

# Pierre Kornprobst

## List of publications

### International journals

- [1] N. K. Medathati, J. Rankin, A. I. Meso, P. Kornprobst, and G. S. Masson. Recurrent network dynamics reconciles visual motion segmentation and integration. *Scientific Reports*, 7(11270), August 2017.
- [2] G. Hilgen, S. Pirmoradian, D. Pamplona, P. Kornprobst, B. Cessac, M. H. Hennig, and E. Sernagor. Pan-retinal characterization of light responses from ganglion cells in the developing mouse retina. *Scientific Reports*, 7(42330), 2017.
- [3] B. Cessac, P. Kornprobst, S. Kraria, H. Nasser, D. Pamplona, G. Portelli, and T. Viéville. PRANAS: A new platform for retinal analysis and simulation. *Frontiers in Neuroinformatics*, 11:49, 2017.
- [4] M. Benzi, M.-J. Escobar, and P. Kornprobst. A bio-inspired synergistic virtual retina model for tone mapping. *Computer Vision and Image Understanding*, 2017.
- [5] G. Portelli, J. M. Barrett, G. Hilgen, T. Masquelier, A. Maccione, S. Di Marco, L. Berdondini, P. Kornprobst, and E. Sernagor. Rank order coding: a retinal information decoding strategy revealed by large-scale multielectrode array retinal recordings. *eNeuro*, 2016.
- [6] A. I. Meso, J. S. Rankin, O. S. Faugeras, P. S. Kornprobst, and G. S. Masson. The relative contribution of noise and adaptation to competition during tri-stable motion perception. *Journal of Vision*, October 2016.
- [7] N. V. K. Medathati, H. Neumann, G. S. Masson, and P. Kornprobst. Bio-inspired computer vision: Towards a synergistic approach of artificial and biological vision. *Computer Vision and Image Understanding*, 150:1–30, 2016.
- [8] T. Masquelier, G. Portelli, and P. Kornprobst. Microsaccades enable efficient synchrony-based coding in the retina: a simulation study. *Scientific Reports*, 6:24086, April 2016.
- [9] F. Solari, M. Chessa, K. Medathati, and P. Kornprobst. What can we expect from a V1-MT feedforward architecture for optical flow estimation? *Signal Processing: Image Communication*, 39(B):342–354, 2015.
- [10] J. Rankin, A. I. Meso, G. S. Masson, O. Faugeras, and P. Kornprobst. Bifurcation study of a neural fields competition model with an application to perceptual switching in motion integration. *Journal of Computational Neuroscience*, 36(2):193–213, 2014.
- [11] J. Rankin, E. Tlapale, R. Veltz, O. Faugeras, and P. Kornprobst. Bifurcation analysis applied to a model of motion integration with a multistable stimulus. *Journal of Computational Neuroscience*, 34(1):103–124, 2013. 10.1007/s10827-012-0409-5.
- [12] K. Masmoudi, M. Antonini, and P. Kornprobst. Streaming an image through the eye: The retina seen as a dithered scalable image coder. *Signal Processing-Image Communication*, 2012.
- [13] K. Masmoudi, M. Antonini, and P. Kornprobst. Frames for exact inversion of the rank order coder. *IEEE Transactions on Neural Networks and Learning Systems*, 23(2):353–359, 2012.
- [14] M.-J. Escobar and P. Kornprobst. Action recognition via bio-inspired features: The richness of center-surround interaction. *Computer Vision and Image Understanding*, 116(5):593–605, 2012.
- [15] A. Ramirez, M. Rivera, P. Kornprobst, and F. Lauze. Variational multi-valued velocity field estimation for transparent sequences. *Journal of Mathematical Imaging and Vision*, 40(3):285–304, 2011.

- [16] J. Bouecke, E. Tlapale, P. Kornprobst, and H. Neumann. Neural mechanisms of motion detection, integration, and segregation: From biology to artificial image processing systems. *EURASIP Journal on Advances in Signal Processing*, 2011, 2011. special issue on Biologically inspired signal processing: Analysis, algorithms, and applications.
- [17] E. Tlapale, G. S. Masson, and P. Kornprobst. Modelling the dynamics of motion integration with a new luminance-gated diffusion mechanism. *Vision Research*, 50(17):1676–1692, August 2010.
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- [23] R. Peeters, P. Kornprobst, M. Nikolova, S. Sunaert, T. Viéville, G. Malandain, R. Deriche, O. Faugeras, M. Ng, and P. V. Hecke. The use of superresolution techniques to reduce slice thickness in functional MRI. *International Journal of Imaging Systems and Technology (IJIST), Special issue on High Resolution Image Reconstruction*, 14:131–138, 2004.
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- [29] M. Chessa, A. Patino-Saucedo, H. Rostro, E. Castet, F. Solari, and P. Kornprobst. Real-time image enhancement in virtual reality applications for low vision people. In *Vision 2017, the 12th International Conference by the International Society for Low Vision Research and Rehabilitation (ISLRR)*, 2017.
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- [36] E. Tlapale, P. Kornprobst, J. Bouecke, H. Neumann, and G. S. Masson. Evaluating motion estimation models from behavioural and psychophysical data. In *International ICST Conference on Bio-Inspired Models of Network, Information and Computing Systems (BIONETICS)*, 2010.
- [37] K. Masmoudi, M. Antonini, P. Kornprobst, and L. Perrinet. A novel bio-inspired static image compression scheme for noisy data transmission over low-bandwidth channels. In *Proceedings of the 35th International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, 2010.
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## Books and book chapters

- [61] F. Cazals and P. Kornprobst, editors. *Modeling in Computational Biology and Medicine: A Multidisciplinary Endeavor*. Springer, 2013.
- [62] G. Aubert and P. Kornprobst. *Mathematical problems in image processing: partial differential equations and the calculus of variations (Second edition)*, volume 147 of *Applied Mathematical Sciences*. Springer-Verlag, 2006.
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- [65] G. Aubert and P. Kornprobst. Traitement des images numériques. In J. Akoka and I. Comyn-Wattiau, editors, *Encyclopédie de l'informatique et des systèmes d'information*, number 6, chapter 18, pages 861—879. Vuibert, November 2006.

## Other international publications (posters and short papers)

- [66] K. Medathati, A. I. Meso, G. S. Masson, P. Kornprobst, and J. Rankin. Understanding the impact of lateral interactions on population tuning. In *AREADNE*, 2016.
- [67] K. Medathati, A. Meso, G. Masson, P. Kornprobst, and J. Rankin. What hat suits your model? In *International Conference on Mathematical Neuroscience (ICMNS)*, 2016.
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## Reviewed national conferences

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## ————— Research reports and publications under review

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