Guillaume TOCHON

Curriculum Vitae

EPITA Research Laboratory
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Visit my webpage!

Current position

I am currently an Associate Professor with EPITA and conduct my research with EPITA Research Laboratory (LRE), where I lead the Image Processing and Pattern Recognition group.
I am also an Associate Researcher with IMCCE, Paris Observatory.

Education

2021 **University degree**, *Paris Observatory – PSL*, Paris.
DU "Explore and understand the universe" (introduction to astronomy & astrophysics)

2015 **Doctoral degree**, *Grenoble Alpes University*, Grenoble.
From June to August 2013 – Guest researcher with UCLA Departement of Mathematics, Los Angeles 🇺🇸

2012 **Engineering degree**, *Grenoble Institute of Technology*, Grenoble,
From the Graduate School of Engineering in Energy, Water and Environmental sciences, with a specialization in signal and image processing.
Fall semestre 2011 – Academic exchange with the University of Wisconsin-Madison, Madison 🇺🇸

Research Activities

My research activities focus on the development of advanced algorithms integrating mathematical morphology, pattern recognition, machine learning and deep learning for image processing and analysis, with applications mostly for (but not restricted to) astronomy and satellite remote sensing imagery.

Since 2022 **Associate Researcher**, *IMCCE – Paris Observatory*, Paris.

Since 2016 **Associate Professor**, *EPITA Research Laboratory*, Le Kremlin-Bicêtre.

2015–2016 **Temporary Assistant Professor**, *Grenoble Institute of Technology & GIPSA-lab*, Grenoble.

2012–2015 **PhD thesis**, *Université Grenoble Alpes & GIPSA-lab*, Grenoble.
Hierarchical analysis of multimodal images.
Supervised by Jocelyn CHANUSSOT (GIPSA-lab) and Mauro DALLA MURA (GIPSA-lab).

2012 **Master internship**, *Carnegie Institution for Science, Stanford University*, Stanford 🇺🇸.
Hierarchical segmentation of tropical rainforest hyperspectral images.
Supervised by Gregory P. ASNER (Carnegie) and Jocelyn CHANUSSOT (GIPSA-lab).

Teaching Activities

Since 2016 **Associate Professor**, *EPITA*, Le Kremlin-Bicêtre.
I am currently teaching the following courses at EPITA:

In the 1st year of engineering degree (equivalent to the last year of Bachelor degree)

- *Introduction to signal processing*
  → lectures & labworks for ∼300 students (on Paris campus)
  → responsible for the whole coordination of the course across the 5 EPITA campuses in France

- *Introduction to image processing*
  → labworks for ∼50 students
- *Data compression*
  → lectures & tutorials for ∼30 students

In the 2nd year of engineering degree (equivalent to the first year of Master degree)

- *Introduction to machine learning*
  → lectures & labworks for ∼50 students (IMAGE specialization)
- *Convex optimization*
  → lectures, tutorials & labworks for ∼50 students (IMAGE specialization)

In the 3rd year of engineering degree (equivalent to the last year of Master degree)

- *Constrained optimization*
  → lectures & labworks for ∼50 students (IMAGE specialization)

Past teaching activities at EPITA:

- *Statistical signal processing* (lectures & tutorials, 2nd year of engineering degree)
- *Algorithmic* (tutorials, 1st year of engineering degree)
- *Rational language theory* (tutorials, 1st year of engineering degree)

2015–2016 **Temporary Assistant Professor**, *Grenoble Institute of Technology*, Grenoble.
Lectures, tutorials, and labworks in courses related to signal processing, image processing and mathematics.

2012–2014 **Teaching Assistant**, *Grenoble Institute of Technology*, Grenoble.
Tutorials and labworks in courses related to image processing and mathematics.

Responsabilities

Since 2024 **Lead of the Image Processing and Pattern Recognition group**, *EPITA Research Laboratory*.
The group comprises ∼20 people, including 13 permanent researchers (all associate professors at EPITA) and ∼7 non-permanent researchers (postdoctoral researchers, PhD candidates and interns).

2019–2023 **Co-head of the IMAGE specialization**, *EPITA*.
Responsible (with Élodie Puybareau) for the creation of the entire curriculum of the IMAGE specialization (equivalent to a Master degree in image processing and synthesis) and its management (∼50 students).

Skills

Languages French 🇫🇷 (native), English 🇬🇧 (fluent)
Programming C/C++, Python, Matlab, R,
Other LaTeX, TikZ, Beamer, Git

Supervision

PhD. student supervision

Since 2022 **Giulio Quaglia**, *Artificial intelligence at the service of space astrometry. A new way to explore the solar system*.
Jointly with Valéry Lainey (IMCCE)

2021–2024 **Anthony Frion**, *Learning dynamics in time series of satellite multispectral images*.
Jointly with Lucas Drumetz (Lab-STICC), Abdeldjalil Aïssa El Bey (Lab-STICC) and Mauro Dalla Mura (GIPSA-lab)

2020–2023 **Baptiste Esteban**, *A Generic, efficient, and interactive approach to image processing with applications in mathematical morphology*.
Jointly with Didier Verna (LRE) and Edwin Carlinet (LRE).

2017–2020 **Julie Rivet**, *Non-iterative methods for image improvement in digital holography of the retina*.
Jointly with Thierry Géraud (LRE), Michel Paques (Sorbonne University), Michael Atlan (Institut Langevin) and Serge Meimon (ONERA).

Master student supervision

2025 **Wajd Ali**, *AI-assisted spectral image processing for meteorite classification*.
Jointly with Élodie Puybareau (LRE), Jonathan Fabrizio (LRE), Maximilien Verdier-Paoletti (MNHN) and Arthur France-Lanord (IMPMC)

2025 **Johanne Randrianandrasana**, *AI-based classification of blazars using multiwaveband VLBI and Gaia astrometry and photometry*.
Jointly with Sébastien Lambert (Laboratoire Temps Espace)

2023 **Antoine Bottenmuller**, *Convergence analysis of morphological neural networks*.
Jointly with Jesus Angulo (CMM)

2020 **Joachim Estopinan**, *Temporal dynamics learning for hyperspectral image unmixing*.
Jointly with Lucas Drumetz (Lab-STICC)

2019 **Matteo Bovio**, *Combining mathematical morphology and deep learning for medical image segmentation*.
Jointly with Élodie Puybareau (LRE)

2015 **Delphine Pauwels**, *Hyperspectral unmixing in the thermal domain*.
Jointly with Jocelyn Chanussot (GIPSA-lab) and Mauro Dalla Mura (GIPSA-lab)

2015 **Yang Xu**, *Robust principal component analysis*.
Jointly with Jocelyn Chanussot (GIPSA-lab) and Mauro Dalla Mura (GIPSA-lab)

2013 **Jor-El Briones, Justin Sunu, Sihan Chen, Kevin Bui Viet**, *Gas plume tracking in hyperspectral video sequences*, (at UCLA).
Jointly with Andrea Bertozzi (UCLA), Jérôme Gilles (UCLA) and Jen-Mei Chang (CSULB)

2013 **Lucas Drumetz**, *Classification of cementitious materials in scanning electron microscopy images*.
Jointly with Jocelyn Chanussot (GIPSA-lab) and Mauro Dalla Mura (GIPSA-lab)

EPITA student supervision

EPITA students have the opportunity to join the LRE as *research students* during their 1^{st} year of engineering degree and/or during their whole specialization (2^{nd} and 3^{rd} years of engineering degree). They work on a research project driven by a permanent researcher in parallel of their regular studies and actively participate to the research activities of the laboratory.

Here is the list of EPITA research students I have supervised so far:

- Aurélien Hurand (2025) – *Benchmarking of mophological neural networks*
  Jointly with Gonzalo Romero-Garcia (LRE)
- Étienne Senigout (2025) – *Classification of scanning microscopic images of meteorites*
  Jointly with Jonathan Fabrizio (LRE) and Élodie Puybareau (LRE)
- Florian Fogliani (2025) – *Spectral unmixing of astrophysical signals*
  Jointly with Laurence Denneulin (LRE)
- Abdulkadir Kessaria (2025) – *Learning degradation-invariant hierarchical structure*
  Jointly with Élodie Puybareau and (LRE) Marc Plantevit (LRE)
- Lilou Mayot (2025) – *Image segmentation by shape constraint*
  Jointly with Élodie Puybareau and (LRE) Marc Plantevit (LRE)
- Tristan Gadaud (2023) – *Detecting and classifying celestial objects with mathematical morphology & AI*
  Jointly with Jonathan Fabrizio (LRE), Élodie Puybareau and (LRE) Jérémie Vaubaillon (IMCCE)
- Romain Hermary (2021) – *Integration of morphological operators in neural networks*
  Jointly with Élodie Puybareau (LRE)

- Maya El Gemayel (2020–2021) – *Meteor detection and classification in night sky image sequences*
  Jointly with Élodie Puybareau (LRE) and Jérémie Vaubaillon (IMCCE)
- Baptiste Parsy (2020) – *Sensitivity of hierarchical representations to noise in images*
- Thibault Buatois (2019–2020) – *Deep learning segmentation of brain MRI images*
  Jointly with Élodie Puybareau (LRE)
- Alexandre Kirszenberg (2019) – *Combining mathematical morphology with convolutional networks*
  Jointly with Élodie Puybareau (LRE)
- Baptiste Esteban (2018–2019) – *Image denoising with the tree of shapes and rank statistics*
- Thomas De Carvalho (2018–2019) – *Learning state space structures for model checking*
  Jointly with Étienne Renault (LRE)

Additional information

Professional affiliations.

- Member of the IEEE.
- Member of the IEEE Geoscience and Remote Sensing Society.
- Member of the IEEE Signal Processing Society.

Reviewing activities.

I regularly serve as a reviewer for the following journals:

- IEEE Transactions on Image Processing
- IEEE Transactions on Geoscience and Remote Sensing
- IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing
- IEEE Geoscience and Remote Sensing Letters
- Journal of Mathematical Imaging and Vision
- Pattern Recognition
- Pattern Recognition Letters
- Remote Sensing of the Environment

Awards 🏆

🥇 **Vascular Lesions Detection Challenge 2021**.

Ranked 1st (out of 4 teams) for the segmentation of enlarged perivascular spaces in MRI scans (Task 1) on the Where is VALDO challenge at MICCAI 2021.

Reference article: Carole H. Sudre, Kimberlin Van Wijnen, Florian Dubost, Hieab Adams, et al. "Where is VALDO? VAscular Lesions Detection and segmentatiOn challenge at MICCAI 2021". In: *Medical Image Analysis* 91 (Jan. 2024), pp. 1–23. ISSN: 1361-8415. DOI: 10.1016/j.media.2023.103029

🥈 **Multimodal Brain Tumor Segmentation Challenge 2018**.

Ranked 2nd (out of 26 teams) for the prediction of patient overall survival task on the BraTS challenge at MICCAI 20218.

Reference article: Spyridon Bakas, Mauricio Reyes, Andras Jakab, Stefan Bauer, et al. *Identifying the Best Machine Learning Algorithms for Brain Tumor Segmentation, Progression Assessment, and Overall Survival Prediction in the BRATS Challenge*. 2019. arXiv: 1811.02629. URL: https://arxiv.org/abs/1811.02629

🥈 **Student paper award 2012**.

Second prize of the 2012 national student contest organized by the *French Photogrammetry and Remote Sensing Society* for the article **Guillaume Tochon**, Jean-Baptiste Féret, Silvia Valero, Roberta Martin, Raul Tupayachi, Jocelyn Chanussot, Philippe Salembier and Gregory Asner. "Segmentation hyperspectrale de forets tropicales par arbres de partition binaires". In: *Revue francaise de photogrammétrie et de télédétection* 202 (2013), pp. 55–65. DOI: 10.52638/rfpt.2013.51

List of Publications

All my publications are accessible through my Google scholar webpage

PhD thesis

[1] **Guillaume Tochon**. "Hierarchical analysis of multimodal images". PhD thesis. Université Grenoble Alpes, Dec. 2015. URL: https://hal.science/tel-01242836.

Book chapter

[1] **Guillaume Tochon**, Mauro Dalla Mura, Miguel Angel Veganzones, Silvia Valero, Philippe Salembier and Jocelyn Chanussot. "Advances in Utilization of Hierarchical Representations in Remote Sensing Data Analysis". In: *Comprehensive Remote Sensing, 1st Edition*. Ed. by Shunling Liang. Vol. 2. Elsevier, Nov. 2017. Chap. 5, pp. 77–107. DOI: 10.1016/B978-0-12-409548-9.10340-9.

International journal

[1] Anthony Frion, Lucas Drumetz, Mauro Dalla Mura, **Guillaume Tochon** and Abdeldjalil Aissa El Bey. "Neural Koopman prior for data assimilation". In: *IEEE Transactions on Signal Processing* 72 (June 2024), pp. 4191–4206. DOI: 10.1109/TSP.2024.3416828.

[2] Carole H. Sudre, Kimberlin Van Wijnen, Florian Dubost, Hieab Adams, et al. "Where is VALDO? VAscular Lesions Detection and segmentatiOn challenge at MICCAI 2021". In: *Medical Image Analysis* 91 (Jan. 2024), pp. 1–23. ISSN: 1361-8415. DOI: 10.1016/j.media.2023.103029.

[3] Romain Hermary, **Guillaume Tochon**, Élodie Puybareau, Alexandre Kirszenberg and Jesús Angulo. "Learning Grayscale Mathematical Morphology with Smooth Morphological Layers". In: *Journal of Mathematical Imaging and Vision* 64 (Apr. 2022), pp. 736–753. DOI: 10.1007/s10851-022-01091-1.

[4] Raghav Mehta, Angelos Filos, Ujjwal Baid, Chiharu Sako, et al. "QU-BraTS: MICCAI BraTS 2020 Challenge on Quantifying Uncertainty in Brain Tumor Segmentation — Analysis of Ranking Scores and Benchmarking Results". In: *Journal of Machine Learning for Biomedical Imaging (MELBA)* 26 (Sept. 2022), pp. 1–54. DOI: 10.59275/j.melba.2022-354b.

[5] **Guillaume Tochon**, Mauro Dalla Mura, Miguel Angel Veganzones, Thierry Géraud and Jocelyn Chanussot. "Braids of Partitions for the Hierarchical Representation and Segmentation of Multimodal Images". In: *Pattern Recognition* 95 (Nov. 2019), pp. 162–172. DOI: 10.1016/j.patcog.2019.05.029.

[6] **Guillaume Tochon**, Jocelyn Chanussot, Mauro Dalla Mura and Andrea Bertozzi. "Object tracking by hierarchical decomposition of hyperspectral video sequences: Application to chemical gas plume tracking". In: *IEEE Transactions on Geoscience and Remote Sensing* 55.8 (Aug. 2017), pp. 4567–4585. DOI: 10.1109/TGRS.2017.2694159.

[7] Lucas Drumetz, Miguel Angel Veganzones, Ruben Marrero, **Guillaume Tochon**, Mauro Dalla Mura, Giorgio Licciardi, Christian Jutten and Jocelyn Chanussot. "Hyperspectral local intrinsic dimensionality". In: *IEEE Transactions on Geoscience and Remote Sensing* 54.7 (Mar. 2016), pp. 4063–4078. DOI: 10.1109/TGRS.2016.2536480.

[8] **Guillaume Tochon**, Jean-Baptiste Féret, Silvia Valero, Roberta Martin, David Knapp, Philippe Salembier, Jocelyn Chanussot and Gregory Asner. "On the use of binary partition trees for the tree crown segmentation of tropical rainforest hyperspectral images". In: *Remote Sensing of Environment* 159 (Mar. 2015), pp. 318–331. DOI: 10.1016/j.rse.2014.12.020.

[9] Miguel Angel Veganzones, **Guillaume Tochon**, Mauro Dalla Mura, Antonio Plaza and Jocelyn Chanussot. "Hyperspectral Image Segmentation Using a New Spectral Unmixing-Based Binary Partition Tree Representation". In: *IEEE Transactions on Image Processing* 23.8 (Aug. 2014), pp. 3574–3589. DOI: 10.1109/TIP.2014.2329767.

International conference

[1] Anthony Frion, Lucas Drumetz, **Guillaume Tochon**, Mauro Dalla Mura, Bey and Abdeldjalil Aïssa El. "Koopman Ensembles for Probabilistic Time Series Forecasting". In: *Proceedings of the 32nd European Signal Processing Conference (EUSIPCO)*. Lyon, France, Aug. 2024, pp. 2542–2546.

[2] Matthias Eisenmann, Annika Reinke, Vivienn Weru, Minu D. Tizabi, et al. "Why Is the Winner the Best?" In: *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*. June 2023, pp. 19955–19966. DOI: 10.1109/CVPR52729.2023.01911.

[3] Baptiste Esteban, **Guillaume Tochon**, Edwin Carlinet and Didier Verna. "Structural Analysis of the Additive Noise Impact on the α-tree". In: *Proceedings of the 20th International Conference on Computer Analysis of Images and Patterns (CAIP)*. Vol. 14185. Lecture Notes in Computer Science. Limassol, Cyprus: Springer, Sept. 2023, pp. 223–232. DOI: 10.1007/978-3-031-44240-7_22.

[4] Anthony Frion, Lucas Drumetz, Mauro Dalla Mura, **Guillaume Tochon** and Abdeldjalil Aïssa-El-Bey. "Leveraging Neural Koopman Operators to Learn Continuous Representations of Dynamical Systems from Scarce Data". In: *Proceedings of the 48th IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*. Rhodes Island, Greece, May 2023, pp. 4261–4265. DOI: 10.1109/ICASSP49357.2023.10094919.

[5] Anthony Frion, Lucas Drumetz, **Guillaume Tochon**, Mauro Dalla Mura and Abdeldjalil Aïssa El Bey. "Learning Sentinel-2 reflectance dynamics for data-driven assimilation and forecasting". In: *Proceedings of the 31th European Signal Processing Conference (EUSIPCO)*. Helsinki, Finland, Sept. 2023, pp. 1390–1394. DOI: 10.23919/EUSIPCO58844.2023.10289879.

[6] Baptiste Esteban, Edwin Carlinet, **Guillaume Tochon** and Didier Verna. "The Cost of Dynamism in Static Languages for Image Processing". In: *Proceedings of the 21st International Conference on Generative Programming: Concepts & Experiences (GPCE 2022)*. Auckland, New Zealand, Dec. 2022, pp. 172–178. DOI: 10.1145/3564719.3568693.

[7] Baptiste Esteban, **Guillaume Tochon**, Edwin Carlinet and Didier Verna. "Estimation of the noise level function for color images using mathematical morphology and non-parametric statistics". In: *Proceedings of the 26th International Conference on Pattern Recognition*. Montréal, Québec, Aug. 2022, pp. 428–434. DOI: 10.1109/ICPR56361.2022.9956218.

[8] Isabelle Bloch, Samy Blusseau, Ramón Pino Pérez, Élodie Puybareau and **Guillaume Tochon**. "On Some Associations Between Mathematical Morphology and Artificial Intelligence". In: *Proceedings of the IAPR International Conference on Discrete Geometry and Mathematical Morphology (DGMM)*. Ed. by Joakim Lindblad, Filip Malmberg and Nataša Sladoje. Vol. 12708. Lecture Notes in Computer Science. Uppsala, Sweden: Springer, May 2021, pp. 457–469. DOI: 10.1007/978-3-030-76657-3_33.

[9] Nicolas Boutry and **Guillaume Tochon**. "Stability of the Tree of Shapes to Additive Noise". In: *Proceedings of the IAPR International Conference on Discrete Geometry and Mathematical Morphology (DGMM)*. Ed. by Joakim Lindblad, Filip Malmberg and Nataša Sladoje. Vol. 12708. Lecture Notes in Computer Science. Uppsala, Sweden: Springer, May 2021, pp. 365–377. DOI: 10.1007/978-3-030-76657-3_26.

[10] Joaquim Estopinan, **Guillaume Tochon** and Lucas Drumetz. "Learning Sentinel-2 Spectral Dynamics for Long-Run Predictions Using Residual Neural Networks". In: *Proceedings of the 29th European Signal Processing Conference (EUSIPCO)*. Dublin, Ireland, Aug. 2021, pp. 1735–1739. DOI: 10.23919/EUSIPCO54536.2021.9616304.

[11] Alexandre Kirszenberg, **Guillaume Tochon**, Élodie Puybareau and Jesus Angulo. "Going beyond p-Convolutions to Learn Grayscale Morphological Operators". In: *Proceedings of the IAPR International Conference on Discrete Geometry and Mathematical Morphology (DGMM)*. Vol. 12708. Lecture Notes in Computer Science. Uppsala, Sweden: Springer, May 2021, pp. 470–482. DOI: 10.1007/978-3-030-76657-3_34.

[12] Michael Atlan, Julie Rivet, Antoine Taliercio, Nicolas Boutry, **Guillaume Tochon** and Jean-Pierre Huignard. "Experimental digital Gabor hologram rendering of C. elegans worms by a model-trained convolutional neural network". In: *Label-free Biomedical Imaging and Sensing (LBIS) 2020*. Vol. 11251. International Society for Optics and Photonics. Apr. 2020. DOI: 10.1117/12.2545514.

[13] Lucas Drumetz, Mauro Dalla Mura, **Guillaume Tochon** and Ronan Fablet. "Learning Endmember Dynamics in Multi-temporal Hyperspectral Data using a State-Space Model Formulation". In: *Proceedings of the 45th IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*. Barcelona, Spain, May 2020, pp. 2483–2487. DOI: 10.1109/ICASSP40776.2020.9053787.

[14] Nicolas Boutry, Joseph Chazalon, Élodie Puybareau, **Guillaume Tochon**, Hugues Talbot and Thierry Géraud. "Using Separated Inputs for Multimodal Brain Tumor Segmentation with 3D U-Net-like Architectures". In: *Proceedings of the 5th International Workshop, BrainLes 2019, Held in Conjunction with MICCAI 2019*. Vol. 11992. Lecture Notes in Computer Science. Springer, Oct. 2019, pp. 187–199. DOI: 10.1007/978-3-030-46640-4_18.

[15] Thibault Buatois, Élodie Puybareau, **Guillaume Tochon** and Joseph Chazalon. "Two Stages CNN-Based Segmentation of Gliomas, Uncertainty Quantification and Prediction of Overall Patient Survival". In: *Proceedings of the 5th International Workshop, BrainLes 2019, Held in Conjunction with MICCAI 2019*. Ed. by A. Crimi and S. Bakas. Vol. 11992. Lecture Notes in Computer Science. Springer, Oct. 2019, pp. 167–178. DOI: 10.1007/978-3-030-46643-5_16.

[16] Baptiste Esteban, **Guillaume Tochon** and Thierry Géraud. "Estimating the noise level function with the tree of shapes and non-parametric statistics". In: *Proceedings of the 18th International Conference on Computer Analysis of Images and Patterns (CAIP)*. Vol. 11679. Lecture Notes in Computer Science. Salerno, Italy: Springer, Sept. 2019, pp. 377–388. DOI: 10.1007/978-3-030-29891-3_33.

[17] Julie Rivet, **Guillaume Tochon**, Serge Meimon, Michel Paques, Michael Atlan and Thierry Géraud. "Motion Compensation in Digital Holography for Retinal Imaging". In: *Proceedings of the IEEE International Symposium on Biomedical Imaging (ISBI)*. Venice, Italy, Apr. 2019, pp. 1428–1431. DOI: 10.1109/ISBI.2019.8759564.

[18] Julie Rivet, **Guillaume Tochon**, Serge Meimon, Michel Pâques, Thierry Géraud and Michael Atlan. "Deep Neural Networks for Aberrations Compensation in Digital Holographic Imaging of the Retina". In: *Proceedings of the SPIE Conference on Adaptive Optics and Wavefront Control for Biological Systems V*. San Francisco, CA, USA, Feb. 2019. DOI: 10.1117/12.2509711.

[19] **Guillaume Tochon**, Mauro Dalla Mura and Jocelyn Chanussot. "Constructing a braid of partitions from hierarchies of partitions". In: *Mathematical Morphology and Its Application to Signal and Image Processing – Proceedings of the 14th International Symposium on Mathematical Morphology (ISMM)*. Vol. 11564. Lecture Notes in Computer Science. Saarbrücken, Germany: Springer, July 2019, pp. 111–123. DOI: 10.1007/978-3-030-20867-7_9.

[20] Aliona Dangla, Élodie Puybareau, **Guillaume Tochon** and Jonathan Fabrizio. "A first step toward a fair comparison of evaluation protocols for text detection algorithms". In: *Proceedings of the IAPR International Workshop on Document Analysis Systems (DAS)*. Vienna, Austria, Apr. 2018, pp. 345–350. DOI: 10.1109/DAS.2018.55.

[21] Élodie Puybareau, **Guillaume Tochon**, Joseph Chazalon and Jonathan Fabrizio. "Segmentation of Gliomas and Prediction of Patient Overall Survival: A Simple and Fast Procedure". In: *Proceedings of the 4th International Workshop, BrainLes 2018, Held in Conjunction with MICCAI 2018*. Vol. 11384. Lecture Notes in Computer Science. Grenada, Spain: Springer, Sept. 2018, pp. 199–209. DOI: 10.1007/978-3-030-11726-9_18.

[22] Lucas Drumetz, **Guillaume Tochon**, Jocelyn Chanussot and Christian Jutten. "Estimating the Number of Endmembers to Use in Spectral Unmixing of Hyperspectral Data with Collaborative Sparsity". In: *Proceedings of the 13th International Conference on Latent Variable Analysis and Signal Separation (LVA-ICA)*. Grenoble, France, Feb. 2017. DOI: 10.1007/978-3-319-53547-0_36.

[23] Lucas Drumetz, **Guillaume Tochon**, Miguel Angel Veganzones, Jocelyn Chanussot and Christian Jutten. "Improved local spectral unmixing of hyperspectral data using an algorithmic regularization path for collaborative sparse regression". In: *Proceedings of the 42nd IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*. New Orleans, LA, USA, Mar. 2017, pp. 6190–6194. DOI: 10.1109/ICASSP.2017.7953346.

[24] **Guillaume Tochon**, Lucas Drumetz, Miguel Angel Veganzones, Mauro Dalla Mura and Jocelyn Chanussot. "From local to global unmixing of hyperspectral images to reveal spectral variability". In: *2016 8th Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing (WHISPERS)*. Los Angeles, CA, USA, Aug. 2016, pp. 1–5. DOI: 10.1109/WHISPERS.2016.8071730.

[25] **Guillaume Tochon**, Delphine Pauwels, Mauro Dalla Mura and Jocelyn Chanussot. "Unmixing-based gas plume tracking in LWIR hyperspectral video sequences". In: *2016 8th Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing (WHISPERS)*. Los Angeles, CA, USA, Aug. 2016, pp. 1–5. DOI: 10.1109/WHISPERS.2016.8071686.

[26] **Guillaume Tochon**, Mauro Dalla Mura and Jocelyn Chanussot. "Segmentation of multimodal images based on hierarchies of partitions". In: *Mathematical Morphology and Its Application to Signal and Image Processing – Proceedings of the 12th International Symposium on Mathematical Morphology (ISMM)*. Vol. 9082. Lecture Notes in Computer Science. Reykjavik, Iceland: Springer, May 2015, pp. 241–252. DOI: 10.1007/978-3-319-18720-4_21.

[27] Miguel Angel Veganzones, Mauro Dalla Mura, **Guillaume Tochon** and Jocelyn Chanussot. "Binary partition trees-based spectral-spatial permutation ordering". In: *Mathematical Morphology and Its Application to Signal and Image Processing – Proceedings of the 12th International Symposium on Mathematical Morphology (ISMM)*. Vol. 9082. Lecture Notes in Computer Science. Reykjavik, Iceland: Springer, May 2015, pp. 434–445. DOI: 10.1007/978-3-319-18720-4_37.

[28] Lucas Drumetz, Miguel Angel Veganzones, Ruben Marrero, **Guillaume Tochon**, Mauro Dalla Mura, Antonio Plaza and Jocelyn Chanussot. "Binary partition tree-based local spectral unmixing". In: *2014 6th Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing (WHISPERS)*. Lausanne, Switzerland, June 2014, pp. 1–4. DOI: 10.1109/WHISPERS.2014.8077555.

[29] **Guillaume Tochon**, Jocelyn Chanussot, Jérôme Gilles, Mauro Dalla Mura, Jen-Mei Chang and Andrea Bertozzi. "Gas plume detection and tracking in hyperspectral video sequences using Binary Partition Trees". In: *2014 6th Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing (WHISPERS)*. Lausanne, Switzerland, June 2014, pp. 1–4. DOI: 10.1109/WHISPERS.2014.8077581.

[30] Miguel Angel Veganzones, Lucas Drumetz, **Guillaume Tochon**, Mauro Dalla Mura, José Bioucas-Dias Antonio Plaza and Jocelyn Chanussot. "A new extended linear mixing model to address spectral variability". In: *2014 6th Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing (WHISPERS)*. Lausanne, Switzerland, June 2014, pp. 1–4. DOI: 10.1109/WHISPERS.2014.8077595.

[31] Miguel Angel Veganzones, **Guillaume Tochon**, Mauro Dalla Mura, Antonio Plaza and Jocelyn Chanussot. "A comparison study between windowing and binary partition trees for hyperspectral image information mining". In: *Proceedings of the 2013 IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*. Melbourne, Australia, July 2013, pp. 4375–4378. DOI: 10.1109/IGARSS.2013.6723804.

[32] Miguel Angel Veganzones, **Guillaume Tochon**, Mauro Dalla Mura, Antonio Plaza and Jocelyn Chanussot. "Hyperspectral image segmentation using a new spectral mixture-based binary partition tree representation". In: *Proceedings of the 2013 IEEE International Conference on Image Processing (ICIP)*. Melbourne, Australia, Sept. 2013, pp. 245–249. DOI: 10.1109/ICIP.2013.6738051.

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National journal 🇫🇷

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