Technological Applications)*, volume 1, pages 305–310, 2004. special session on Color Image Processing and Analysis for Machine Vision.

[62] G. Lebrun, C. Charrier, O. Lezoray, C. Meurie, and H. Cardot. Fast pixel classification by SVM using vector quantization, tabu search and hybrid color space. In A. Gagalowicz and W. Philips, editors, *International Conference on Computer Analysis of Images and Patterns (IAPR)*, volume LNCS 3691 of *Computer Science*, pages 685–692. Springer, 2005. ISBN 3-540-28969-0.

[63] G. Lebrun, C. Charrier, O.Lezoray, C. Meurie, and H. Cardot. A fast and efficient segmentation scheme for cell microscopic image. In *World Congress of Cellular and Molecular Biology*, pages 35–36, 2005.

[64] O. Lezoray and H. Cardot. Combining multiple pairwise neural networks classifiers: A comparative study. In *ANNIIP (International Workshop on Artificial Neural Networks and Intelligent Information Processing)*, pages 52–61, 2005.

[65] O. Lezoray, C. Meurie, and A. Elmoataz. A graph approach to color mathematical morphology. In *International Symposium on Signal Processing and Information Technology (IEEE)*, pages 856–861, dec 2005.

[66] C. Charrier, G. Lebrun, and O. Lezoray. Fusion of SVM-based microscopic color images through colorimetric transformation. In *International Conference on Acoustics, Speech, and Signal Processing (IEEE)*, volume 2, pages 1112–1115, 2006.

[67] C. Charrier, G. Lebrun, and O. Lezoray. A machine learning-based color image quality metric. In *CGIV (Color in Graphics, Imaging and Vision)*, pages 251–256, 2006.

[68] G. Lebrun, O. Lezoray, C. Charrier, and H. Cardot. A new model selection method for SVM. In *IDEAL (Intelligent Data Engineering and Automated Learning)*, volume LNCS 4424, pages 99–107, 2006.

[69] G. Lebrun, O. Lezoray, C. Charrier, and H. Cardot. Speed-up LOO-CV with SVM classifier. In *IDEAL (Intelligent Data Engineering and Automated Learning)*, volume LNCS 4424, pages 108–115, 2006.

[70] O. Lezoray, C. Meurie, P. Belhomme, and A. Elmoataz. Multi-scale image segmentation in a hierarchy of partitions. In *EUSIPCO (European Signal Processing Conference)*, CD Proceedings, 2006.

[71] C. Charrier, G. Lebrun, and O. Lezoray. Selection of features by a machine learning expert to design a color image quality metric. In ISBN 09774740, editor, *Third International Workshop on Video Processing and Quality Metrics for Consumer Electronics, Scottsdale*, CD Proceedings, 2007.

[72] G. Lebrun, O. Lezoray, C. Charrier, and H. Cardot. An EA multi-model selection for SVM multiclass schemes. In *International Work Conference on Artificial Neural Networks (IWANN), Special Session on Kernel Methods*, volume LNCS 4507, pages 257–264, 2007.

[73] O. Lezoray, S. Bougleux, and A. Elmoataz. Parameterless discrete regularization on graphs for color image filtering. In *ICIAR (International Conference on Image Analysis and Recognition)*, volume LNCS 4633, pages 46–57, 2007.

[74] O. Lezoray, C. Meurie, and A. Elmoataz. Mathematical morphology in any color space. In *(IEEE and IAPR) International Conference on Image Analysis and Processing, Computational Color Imaging Workshop*, pages 183–187. IEEE, 2007.

[75] C. Meurie and O. Lezoray. A new method of morphological hierarchical segmentation. In *VIE (IEEE and IET Visual Information Engineering)*, 2007.

[76] V.-T. Ta, O. Lezoray, and A. Elmoataz. Graph based semi and unsupervised classification and segmentation of microscopic images. In *International Symposium on Signal Processing and Information Technology (IEEE)*, pages 1160–1165, 2007.

[77] V.-T. Ta, O. Lezoray, and A. Elmoataz. Graphs regularization for data sets and images: Filtering and semi-supervised classification. In *PASCAL Workshop: Learning from and with graphs, 6th IAPR -TC-15 Workshop on Graph based Representations in Pattern Recognition*, CD Proceedings, 2007.

[78] C. Charrier, G. Lebrun, and O. Lezoray. A color image quality assessment using a reduced-reference image machine learning expert. In *SPIE Electronic Imaging, Image Quality and System Performance V*, volume 6808, 2008.

[79] C. Charrier and O. Lezoray. Multiresolution image VQ compression by color codebook reordering. In *Color in Graphics, Imaging and Vision*, pages 357–361, 2008.

[80] A. Elmoataz, O. Lezoray, S. Bougleux, and V.-T. Ta. Unifying local and nonlocal processing with partial difference operators on weighted graphs. In *International Workshop on Local and Non-Local Approximation in Image Processing (LNLA)*, pages 11–26, 2008.

[81] O. Lezoray, A. Elmoataz, and V.-T. Ta. Impulse noise removal by spectral clustering and regularization on graphs. In *International Conference on Pattern Recognition (ICPR)*, 2008.

[82] O. Lezoray, A. Elmoataz, and V.-T. Ta. Learning graph neighborhood topological order for image and manifold morphological processing. In *International Conference on Computer and Information Technology (IEEE)*, pages 350–355, 2008.

[83] O. Lezoray, A. Elmoataz, and V.-T. Ta. Nonlocal graph regularization for image colorization. In *International Conference on Pattern Recognition (ICPR)*, 2008.

[84] B. Meftah, A. Benyettou, O. Lezoray, and W. QingXiang. Image clustering with spiking neuron network. In *IEEE World Congress on Computational Intelligence, International Joint Conference on Neural Networks (IJCNN)*, pages 681–685, 2008.

[85] V.-T. Ta, A. Elmoataz, and O. Lezoray. Nonlocal morphological levelings by partial difference equations over weighted graphs. In *ICPR (International Conference on Pattern Recognition)*, CD Proceedings, 2008.

[86] V.-T. Ta, A. Elmoataz, and O. Lezoray. Partial difference equations on graphs for mathematical morphology operators over images and manifolds. In *International Conference on Image Processing (IEEE)*, pages 801–804, 2008.

[87] V.-T. Ta, A. Elmoataz, and O. Lezoray. Partial difference equations over graphs: Morphological processing of arbitrary discrete data. In *European Conference on Computer Vision*, volume LNCS 5304, pages 668–680, 2008.

[88] C. Charrier, G. Lebrun, and O. Lezoray. Image quality assessment with manifold and machine learning. In *SPIE Electronic Imaging, Image Quality and System Performance VI*, volume 7242, 2009.

[89] F. de Vieilleville, J.-O. Lachaud, P. Herlin O. Lezoray, and B. Plancoulaine. Top-down segmentation of histological images using a digital deformable model. In Springer, editor, *International Symposium on Visual Computing*, volume LNCS 5875, pages 327–336, 2009.

[90] O. Lezoray, C. Charrier, and A. Elmoataz. Learning complete lattices for manifold mathematical morphology. In *International Symposium on Mathematical Morphology - Abstract Book*, pages 1–4, 2009.

[91] O. Lezoray, C. Charrier, and A. Elmoataz. Rank transformation and manifold learning for multivariate mathematical morphology. In *EUSIPCO (European Signal Processing Conference)*, pages 35–39, 2009.

[92] O. Lezoray, V.-T. Ta, and A. Elmoataz. Manifold and data filtering on graphs. In *International Symposium on Methodologies for Intelligent Systems, International Workshop on Topological learning*, pages 19–28, 2009.

[93] V.-T. Ta, A. Elmoataz, and O. Lezoray. Adaptation of eikonal equation over weighted graphs. In *International Conference on Scale Space Methods and Variational Methods in Computer Vision (SSVM)*, volume LNCS 5567, pages 187–199, 2009.

[94] V.-T. Ta, A. Elmoataz, and O. Lezoray. Nonlocal graph morphology. In *International Symposium on Mathematical Morphology - Abstract Book*, pages 5–9, 2009.

[95] C. Charrier and O. Lezoray. Color vq-based image compression by manifold learning. In *International Conference on Image and Signal Processing (IAPR and EURASIP)*, volume LNCS 6134, pages 79–85, 2010.

[96] X. Desquesnes, A. Elmoataz, O. Lézoray, and V.-T. Ta. Efficient algorithms for image and high dimensional data processing using eikonal equation on graphs. In *International Symposium on Visual Computing*, volume LNCS 6454, pages 647–658, 2010.

[97] F-X. Dupé, S. Bougleux, L. Brun, O. Lezoray, and A. Elmoataz. Kernel-based implicit regularization of structured objects. In *International Conference on Pattern Recognition (ICPR)*, pages 2142–2145, 2010.

[98] M. Hidane, O. Lezoray, V.-T. Ta, and A. Elmoataz. Nonlocal multiscale hierarchical decomposition on graphs. In *European Conference on Computer Vision (ECCV)*, volume LNCS 6314, pages 638–650, 2010.

[99] O. Lezoray. Graph-based morphological processing of multivariate microscopy images and data bases. In *International Symposium on Biomedical Imaging (IEEE)*, pages 1285–1288, 2010.

[100] B. Meftah, O. Lezoray, M. Lecluse, and A. Benyettou. Cell microscopic segmentation with spiking neuron networks. In *International Conference on Artificial Neural Networks (ICANN)*, volume LNCS 6352, pages 117–126, 2010.

[101] V. Roullier, V.-T. Ta, O. Lezoray, and A. Elmoataz. Graph-based multi-resolution segmentation of histological whole slide images. In *International Symposium on Biomedical Imaging (IEEE)*, pages 153–156, 2010.

[102] V. Roullier, V.-T. Ta, O. Lézoray, and A. Elmoataz. Mitosis extraction in breast-cancer histopathological whole slide images. In *International Symposium on Visual Computing*, volume LNCS 6453, pages 539–548, 2010.

[103] X. Desquesnes, A. Elmoataz, and O. Lézoray. Pdes level sets on weighted graphs. In *International Conference on Image Processing (IEEE)*, pages 3377–3380, 2011.

[104] H. Elie, M. Lecluse, A. Elmoataz, and O. Lézoray. Computer aided cancer diagnosis for serous effusion cytology. In *Pathology Visions*, 2011.

[105] A. Elmoataz, X. Desquesnes, Z. Lakhdari, and O. Lezoray. On the infinity laplacian equation on graph with applications to image and manifolds processing. In *International Conference on Approximation Methods and Numerical Modelling in Environment and Natural Resources*, 2011.

[106] M. Ghoniem, A. Elmoataz, and O. Lézoray. Discrete infinity harmonic functions: towards a unified interpolation framework on graphs. In *International Conference on Image Processing (IEEE)*, pages 1361–1364, 2011.

[107] M. Hidane, O. Lézoray, and A. Elmoataz. Hierarchical representation of discrete data on graphs. In *International Conference on Computer Analysis of Images and Patterns*, volume LNCS 6854, pages 186–193, 2011.

[108] M. Hidane, O. Lézoray, and A. Elmoataz. A scale-space based hierarchical representation of discrete data. In *International Conference on Image Processing (IEEE)*, pages 285–288, 2011.

[109] P. Buyssens, A. Elmoataz, and O. Lézoray. Multiscale convolutional neural networks for vision–based classification of cells. In *Asian Conference on Computer Vision (ACCV)*, volume LNCS 7725, pages 342–352, 2012.

[110] C. Charrier, O. Lézoray, and G. Lebrun. A machine learning regression scheme to design a fr-image quality assessment algorithm. In *European Conference on Colour in Graphics, Imaging, and Vision*, pages 35–42, 2012.

[111] X. Desquesnes, A. Elmoataz, and O. Lézoray. Generalized fronts propagation on weighted graphs. In *Algoritmy - 19th Conference on Scientific Computing*, pages 371–381, 2012.

[112] X. Desquesnes, A. Elmoataz, and O. Lézoray. Pdes-based morphology on graphs for cytological slides segmentation and clustering. In *International Symposium on Biomedical Imaging (IEEE)*, pages 1619–1622, 2012.

[113] O. Lézoray and A. Elmoataz. Nonlocal and multivariate mathematical morphology. In *International Conference on Image Processing (IEEE)*, pages 129–132, 2012.

[114] O. Lézoray, A. Elmoataz, and V.-T. Ta. Nonlocal pdes on graphs for active contours models with applications to image segmentation and data clustering. In *International Conference on Acoustics, Speech, and Signal Processing (IEEE)*, pages 873–876, 2012.

[115] F. Lozes, A. Elmoataz, and O. Lézoray. Nonlocal processing of 3d colored point clouds. In *International Conference on Pattern Recognition (ICPR)*, pages 1968–1971, 2012.

[116] M. Toutain, O. Lézoray, F. Audigié, V. Busoni, G. Rossi, F. Parillo, and A. Elmoataz. Analysis of whole slide images of equine tendinopathy. In *ICIAR (International Conference on Image Analysis and Recognition)*, volume LNCS 7325, pages 440–447, 2012.

[117] M. Daisy, D. Tschumperlé, and O. Lézoray. A fast spatial patch blending algorithm for artefact reduction in pattern-based image inpainting. In *SIGGRAPH Asia Technical Brief*, 2013.

[118] M. Daisy, D. Tschumperlé, and O. Lézoray. Spatial patch blending for artefact reduction in pattern-based inpainting techniques. In *International Conference on Computer Analysis of Images and Patterns (IAPR)*, volume LNCS 8048, pages 523–530, 2013.

[119] M. Hidane, O. Lézoray, and A. Elmoataz. Lifting scheme on graphs with application to image representation. In *IEEE Global Conference on Signal and Information Processing (GlobalSIP), Graph Signal Processing Symposium*, 2013.

[120] F. Lozes, A. Elmoataz, and O. Lézoray. Morphological pdes on graphs for filtering and inpainting of point clouds. In *International Symposium on Image and Signal Processing and Analysis (IEEE)*, 2013.

[121] F. Lozes, M. Hidane, A. Elmoataz, and O. Lézoray. Nonlocal segmentation of point clouds with graphs. In *IEEE Global Conference on Signal and Information Processing (GlobalSIP), Graph Signal Processing Symposium*, 2013.

[122] M. Toutain, X. Desquesnes, A. Elmoataz, and O. Lézoray. A unified geometric model for virtual slide images processing. In *International Workshop on Adaptation and Learning in Control and Signal Processing (IFAC)*, pages 629–634, 2013.

[123] P. Buyssens, M. Toutain, A. Elmoataz, and O. Lézoray. Eikonal-based vertices growing and iterative seeding for efficient graph-based segmentation. In *International Conference on Image Processing (IEEE)*, pages 4368–4372, 2014.

[124] C. Coniglio, C. Meurie, O. Lézoray, and M. Berbineau. A genetically optimized graph-based people extraction method for embedded transportation systems real conditions. In *Intelligent Transportation Systems Conference (IEEE)*, pages 1589–1595, 2014.

[125] M. Daisy, P. Buyssens, D. Tschumperlé, and O. Lézoray. A smarter exemplar-based inpainting algorithm using local and global heuristics for more geometric coherence. In *International Conference on Image Processing (IEEE)*, pages 4622–4626, 2014.

[126] M. Hidane, O. Lézoray, and A. Elmoataz. Graph signal decomposition for multi-scale detail manipulation. In *International Conference on Image Processing (IEEE)*, pages 2041–2045, 2014.

[127] R. Kechichian, H. Gong, M. Revenu, O. Lézoray, and M. Desvignes. New data model for graph-cut segmentation: Application to automatic melanoma delineation. In *International Conference on Image Processing (IEEE)*, pages 892–896, 2014.

[128] O. Lézoray, M. Revenu, and M. Desvignes. Graph-based skin lesion segmentation of multispectral dermoscopic images. In *International Conference on Image Processing (IEEE)*, pages 897–901, 2014.

[129] G. Planchard, N. Lestang, M. Lecluse, H. Elie, A. Elmoataz, O. Lézoray, B. Lesner, and F. Galateau-Sallé. Artificial neural network a promising tool for the separation of reactive atypical mesothelial cells from malignant mesothelioma in pleural effusion cytology. In *European Congress of Cytology*, 2014.

[130] M. Toutain, A. Elmoataz, and O. Lézoray. Geometric pdes on weighted graphs for semi-supervised classification. In *International Conference on Machine Learning and Applications (IEEE)*, pages 231– 236, 2014.

[131] P. Buyssens, M. Daisy, D. Tschumperlé, and O. Lézoray. Depth-aware patch-based image disocclusion for virtual view synthesis. In *SIGGRAPH Asia Technical Brief*, 2015.

[132] P. Buyssens, M. Daisy, D. Tschumperlé, and O. Lézoray. Superpixel-based depth map inpainting for rgb-d view synthesis. In *International Conference on Image Processing (IEEE)*, pages 4332–4336, 2015.

[133] P. Buyssens and O. Lézoray. Multivalued label diffusion for semi-supervised segmentation. In *International Conference on Image Processing (IEEE)*, pages 3275–3279, 2015.

[134] C. Coniglio, C. Meurie, O. Lézoray, and M. Berbineau. A graph based people silhouette segmentation using combined probabilities extracted from appearance, shape template prior, and color distributions. In *Advanced Concepts for Intelligent Vision Systems*, volume LNCS 9386, pages 299–310, 2015.

[135] M. Daisy, P. Buyssens, D. Tschumperlé, and O. Lézoray. Exemplar-based video completion with geometry-guided space-time patch blending. In *SIGGRAPH Asia Technical Brief*, 2015.

[136] M. Daisy, P. Buyssens, D. Tschumperlé, and O. Lézoray. Tensor-directed spatial patch blending for pattern-based inpainting methods. In *International Conference on Computer Analysis of Images and Patterns (IAPR)*, volume LNCS 9256, pages 149–160, 2015.

[137] O. Lézoray. Patch-based mathematical morphology for image processing, segmentation and classification. In *Advanced Concepts for Intelligent Vision Systems*, volume LNCS 9386, pages 46–57, 2015.

[138] A. Nouri, C. Charrier, and O. Lézoray. Mesh saliency with adaptive local patches. In *Proceeding of SPIE Electronic Imaging, Three-Dimensional Image Processing, Measurement (3DIPM), and Applications*, volume 9393, pages 93930D–93930D–12, 2015.

[139] A. Nouri, C. Charrier, and O. Lézoray. Multi-scale saliency of 3d colored meshes. In *International Conference on Image Processing (IEEE)*, pages 2820–2824, 2015.

[140] O. Lézoray. High dynamic range image processing using manifold-based ordering. In *International Conference on Pattern Recognition (ICPR)*, pages 289–294, 2016.

[141] O. Lézoray. Manifold-based mathematical morphology for graph signal editing of colored images and meshes. In *IEEE International Conference on Systems, Man, and Cybernetics (SMC)*, pages 109–114, 2016.

[142] A. Nouri, C. Charrier, and O. Lézoray. Full-reference saliency-based 3d mesh quality assessment index. In *International Conference on Image Processing (IEEE)*, pages 1007–1011, 2016.

[143] O. Lézoray. 3d colored mesh graph signals multi-layer morphological enhancement. In *International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, pages 1358–1362, 2017.

[144] O. Lézoray. Stochastic spectral-spatial permutation ordering combination for nonlocal morphological processing. In *International Conference on Systems, Signals and Image Processing (IWSSIP - IEEE)*, pages 1–5, 2017.

[145] A. Nouri, C. Charrier, and O. Lézoray. 3d blind mesh quality assessment index. In *Proceeding of IS&T Electronic Imaging, Three-Dimensional Image Processing, Measurement (3DIPM), and Applications*, volume 18, pages 9–26, 2017.

[146] A. Nouri, C. Charrier, and O. Lézoray. Global visual saliency: geometric and colorimetric saliency fusion and its applications for 3d colored meshes. In *International Conference on Image Processing Theory, Tools and Applications*, pages 1–6, 2017.

[147] Z. Abu-Aisheh, S. Bougleux, and O. Lézoray. p-laplacians on directed graphs. In *Graph Signal Processing Workshop*, volume to appear, 2018.

[148] E. Daller, S. Bougleux, L. Brun, and O. Lézoray. Local patterns and supergraph for chemical graph classification with convolutional networks. In *Joint IAPR International Workshops on Statistical Techniques in Pattern Recognition and Structural and Syntactic Pattern Recognition (S+SSPR)*, volume to appear, 2018.