Erwan Le Pennec

Professor
École Polytechnique - Institut Polytechnique de Paris
Applied Math Department / CMAP

Personal details

Birth date: 4 may 1976

Birth place: Courbevoie (92), France

Nationality: French

Addresses: **CMAP / École polytechnique**
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Experience

2013 — **Professor**, *École polytechnique*, Applied Math Department / CMAP
Associate Professor (2013-2020), **Professor** (2020-)
Co-founder of Sonio (Prenatal ultrasound exam workflow). Series A of 14 M$ en 2023. (2020-). Bought by Samsung for 85 M$ in 2024. (2020-)
Member of the Xpop Inria team (2018-2023)
On leave from Inria

2010–2013 — **Research associate (CR1)**, *Inria Saclay*, Projet SELECT
HdR, *Université Paris Sud*, *Some (statistical) applications of Ockham's principle* (2013)

2004–2010 — **Assistant professor (Maître de conférence)**, *Université Paris Diderot (Paris 7)*, *Laboratoire de Probabilités et Modèles Aléatoires* (Statistic team)
Delegation, *Inria Saclay*, Projet SELECT (2009-2010)

2002–2004 — **Post doctoral position**, *École Polytechnique*, CMAP
Co-founder of Let It Wave with S. Mallat, Ch. Bernard and J. Kalifa. Let It Wave (real-time image processing) received in 2002 the *premier prix national de l'innovation* (Innovation grand prize) awarded by the french research ministry and has been sold to Zoran in 2008 for 26.7 M$. (2002-2008)
Contract with DGA (*Learning and classification of signal by bandelet networks and matching-pursuit.*)

1998–2002 — **PhD student**, *École polytechnique*, CMAP
Thesis under the supervision of S. Mallat (*Bandelettes et représentation géométrique des images* Bandelets and geometrical representation of images) funded by the french research ministry (AMN) and a contract with Alcatel Space (2002)
Teaching assistant (Monitorat) , *Université Paris X (Nanterre)* (1999-2002)

1995–1999 — **ENS Cachan student**, Mathematic department
Agrégation de mathématiques (french teaching degree) (1998) / **Master *Mathématiques et Intelligence Artificielle* (Mathematics and Artificial Intelligence)**, *ENS Cachan* (1997)

Research Themes

Current Themes

Statistical Learning: Reinforcement Learning, Uncertainty, Causality, Data Science, Visualization

Signal: Deformation models, Segmentation, Time Series, Spectral Imaging

Health: Decision Support System, Sonography, Cardiotocographgy, MRI, Mueller polarimetry, EEG

Previous Themes

Statistical Learning: Sound classification, Face recognition (and compression), PAC-Bayesian aggregation, Unsupervised classification

Mathematical Statistic Bandlets and model selection estimation, maxiset of model selection estimators, ℓ_1 penalized density estimation, copula estimation, Radon transform adapted needlets, conditional density estimation and extensions of Gaussian mixtures

Signal Bandlets and image representation adapted to their geometry with application to compression and denoising, Patch based methods, Hyperspectral images, Detection in complex textures

Publications and communications

Articles:

22. *DeepCTG® 2.0: Development and validation of a deep learning model to detect neonatal acidemia from cardiotocography during labor*. I. Ben M'Barek, G. Jauvion, J. Merrer, M. Koskas, O. Sibony, P.-F. Ceccaldi, ELP, and J. Stirnemann. *Computers in Biology and Medicine* 184 (2025), p. 109448. ISSN: 0010-4825. DOI: 10.1002/uog.26242
21. *Wavelet-Based Multiscale Initial Flow For Improved Atlas Estimation in the Large Diffeomorphic Deformation Model Framework*. F. Gaudfernau, E. Blondiaux, S. Allassonnière, and ELP. *Journal of Mathematical Imaging and Vision* 67.10 (2025)
20. *Integration of clinical features in a computerized cardiotocography system to predict severe newborn acidemia*. E. Menzhulina, V. Vitrou, J. Merrer, E. Holmstrom, I. Ait Amara, ELP, J. Stirnemann, and I. Ben M'Barek. *European Journal of Obstetrics & Gynecology and Reproductive Biology* 307 (2025), pp. 78–83. ISSN: 0301-2115. DOI: 10.1016/j.ejogrb.2025.01.030
19. *Development and clinical validation of real-time artificial intelligence diagnostic companion for fetal ultrasound examination*. J. Stirnemann, R. Besson, E. Spaggiari, S. Rojo, F. Loge, H. Peyro-Saint-Paul, S. Allassonniere, ELP, C. Hutchinson, N. Sebire, and Y. Ville. *Ultrasound in Obstetrics & Gynecology* 3.62 (2023), pp. 353–360. DOI: 10.1002/uog.26242
18. *Intelligent Questionnaires Using Approximate Dynamic Programming*. F. Logé, ELP, and H. Amadou-Boubacar. *i-com* 19.3 (2021), pp. 227–237. DOI: doi/10.1515/icom-2020-0022
17. *Learning from both experts and data*. R. Besson, ELP, and S. Allassonnière. *Entropy* 12.1 (2019). DOI: 10.3390/e21121208
16. *PAC-Bayesian aggregation of linear estimators*. L. Montuelle and ELP. *Nonparametric Statistics* (2019). DOI: 10.1007/978-3-319-96941-1_9
15. *Automatic detection of Interplanetary Coronal Mass Ejections from in-situ data: a deep learning approach*. G. Nguyen, N. Aunai, D. Fontaine, ELP, J. Vandenbossche, A. Jeandet, B. Bakkali, L. Vignoli, and B. Refaldo-Saint Blancard. *The Astrophysical Journal* (2019). DOI: 10.3847/1538-4357/ab0d24
14. *Variational Methods for Tomographic Reconstruction with Few Views*. M. Bergounioux, I. Abraham, R. Abraham, G. Carlier, ELP, and E. Trélat. *Milan Journal of Mathematics* (2018). DOI: 10.1007/s00032-018-0285-1
13. *Adaptive Estimation in the Nonparametric Random Coefficients Binary Choice Model by Needlet Thresholding*. E. Gautier and ELP. *EJS* 12 (2018). DOI: 10.1214/17-EJS1383
12. *Unsupervised segmentation of hyperspectral images with spatialized Gaussian mixture model and model selection*. S. Cohen and ELP. *OGST* 69.2 (2014), pp. 245–260. DOI: 10.2516/ogst/2014013
11. *Mixture of Gaussian regressions model with logistic weights, a penalized maximum likelihood approach*. L. Montuelle and ELP. *Electron. J. Statist.* 8.1 (2014), pp. 1661–1695. ISSN: 1935-7524. DOI: 10.1214/14-EJS939
10. *Partition-Based Conditional Density Estimation*. S. Cohen and ELP. *ESAIM Probab. Stat.* 17 (2013), pp. 672–697. DOI: 10.1051/ps/2012017
9. *Radon needlet thresholding*. G. Kerkyacharian, ELP, and D. Picard. *Bernoulli* 18.2 (2012), pp. 391–433. DOI: 10.3150/10-BEJ340
8. *Adaptive Dantzig density estimation*. K. Bertin, ELP, and V. Rivoirard. *Ann. Inst. H. Poincaré Probab. Statist.* 47.1 (2011), pp. 43–74. DOI: 10.1214/09-AIHP351
7. *European research platform IPANEMA at the SOLEIL synchrotron for ancient and historical materials*. L. Bertrand, M.-A. Languille, S. Cohen, L. Robinet, C. Gervais, S. Leroy, D. Bernard, ELP, W. Josse, J. Doucet, and S. Schöder. *J. Synchrotron Radiat.* 18.5 (2011), pp. 765–772. DOI: 10.1107/S090904951102334X
6. *Bandlet Image Estimation with Model Selection*. C. Dossal, ELP, and S. Mallat. *Sig. Process.* 91.12 (2011), pp. 2743–2753. DOI: 10.1016/j.sigpro.2011.01.013
5. *Maxisets for Model Selection*. F. Autin, ELP, J.-M. Loubes, and V. Rivoirard. *Constr. Approx.* 31.2 (2010), pp. 195–229. DOI: 10.1007/s00365-009-9062-2
4. *Thresholding methods to estimate the copula density*. F. Autin, ELP, and K. Tribouley. *J. Multivariate Anal.* 101.1 (2010), pp. 200–222. DOI: 10.1016/j.jmva.2009.07.009
3. *Inversion of noisy Radon transform by SVD based needlets*. G. Kerkyacharian, G. Kyriazis, ELP, P. Petrushev, and D. Picard. *Appl. Comput. Harmon. Anal.* 28.1 (2010), pp. 24–45. DOI: 10.1016/j.acha.2009.06.001
2. *Bandelet Image Approximation and Compression*. ELP and S. Mallat. *Multiscale Model. Sim.* 4.3 (2005), pp. 992–1039. DOI: 10.1137/040619454

1. *Sparse Geometrical Image Representation with Bandelets*. ELP and S. Mallat. *IEEE Trans. Image Process.* 14.4 (2005), pp. 423–438. DOI: 10.1109/TIP.2005.843753

Patents:

5. *Real-time diagnosis aid method and decision-support for medical diagnosis to a user of a medical system*. S. Allassonnière, R. Besson, and ELP. US11881309B2. (2024)
4. *Procédé de contrôle d'un système et produit programme d'ordinateur associé*. A. Dhaou, A. Bertoncello, S. Gourvenec, J. Garnier, and ELP. FR3124868B1. (2023)
3. *Procédé de synthèse d'images*. M. Prenat, ELP, and G. Berginc. FR/3075438B1. (2023)
2. *Method and apparatus for processing or compressing n-dimensional signals with warped wavelets packets and bandelets*. C. Bernard, J. Kalifa, ELP, and S. Mallat. PCT/EP02/14903. (2002)
1. *Method and apparatus for processing or compressing n-dimensional signals by foveal filtering along trajectories*. ELP and S. Mallat. 09/834,587. (2001)

Proceedings: (intl. conf.)

21. *Towards Minimax Optimality of Model-based Robust Reinforcement Learning*. P. Clavier, ELP, and M. Geist. *Conference on Uncertainty in Artificial Intelligence (UAI)*. (2024)
20. *Bootstrapping Expectiles in Reinforcement Learning*. P. Clavier, E. Rachelson, ELP, and M. Geist. *17th European Workshop on Reinforcement Learning*. (2024)
19. *Near-Optimal Distributionally Robust RL with General L_p Norms*. P. Clavier, L. Shi, ELP, E. Mazumdar, W. A., and M. Geist. *Neurips*. (2024)
18. *Progressive State Space Disaggregation for Infinite Horizon Dynamic Programming*. O. Forghieri, H. Castel, E. Hyon, and ELP. *International Conference on Automated Planning and Scheduling*. (2024)
17. *State Abstraction Discovery from Progressive Disaggregation Methods*. O. Forghieri, H. Castel, E. Hyon, and ELP. *17th European Workshop on Reinforcement Learning*. (2024)
16. *A multiscale algorithm for computing realistic image transformations - Application to the modelling of fetal brain growth*. F. Gaudfernau, S. Allassonnière, and ELP. *SPIE Medical Imaging*. (2023)
15. *Input uncertainty propagation through trained neural networks*. P. Monchot, L. Coquelin, S. Petit, S. Marmin, ELP, and N. Fischer. *International Conference on Machine Learning*. (2023)
14. *Clinical validation of a real-time AI diagnostic companion for fetal ultrasound examination*. J. Stirnemann, R. Besson, E. Spaggiari, S. Rojo, F. Loge, H. Peyro-Saint-Paul, S. Allassonniere, ELP, C. Hutchinson, N. Sebire, and Y. Ville. Vol. 60. (2022), pp. 14–15. DOI: 10.1002/uog.26242
13. *Causal and Interpretable Rules for Time Series Analysis*. A. Dhaou, A. Bertoncello, S. Gourvénec, J. Garnier, and ELP. *Knowledge Discovery and Data Mining*. (2021), pp. 2764–2772. DOI: doi/10.1145/3447548.3467161
12. *Description and clinical validation of a real-time AI diagnostic companion for fetal ultrasound examination*. J. Stirnemann, R. Besson, E. Spaggiari, N. Bourgon, S. Rojo, F. Loge, H. Peyro-Saint-Paul, S. Allassonniere, ELP, and Y. Ville. *Ultrasound in Obstetrics & Gynecology*. Vol. 58. S1. (2021), pp. 169–170. DOI: 10.1002/uog.24291
11. *Optimization of a Sequential Decision Making Problem for a Rare Disease Diagnostic Application*. R. Besson, ELP, S. Allassonnière, J. Stirnemann, A. Neuraz, and E. Spaggiari. *ICAART 2020*. (2020). DOI: 10.5220/0008938804750482
10. *Adaptive predictive-questionnaire by approximate dynamic programming*. F. Logé, ELP, and H. Amadou-Boubacar. *UCAI 2020*. (2020)
9. *Challenging common bolus advisor for self-monitoring type-I diabetes patients using Reinforcement Learning*. F. Logé, ELP, and H. Amadou-Boubacar. *2020 KDD Workshop on Applied Data Science for Healthcare*. (2020)
8. *Energy Management for Microgrids: a Reinforcement Learning Approach*. T. Levent, P. Preux, ELP, J. Badosa, G. Henri, and Y. Bonnassieux. *IEE ISGT Europe*. (2019). DOI: 10.1109/ISGTEurope.2019.8905538
7. *Representation Of Polysomnography Recordings As Low Dimensional Trajectories*. G. Solelhac, M. Brigham, P. Bouchequet, T. Andrillon, M. Chennaoui, ELP, M. Rey, and D. Léger. *Sleep*. Vol. 42. 33rd Annual Meeting of the Associated Professional Sleep Societies. (2019), A128. DOI: 10.1093/sleep/zsz067.314
6. *An aggregator point of view on NL-Means*. ELP and J. Salmon. *SPIE Wavelet XIII 09*. San Diego, (2009). DOI: 10.1117/12.826881
5. *NL-Means and aggregation procedures*. J. Salmon and ELP. *ICIP 09*. (2009), pp. 2977–2980. DOI: 10.1109/ICIP.2009.5414512
4. *Geometrical Image Estimation with Orthogonal Bandlets Bases*. G. Peyré, ELP, C. Dossal, and S. Mallat. *SPIE Wavelet XII 07*. San Diego, (2007). DOI: 10.1117/12.731227
3. *Geometrical Image Compression with Bandelets*. ELP and S. Mallat. *VCIP 03*. Special Session. Lugano, (2003). DOI: 10.1117/12.509904
2. *Bandelet Representations for Image Compression*. ELP and S. Mallat. *ICIP 01*. Special Session. Thessaloniki, (2001). DOI: 10.1109/ICIP.2001.958939
1. *Image Compression with Geometrical Wavelets*. ELP and S. Mallat. *ICIP 00*. Vancouver, (2000). DOI: 10.1109/ICIP.2000.901045

Proceedings (natl. conf.):

12. *Un algorithme multiéchelle pour déformer les objets de façon réaliste - application à la modélisation de la croissance du cerveau foetal*. S. Gaudfernau F. Allassonière and ELP. *GRETSI*. (2023)
11. *Une nouvelle représentation de la polysomnographie par une technique de machine learning non-supervisée*. G. Solelhac, M. Brigham, C. Marini, P. Bouchequet, M. Chennaoui, ELP, and D. Léger. *Médecine du Sommeil*. Vol. 15. 1. Résumés du Congrès du Sommeil. Marseille, 23-25 novembre 2017. (2018), p. 49. DOI: 10.1016/j.msom.2018.01.132
10. *Optimisation d'arbre de décision pour un problème de détection précoce d'anomalies foetales*. R. Besson, ELP, and S. Allassonière. *Journée de la SFdS*. Avignon, (2017)
9. *Détection automatique de cibles sous-résolues*. S. Thivin, ELP, and M. Prenat. *Journée de la SFdS*. Lille, (2015)
8. *Agrégation PAC-bayésienne d'estimateurs par projection*. L. Montuelle and ELP. *Journée de la SFdS*. Rennes, (2014)
7. *Détection de cibles dans des textures complexes, une approche par segmentation d'images en zones stationnaires*. S. Thivin, ELP, and M. Prenat. *Journée de la SFdS*. Rennes, (2014)
6. *Régression gaussienne à poids logistiques et maximum de vraisemblance pénalisé*. L. Montuelle and ELP. *Journée de la SFdS*. Toulouse, (2013)
5. *Segmentation non supervisée d'image hyperspectrale par mélange de gausiennes spatialisé*. S. Cohen and ELP. *GRETSI 11*. Bordeaux, (2011)
4. *Agrégation d'estimateurs pour le débruitage d'image*. ELP and J. Salmon. *Journée de la SFdS*. Bordeaux, (2009)
3. *Débruitage géométrique d'image dans des bases orthonormées de bandelettes*. ELP, C. Dossal, G. Peyré, and S. Mallat. *GRETSI 07*. Troyes, (2007)
2. *Bandelettes et représentation géométrique des images*. ELP and S. Mallat. *GRETSI 03*. Paris, (2003)
1. *Représentation d'image par bandelettes et application à la compression*. ELP and S. Mallat. *GRETSI 01*. Toulouse, (2001)

Book:

1. P.-A. Cornillon, A. Guyader, F. Husson, N. Jégou, J. Josse, N. Klutchnikoff, ELP, E. Matzner-Løber, L. Rouvière, and B. Thieurmel. *R pour la statistique et la science des données*. PUR (2018). ISBN: 978-2-7535-7573-8

Tech. reports:

4. *Adaptive Estimation in the Nonparametric Random Coefficients Binary Choice Model by Needlet Thresholding (extended version)*. E. Gautier and ELP. Tech. rep. Inria (2013)
3. *Conditional Density Estimation by Penalized Likelihood Model Selection and Applications*. S. Cohen and ELP. Tech. rep. INRIA (2011)
2. *Thresholding methods to estimate the copula density*. F. Autin, ELP, and K. Tribouley. Tech. rep. Extended version arXiv:0802.2424. LPMA (2008)
1. *Adaptation of regular grid filterings to irregular grids*. C. Bernard and ELP. Tech. rep. CMAP (2003)

Thesis:

3. "Some (statistical) applications of Ockham's principle." ELP. HdR. Université Paris Sud (2013)
2. "Bandelettes et représentations géométriques des images." ELP. PhD Thesis. École Polytechnique (2002)
1. "Modélisation des images par ondelettes." ELP. Master Thesis. DEA MVA, Cachan (1997)

Preprints:

5. *Robust Reinforcement Learning with Distributional Risk-averse formulation*. P. Clavier, S. Allassonnière, and ELP (2022)
4. *Fractional-order variational numerical methods for tomographic reconstruction of binary images*. M. Bergounioux, ELP, and E. Trélat (2018)
3. *A Model-Based Reinforcement Learning Approach for a Rare Disease Diagnostic Task*. R. Besson, ELP, S. Allassonnière, J. Stirnemann, E. Spaggiari, and A. Neuraz (2018)
2. *Clustering and Model Selection via Penalized Likelihood for Different-sized Categorical Data Vectors*. E. Derman and ELP (2017)
1. *Conditional Density Estimation by Penalized Likelihood Model Selection*. S. Cohen and ELP (2013)

Scientific Dissemination

Articles:

5. *El arte de cortar las cabezas sin dañar las*. ELP. *Revista del Profesor de Matemática* (2016)
4. *Le « Big data » et les mathématiques*. P. Massart and ELP. *A3 Magazine, Rayonnement du CNRS* (June 2016)
3. *L'art de couper les têtes sans faire mal*. ELP. *Mathématiques, l'explosion continue* (2013)
2. *Des lunettes pour un télescope spatial sans aller dans l'espace?* ELP and D. Picard. *Math Enigmes Express (CIJM)* (2007)
1. *Compression d'image*. ELP. *Image des mathématiques (CNRS)* (2006)

Students

PhD: 15. D. Soto. (coadvised with A. Shokry and A. Durmus). CIFRE Nodewise/EDMH. (2024) / 14. I. Ben M'Barek. (coadvised with J. Stirnemann). Université Paris Cité. (2023) / 13. S. Alao. (coadvised with S. Cohen). Synchrotron Soleil. (2022) / 12. O. Forghieri. (coadvised with H. Castel and E. Hyon). Institut Polytechnique de Paris. (2022) / 11. I. Kamal. (coadvised with A. Pierangelo). Institut Polytechnique de Paris. (2022) / 10. P. Clavier. (coadvised with S. Allassonnière). Institut Polytechnique de Paris. (2021) / 9. A. Dhaou. Institut Polytechnique de Paris/TotalEnergies. (2021–2024) / 8. F. Gaudfernau. (coadvised with S. Allassonnière). Université de Paris. (2020–2023) / 7. P. Monchot. Institut Polytechnique de Paris/LNE. (2020–2023) / 6. F. Logé-Munerel. Université Paris Saclay/Air Liquide. (2017–2021) / 5. R. Besson. (coadvised with S. Allassonnière). Université Paris Saclay. (2016–2019) / 4. E. Derman. Université Paris Saclay/Ellis Car. (2016–2017) / 3. S. Thivin. (coadvised with M. Prenat). Université Paris Sud/Thales Optronics. (2012–2015) / 2. L. Montuelle. (coadvised with S. Cohen). Université Paris Sud. (2011–2014) / 1. J. Salmon. (coadvised with D. Picard). Université Paris Diderot. (2007–2010)

Master: 15. O. Forghieri. (coadvised with H. Castel and E. Hyon). MVA/E4C. (2022) / 14. P. Clavier. (coadvised with S. Allassonnière). MVA. (2021) / 13. R. Besson. (coadvised with S. Allassonnière). MSV. (2016) / 12. M. Mors. MVA. (2015) / 11. K. Isaeva. 3A Polytechnique. (2014) / 10. M. Posson. M2 Orsay. (2013) / 9. S. Thivin. (coadvised with M. Prenat). M2 Orsay/Thales Optronics. (2012) / 8. L. Montuelle. (coadvised with S. Cohen). M2 Orsay. (2011) / 7. M. Morencey. M1 ENS Cachan. (2008) / 6. Z. Gong. LIW / Master NUS, Singapore. (2007) / 5. J. Salmon. M2MO. (2007) / 4. A. d'Halluin. (coadvised with S. Mallat). Stage d'option École Polytechnique. (2003) / 3. J. Huaulme. (coadvised with S. Mallat). DEA MVA. (2003) / 2. A. Mikhalenkov. (coadvised with S. Mallat). Fin d'étude Telecom Paris. (2003) / 1. P. Gélard. DEA MVA. (2001)

Teaching

Polytechnique: Machine Learning (Lecture, M1, M2 Data Science, M2 MSV, MScT Data Science and AI for Business, and Data Science Starter Program 2014-), Reinforcement Learning (M2 Data Science, 2018-), Introduction to Statistics (Bachelor, 2019-2020), The Art of Linear Regression (Lecture 2016-2018), Non-parametric Statistics and Machine Learning (Lecture 2015-2016), Signal Processing (Lecture, M1 2013-2015), EA Applied Math (2013-), EA Startup (2013-2016), Sparse Representation (Lecture, M2 ATSI 2015-)

T.A. / Paris Diderot: Mathematics (L1, Tutorial 1999-2002), Probability - Statistics (L2, Tutorial 1999-2002), Linear algebra and calculus (L1, Tutorial 2004-2005), Algorithmic and Computer Science Project (M1, Tutorial and Course 2004-2008), Fundamental statistic (M1, Tutorial 2004-2009), Basic statistic (M2, Tutorial 2007-2009), Chronological series (M1, Tutorial 2005-2009 / Course 2008-2009), Wavelet approximation (M2, Tutorial/Course 2009-)

Short courses: Wavelets (Masters, summer schools,...) (1998-), Fourier analysis and signal processing at the École des Ponts et Chaussées (M2, Tutorial/Course 2004-), Introduction to Statistics at ENSAE (L3, Course 2012-), Signal Processing at ENS Ulm (L3, Tutorial 2012-)

Others

Chair: Head of the *Data Scientist* chair of the École polytechnique (2015-2019)

Funding: Local PI, PEPR project MathsVivES IMOCEP (2024-)

Local PI, RHU project CIL'LICO (2017-2024)

Local PI, BPI Project Healthchain (2018-2021)

Local PI, BPI Project Dreemcare (Morpheo) (2016-2019)

Various Thales contracts (2014-2018)

Lead investigator of the ANR Parcimonie (Sparsity) (2009-2013)

Edition: Associate editor of Applied and Computational Harmonical Analysis (2018-)

Associate editor of Oil & Gas Science and Technology - Revue d'IFP Energies nouvelles (2018-)

Administration: Co-head of SIMPAS team at CMAP (2013-2024)

Co-head of the MScT Data Science and AI for Business (X/HEC) (2020-)

Co-head of the master Data Science of Paris Saclay (2014-2020)

Coorganizer of the séminaire parisien de statistiques (2008-), of the seminar SMILE (2008-2018), of the probability and statistic of Orsay (2013) and of a working group X/Orsay (2009-2012)

Expert for the Scientific Council of IFPEN (2017-)

Membre of board of the AMIES LabEx (French initiative for interaction between mathematics and industry), IdF / Statistics and Signal Processing correspondent (2012-2015)

Member of the MAS committee of the SMAI (French SIAM) (2011-2016)

Nominated member of the C.N.U., section 26 (2011-2015)

Member of the Scientific Committee of the First International Meeting of Astro-Statistics in Valparaiso (2013)

	Member of the Scientific Committee of the JDS (2015, 2024)
	Member of various *hiring comitees* of Paris Diderot and PhD jury
	Member of the Scientific Committee of Inria Saclay Idf (2012-2013)
	Elected member of the scientific council of the Paris Diderot's Math department (2009-2010) and of the laboratory council of the LPMA (2009-2010)
	Local organizer of SPA'06 (2006)
	Technical webmaster of the LPMA (2005-2010)
Concours:	Examiner at the ENS Cachan entry *concours* (2011-2013)
Let It Wave:	Founder (2001), R&D (2002-2004), Consulting (LIW 2004-2008, Zoran 2008-2011, CSR 2011-2012)
Sonio:	Founder (2020), Scientific Advisor (2020-)