Centre National de la Recherche Scientifique

Liste des publications

Laurent Perrinet

Pour évaluation par les sections du Comité national

Équipe Inference in Visual Behaviour (InViBe)
Institut de Neurosciences de la Timone UMR 7289, CNRS / Aix-Marseille Université
27, Bd. Jean Moulin, 13385 Marseille Cedex 5, France
`http://invibe.net/LaurentPerrinet`
`Laurent.Perrinet@univ-amu.fr`

Rapport d'activité - Février 2017

1 Liste des publications

1.1 Articles de revues internationales à comité de lecture

2017

A37 **KhoeiMassonPerrinet17**

2016

A36 **Kremkow16**

2015

A36 **Taouali15**

A35 **Vacher15nips**

A34 **PerrinetBednar15**

2013

A33 **PerrinetAdamsFriston14**

2013

A32 **Khoei13jpp**

A31 Bernhard A. Kaplan, Anders Lansner, Guillaume S. Masson, Laurent U. Perrinet. Anisotropic connectivity implements motion-based prediction in a spiking neural network. *Frontiers Computational Neuroscience*, 7:112.

A30 Rodrigo Nava, J. Victor Marcos, Boris Escalante-Ramírez, Gabriel Cristóbal, Laurent U. Perrinet, Raúl S. J. Estépar. *Progress in Pattern Recognition, Image Analysis, Computer Vision, and Applications Lecture Notes in Computer Science*, Volume 8259, 2013, pp 214-221.

2012

A29 Claudio Simoncini, Laurent U. Perrinet, Anna Montagnini, Pascal Mamassian and Guillaume S. Masson. More is not always better: Adaptive gain control explains dissociation between perception and action. *Nature Neuroscience* vol. 15, no. 11, pp. 1596–1603, 2012. doi: 10.1038/nn.3229. URL `http://invibe.net/LaurentPerrinet/Publications/Simoncini12`.

A28 Laurent U. Perrinet and Guillaume S. Masson. Motion-based prediction is sufficient to solve the aperture problem. *Neural Computation*, pages 1–25, June 2012. ISSN 1530-888X.

A27 Paula Sanz Leon, Ivo Vanzetta, Guillaume S. Masson, and Laurent U. Perrinet. Motion clouds: model-based stimulus synthesis of natural-like random textures for the study of motion perception. *Journal of Neurophysiology*, 107(11):3217–3226, March 2012. doi: 10.1152/jn.00737.2011.

A26 Karl Friston, Rick A. Adams, Laurent U. Perrinet, and Michael Breakspear. Perceptions as hypotheses: Saccades as experiments. *Frontiers in Psychology*, 3, 2012. doi: 10.3389/fpsyg.2012.00151.

A25 Rick A. Adams, Laurent U. Perrinet, and Karl Friston. Smooth pursuit and visual occlusion: active inference and oculomotor control in schizophrenia. *PLoS ONE*, 7 (10), 2012.

A24 Guillaume S. Masson and Laurent U. Perrinet. The behavioral receptive field underlying motion integration for primate tracking eye movements. *Neuroscience & Biobehavioral Reviews*, 36(1):1–25, January 2012. doi: doi:10.1016/j.neubiorev.2011.03.009.

A23 Nicole Voges and Laurent U. Perrinet. Complex dynamics in recurrent cortical networks based on spatially realistic connectivities. *Frontiers in Computational Neuroscience*, 6, 2012. ISSN 1662-5188. doi: 10.3389/fncom.2012.00041.

A22 Jerome Fleuriet, Sandrine Hugues, Laurent U. Perrinet, and Laurent Goffart. Saccadic foveation of a moving visual target in the rhesus monkey. *Journal of neurophysiology*, 105(2):883–895, February 2011. doi: 10.1152/jn.00622.2010. *2011*

A21 Amarender R. Bogadhi, Anna Montagnini, Pascal Mamassian, Laurent U. Perrinet, and Guillaume S. Masson. Pursuing motion illusions: A realistic oculomotor framework for Bayesian inference. *Vision Research*, 51:867–880, 2011. doi: 10.1016/j.visres.2010.10.021.

A20 Laurent U. Perrinet. Role of homeostasis in learning sparse representations. *Neural Computation*, 22(7):1812–1836, July 2010. doi: 10.1162/neco.2010.05-08-795. *2010*

A19 Emmanuel Daucé and Laurent U. Perrinet. Computational neuroscience, from multiple levels to multi-level. *Journal of Physiology (Paris)*, 104(1–2):1–4, 2010.

A18 Nicole Voges and Laurent U. Perrinet. Phase space analysis of networks based on biologically realistic parameters. *Journal of physiology, Paris*, 104(1-2):51–60, November 2010. ISSN 1769-7115. doi: 10.1016/j.jphysparis.2009.11.004.

A17 Jens Kremkow, Laurent U. Perrinet, Guillaume S. Masson, and Ad Aertsen. Functional consequences of correlated excitatory and inhibitory conductances in cortical networks. *Journal of Computational Neuroscience*, 28(3):579–94, jun 2010.

A16 Khaled Masmoudi, Marc Antonini, Pierre Kornprobst, Laurent U. Perrinet A novel bio-inspired static image compression scheme for noisy data transmission over low-bandwidth channels. *Acoustics Speech and Signal Processing (ICASSP)*, 2010.

A15 Andrew P. Davison, Daniel Brüderle, Jochen Eppler, Jens Kremkow, *2008*
Eilif Muller, Dejan Pecevski, Laurent U. Perrinet, and Pierre Yger. PyNN: A common interface for neuronal network simulators. *Frontiers in Neuroinformatics*, 2, 2008. doi: 10.3389/neuro.11.011.2008.

A14 Laurent U. Perrinet Sparse Spike Coding: applications of Neuroscience to the processing of natural images. *Proceedings of SPIE - The International Society for Optical Engineering* Vol 7000, 2008 doi: 10.1117/12.787076

A13 Frédéric Barthélemy, Laurent U. Perrinet, Eric Castet, Guillaume S. Masson Dynamics of distributed 1D and 2D motion representations for short-latency ocular following. *Vision research*, 48 (4), 501-522, 2008.

A12 Sylvain Fischer, Filip Sroubek, Laurent U. Perrinet, Rafael Redondo, *2007*
and Gabriel Cristóbal. Self-invertible 2D log-Gabor wavelets. *International Journal of Computer Vision*, 2007. doi: 10.1007/s11263-006-0026-8

A11 Sylvain Fischer, Rafael Redondo, Laurent U. Perrinet, and Gabriel Cristóbal. Sparse approximation of images inspired from the functional architecture of the primary visual areas. *Eurasip Journal on Advances in Signal Processing*, 2007. doi: 10.1155/2007/90727

A10 Anna Montagnini, Pascal Mamassian, Laurent U. Perrinet, Eric Castet, and Guillaume S. Masson. Bayesian modeling of dynamic motion integration. *Journal of Physiology (Paris)*, 101(1-3):64–77, Jan-May 2007.

A9 Laurent U. Perrinet and Guillaume S. Masson. Modeling spatial integration in the ocular following response using a probabilistic framework. *Journal of Physiology (Paris)*, 101(1–3):46–55, 2007.

A8 Laurent U. Perrinet. Finding Independent Components using spikes : *2004*
a natural result of Hebbian learning in a sparse spike coding scheme. *Natural Computing*, 3(2):159–75, January 2004.

A7 Laurent U. Perrinet. Feature detection using spikes : the greedy approach. *Journal of Physiology (Paris)*, 98(4-6):530–9, 2004.

A6 Laurent U. Perrinet, Manuel Samuelides, and Simon J. Thorpe. Coding static natural images using spiking event times: do neurons cooperate? *IEEE Transactions on Neural Networks*, 15(5):1164–75, September 2004. Special issue on 'Temporal Coding for Neural Information Processing'. doi: 10.1109/TNN.2004.833303

A5 Laurent U. Perrinet, Manuel Samuelides, and Simon J. Thorpe. Emergence of filters from natural scenes in a sparse spike coding scheme. *Neurocomputing*, 58–60(C):821–6, 2003. *2003*

A4 Laurent U. Perrinet, Manuel Samuelides, and Simon J. Thorpe. Sparse spike coding in an asynchronous feed-forward multi-layer neural network using Matching Pursuit. *Neurocomputing*, 57(C):125–34, 2002. doi: 10.1016/j.neucom.2004.01.010 *2002*

A3 Laurent U. Perrinet, Arnaud Delorme, Manuel Samuelides, and Simon J. Thorpe. Networks of integrate-and-fire neuron using rank order coding A: How to implement spike time dependent Hebbian plasticity. *Neurocomputing*, 38-40(C):817–822, 2002. doi: 10.1016/S0925-2312(01)00460-X

A2 Arnaud Delorme, Laurent U. Perrinet, Manuel Samuelides, and Simon J. Thorpe. Networks of integrate-and-fire neuron using rank order coding B: Spike timing dependent plasticity and emergence of orientation selectivity. *Neurocomputing*, 38-40(C):539–545, 2002. doi: 10.1016/S0925-2312(01)00403-9

A1 Laurent U. Perrinet, Manuel Samuelides. Coherence detection in a spiking neuron via hebbian learning, *Neurocomputing*, 44–46(C):817–22, 2002. doi: 10.1016/S0925-2312(02)00374-0

1.2 Chapitres d'ouvrage à comité de lecture

- **CristobalPerrinetKeil15bicv˙chap1**

- **Montagnini15bicv**

- **Perrinet15bicv**

- Laurent U. Perrinet. Dynamical neural networks: modeling low-level vision at short latencies. In *Topics in Dynamical Neural Networks: From Large Scale Neural Networks to Motor Control and Vision*, volume 142 of *The European Physical Journal (Special Topics)*, pages 163–225. Springer Verlag, Berlin / Heidelberg, mar 2007.

1.3 Thèses et ouvrages

- **CristobalPerrinetKeil15bicv**

- Laurent U. Perrinet. *Comment déchiffrer le code impulsionnel de la vision? Étude du flux parallèle, asynchrone et épars dans le traitement visuel ultra-rapide*. PhD thesis, Université Paul Sabatier, Toulouse, France, 2003.

1.4 Actes de conférences internationales à comité de lecture

70. **Perrinet16EUVIP**
69. **Mansour16sfn**
68. **Mansour16gdr**
67. **Damasse16ecvp**
66. **Mansour16ecvp**
65. **Damasse16vss**
64. **Montagnini16ecvp**
63. **Perrinet16networks**
62. **Ravello2015**
61. **Vacher15icms**
60. **Perrinet15eusipco**
59. **Montagnini15sfn**
58. **Taouali15vss**
57. **Damasse15vss**
56. **Danion15sfn**
55. **Taouali15icmns**
54. **Vacher14ihp**
53. **Rudiger14cosyne**
52. **PerrinetBednar14vss**
51. **Simoncini14vss**
50. **KaplanKhoei14**
49. **Khoei14vss**
48. **Taouali14neurocomp**
47. **Taouali14areadne**
46. **Meso14vss**
45. **Khoei13cns**

44. **Perrinet13cns**

43. **Khoei13cns**

42. **Meso13vss**

41. **Perrinet13jffos**

40. **Simoncini13vss**

39. **Perrinet12areadne**

38. **Masson12areadne**

37. **Khoei12sfn**

36. **Simoncini12coding**

35. **Simoncini12vss**

34. **Simoncini2011Pattern**

33. **Simoncini10vss**

32. Laurent U. Perrinet, David Fitzpatrick, and James A. Bednar. Edge statistics in natural images versus laboratory animal environments: implications for understanding lateral connectivity in V1. In Www Washington, editor, *Society for Neuroscience Abstracts*, number Program No. 530.04, 2011.

31. **Perrinet10tauc**

30. Laurent U. Perrinet, Alexandre Reynaud, Frédéric Chavane, and Guillaume S. Masson. Inferring monkey ocular following responses from V1 population dynamics using a probabilistic model of motion integration. In *Vision Science Society*, number 23.411, 2009.

29. Laurent U. Perrinet, Nicole Voges, Jens Kremkow, and Guillaume S. Masson. Decoding center-surround interactions in population of neurons for the ocular following response. In *Proceedings of COSYNE, 2009*, 2009.

28. Nicole Voges and Laurent U. Perrinet. Analyzing cortical network dynamics with respect to different connectivity assumptions.

27. Nicole Voges and Laurent U. Perrinet. Dynamical state spaces of cortical networks representing various horizontal connectivities. In *Proceedings of COSYNE, 2009*, 2009.

26. Nicole Voges and Laurent U. Perrinet. Dynamics of cortical networks including long-range patchy connections. In *Eighth Göttingen Meeting of the German Neuroscience Society*, pages T26–3C, 2009.

25. Jens Kremkow, Laurent U. Perrinet, Guillaume S. Masson, and Ad Aertsen. Functional consequences of correlated excitation and inhibition on single neuron integration and signal propagation through synfire chains. In *Eighth Göttingen Meeting of the German Neuroscience Society*, pages T26–6B, 2009.

24. Jens Kremkow, Laurent U. Perrinet, Pierre Baudot, Manu Levy, Olivier Marre, Cyril Monier, Yves Frégnac, Guillaume S. Masson, and Ad Aertsen. Control of the temporal interplay between excitation and inhibition by the statistics of visual input: a V1 network modelling study. In *Proceedings of the Society for Neuroscience conference*, 2008.

23. Nicole Voges, Jens Kremkow, and Laurent U. Perrinet. Dynamics of cortical networks based on patchy connectivity patterns. In *FENS Abstract*, volume 4, 2008.

22. Jens Kremkow, Laurent U. Perrinet, Ad M. Aertsen, and Guillaume S. Masson. Functional properties of feed-forward inhibition.

21. Laurent U. Perrinet and Guillaume S. Masson. Modeling spatial integration in the ocular following response to center-surround stimulation using a probabilistic framework. In *Proceedings of COSYNE, 2008*, 2008.

20. Laurent U. Perrinet and Guillaume S. Masson. Decoding the population dynamics underlying ocular following response using a probabilistic framework. In *Proceedings of AREADNE, 2008*, 2008.

19. Laurent U. Perrinet. What adaptive code for efficient spiking representations? a model for the formation of receptive fields of simple cells. In *Proceedings of COSYNE, 2008*, 2008.

18. Laurent U. Perrinet. Adaptive sparse spike coding : applications of neuroscience to the compression of natural images. In Gabriel Cristóbal Frédéric Truchetet Peter Schelkens, Touradj Ebrahimi, editor, *Optical and Digital Image Processing Conference 7000 - Proceedings of SPIE Volume 7000, 7 - 11 April 2008*, volume 7000, page 70000F. SPIE, 2008.

17. Andrew Davison, Pierre Yger, Jens Kremkow, Laurent U. Perrinet, and Eilif Muller. PyNN: towards a universal neural simulator api in Python. In BMC Neuroscience, editor, *Sixteenth Annual Computational Neuroscience Meeting: CNS*2007, Toronto, Canada. 7–12 July 2007*, volume 8(Suppl 2):P2, 2007.

16. Jens Kremkow, Laurent U. Perrinet, Arvind Kumar, Ad M. Aertsen, and Guillaume S. Masson. Synchrony in thalamic inputs enhances propagation of activity through cortical layers. In BMC Neuroscience 2007, editor, *Sixteenth Annual Computational Neuroscience Meeting: CNS*2007, Toronto, Canada. 7–12 July 2007*, volume 8(Suppl 2):P206, 2007.

15. Anna Montagnini, Pascal Mamassian, Laurent U. Perrinet, Eric Castet, and Guillaume S. Masson. Dynamic inference for motion tracking. In *Perception 36 ECVP Abstract Supplement*, 2007.

14. Anna Montagnini, Pascal Mamassian, Laurent U. Perrinet, and Guillaume S. Masson. Visual tracking of ambiguous moving objects: A recursive bayesian model. *Journal of Vision*, 7(9):406, 2007.

13. Laurent U. Perrinet. An efficiency razor for model selection and adaptation in the primary visual cortex. In *Fifteenth Annual Computational Neuroscience Meeting*, 2006.

12. Laurent U. Perrinet, Frédéric V. Barthélemy, and Guillaume S. Masson. Input-output transformation in the visuo-oculomotor loop: modeling the ocular following response to center-surround stimulation in a probabilistic framework. In *1ère conférence francophone NEUROsciences COMPutationnelles - NeuroComp*, 2006.

11. Laurent U. Perrinet, Jens Kremkow, Frédéric Barthélemy, Guillaume S. Masson, and Frédéric Chavane. Input-output transformation in the visuo-oculomotor loop: modeling the ocular following response to center-surround stimulation in a probabilistic framework. In *FENS*, 2006.

10. Anna Montagnini, Pascal Mamassian, Laurent U. Perrinet, Eric Castet, and Guillaume S. Masson. Bayesian modeling of dynamic motion integration. In *1ère conférence francophone NEUROsciences COMPutationnelles (NeuroComp)*, 2006.

9. Sylvain Fischer, Rafael Redondo, Laurent U. Perrinet, and Gabriel Cristóbal. Efficient representation of natural images using local cooperation. In Ricardo A. Carmona and Gustavo Linan-Cembrano, editors, *Perception*, volume 34 of *ECVP*, page 241, 2005.

8. Rafael Redondo, Sylvain Fischer, Laurent U. Perrinet, and Gabriel Cristóbal. Modeling of simple cells through a sparse overcomplete gabor wavelet representation based on local inhibition and facilitation. In Ricardo A. Carmona and Gustavo Linan-Cembrano, editors, *Perception*, volume 34 of *ECVP*, page 238, August 2005.

7. Sylvain Fischer, Rafael Redondo, Laurent U. Perrinet, and Gabriel Cristóbal. Sparse Gabor wavelets by local operations. In Gustavo Linan-Cembrano Ricardo A. Carmona, editor, *Proceedings SPIE*, volume 5839 of *Bioengineered and Bioinspired Systems II*, pages 75–86, Jun 2005.

6. Laurent U. Perrinet. Efficient Source Detection Using Integrate-and-Fire Neurons. In W. Duch et al., editor, *ICANN 2005, LNCS 3696*, volume 3696 of *Lecture Notes in Computer Science*, pages 167–72, Berlin Heidelberg, 2005. Springer.

5. Laurent U. Perrinet, Frédéric Barthélemy, Eric Castet, and Guillaume S. Masson. Dynamics of motion representation in short-latency ocular following: A two-pathways bayesian model. In Ricardo A. Carmona and Gustavo Linan-Cembrano, editors, *Perception*, volume 34 of *ECVP*, page 38, 2005.

4. **Perrinet02nsi**

3. **Perrinet02esann**

2. **Perrinet00**

1. Perrinet, L. U., and Samuelides, M. A generative model for Spike Time Dependent Hebbian Plasticity. In *Proceedings of DYNN*, 2000.