

# List of publications

Pierre Kornprobst, Inria

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## 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*, 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.
- [18] A. Wohrer and P. Kornprobst. Virtual Retina : A biological retina model and simulator, with contrast gain control. *Journal of Computational Neuroscience*, 26(2):219, 2009. DOI 10.1007/s10827-008-0108-4.
- [19] S. Paris, P. Kornprobst, J. Tumblin, and F. Durand. Bilateral filtering: Theory and applications. *Foundations and Trends in Computer Graphics and Vision*, 4(1), 2009.
- [20] M.-J. Escobar, G. S. Masson, T. Viéville, and P. Kornprobst. Action recognition using a bio-inspired feedforward spiking network. *International Journal of Computer Vision*, 82(3):284, 2009.
- [21] G. Aubert and P. Kornprobst. Can the nonlocal characterization of sobolev spaces by bourgain etal. be useful to solve variational problems? *SIAM Journal on Numerical Analysis*, 47(2):844–860, February 2009.
- [22] T. Viéville, S. Chemla, and P. Kornprobst. How do high-level specifications of the brain relate to variational approaches? *Journal of Physiology - Paris*, 101(1-3):118–135, 2007.
- [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.
- [24] O. Faugeras, G. Adde, G. Charpiat, C. Chefd’Hotel, M. Clerc, T. Deneux, R. Deriche, G. Hermosillo, R. Keriven, P. Kornprobst, J. Kybic, C. Lenglet, L. Lopez-Perez, T. Papadopoulo, J.-P. Pons, F. Ségonne, B. Thirion, D. Tschumperlé, T. Viéville, and N. Wotawa. Variational, geometric, and statistical methods for modeling brain anatomy and function. *NeuroImage*, 23S1:S46–S55, 2004. Special issue: Mathematics in Brain Imaging - Edited by P.M. Thompson, M.I. Miller, T. Ratnanather, R.A. Poldrack and T.E. Nichols.
- [25] P. Kornprobst, R. Deriche, and G. Aubert. Image sequence analysis via partial differential equations. *Journal of Mathematical Imaging and Vision*, 11(1):5–26, October 1999.
- [26] G. Aubert and P. Kornprobst. A mathematical study of the relaxed optical flow problem in the space BV. *SIAM Journal on Mathematical Analysis*, 30(6):1282–1308, 1999.
- [27] G. Aubert, R. Deriche, and P. Kornprobst. Computing optical flow via variational techniques. *SIAM Journal of Applied Mathematics*, 60(1):156–182, 1999.

### Reviewed international conferences

- [28] N. V. K. Medathati, M. Chessa, G. S. Masson, P. Kornprobst, and F. Solari. Adaptive motion pooling and diffusion for optical flow computation. In *First International Workshop on Brain-Inspired Computer Vision (WBICV2017)*, Catania, Sicily, Italy, September 2017.
- [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.
- [30] A. Drogoul, G. Aubert, B. Cessac, and P. Kornprobst. A new nonconvex variational approach for sensory neurons receptive field estimation. In *6th International Workshop on New Computational Methods for Inverse Problems (NCMIP)*, 2016.

- [31] C. Hilario Gomez, K. Medathati, P. Kornprobst, V. Murino, and D. Sona. Improving freak descriptor for image classification. In *ICVS*, 2015.
- [32] M. Chessa, N. V. K. Medathati, G. S. Masson, F. Solari, and P. Kornprobst. Decoding mt motion response for optical flow estimation: An experimental evaluation. In *European Signal Processing Conference (EUSIPCO 2015)*, 2015.
- [33] E. Tlapale, P. Kornprobst, G. S. Masson, and O. Faugeras. A neural field model for motion estimation. In S. Verlag, editor, *Mathematical Image Processing*, volume 5 of *Springer Proceedings in Mathematics*, pages 159–180, 2011.
- [34] K. Masmoudi, M. Antonini, and P. Kornprobst. A biologically inspired image coder with temporal scalability. In *Advanced Concepts for Intelligent Vision Systems (ACIVS)*, 2011.
- [35] W. Bel Haj Ali, E. Debreuve, P. Kornprobst, and M. Barlaud. Bio-inspired bags-of-features for image classification. In *KDIR International Conference on Knowledge Discovery and Information Retrieval*, October 2011.
- [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.
- [38] K. Masmoudi, M. Antonini, and P. Kornprobst. Another look at the retina as an image scalar quantizer. In *Proceedings of the International Symposium on Circuits and Systems (ISCAS)*, 2010.
- [39] K. Masmoudi, M. Antonini, and P. Kornprobst. Another look at the retina as an image dithered scalar quantizer. In *Proceedings of the 11th International Workshop on Image Analysis for Multimedia Interactive Services (WIAMIS)*, 2010.
- [40] N. Bruce and P. Kornprobst. On the role of context in probabilistic models of visual saliency. In *Proceedings of the International Conference on Image Processing*. IEEE Signal Processing Society, 2009.
- [41] N. Bruce and P. Kornprobst. Harris corners in the real world: A principled selection criterion for interest points based on ecological statistics. In *Proceedings of the International Conference on Computer Vision and Pattern Recognition*. Computer Society Press, 2009.
- [42] M.-J. Escobar and P. Kornprobst. Action recognition with a bio-inspired feedforward motion processing model: The richness of center-surround interactions. In *Proceedings of the 10th European Conference on Computer Vision*, volume 5305 of *LNCS*, pages 186–199. Springer-Verlag, October 2008.
- [43] J.-B. Bernard, E. Tlapale, G. Faure, E. Castet, and P. Kornprobst. Navisio: Towards an integrated reading aid system for low vision patients. In *Proceedings of the Workshop on Computer Vision Applications for the Visually Impaired (CVAVI 08)*, 2008.
- [44] A. Ramirez-Manzanares, M. Rivera, P. Kornprobst, and F. Lauze. A variational approach for multi-valued velocity field estimation in transparent sequences. In *Proceedings of the Scale Space and Variational Methods in Computer Vision*, volume 4485 of *LNCS*, pages 227–238, 2007.
- [45] A. Wohrer, P. Kornprobst, and T. Vieville. From light to spikes: a large-scale retina simulator. In *International Joint Conference on Neural Networks*, Vancouver, 2006.
- [46] T. Viéville and P. Kornprobst. Modeling cortical maps with feed-backs. In *International Joint Conference on Neural Networks*, Vancouver, 2006.
- [47] M.-J. Escobar, A. Wohrer, P. Kornprobst, and T. Vieville. Biological motion recognition using an MT-like model. In *Proceedings of 3rd Latin American Robotic Symposium*, 2006.

- [48] P. Kornprobst, T. Viéville, and I. Dimov. Could early visual processes label and segment motions? In *17th IMACS World Congress, Scientific Computation, Applied Mathematics and Simulation*, 2005.
- [49] P. Kornprobst, T. Viéville, and I. Dimov. Could early visual processes be sufficient to label motions? In *International Joint Conference on Neural Networks*, 2005.
- [50] F. Lauze, P. Kornprobst, and E. Mémin. A coarse to fine multiscale approach for linear least squares optical flow estimation. In *British Machine Vision Conference*, volume 2, pages 767–776, 2004.
- [51] C. Lacombe, G. Aubert, L. Blanc-Féraud, and P. Kornprobst. Filtering interferometric phase images by anisotropic diffusion. In *Proceedings of the International Conference on Image Processing*. IEEE Signal Processing Society, 2003.
- [52] P. Kornprobst, R. Peeters, M. Nikolova, R. Deriche, M. Ng, and P. V. Hecke. A superresolution framework for fmri sequences and its impact on resulting activation maps. In *Medical Image Computing and Computer-Assisted Intervention-MICCAI2003*, volume 2 of *Lecture Notes in Computer Science*, pages 117–125. Springer-Verlag, 2003.
- [53] R. Deriche, P. Kornprobst, M. Nikolova, and M. Ng. Half-quadratic regularization for MRI image restoration. In *ICASSP'03*, pages 585–588, 2003.
- [54] C. Lacombe, P. Kornprobst, G. Aubert, and L. Blanc-Feraud. A variational approach to one dimensional phase unwrapping. In *Proceedings of the International Conference on Pattern Recognition*, Québec City, Canada, August 2002. Computer Society Press.
- [55] P. Kornprobst and G. Médioni. Tracking segmented objects using tensor voting. In *Proceedings of the International Conference on Computer Vision and Pattern Recognition*, volume 2, pages 118–125, Hilton Head Island, South Carolina, June 2000. IEEE Computer Society.
- [56] P. Kornprobst and G. Médioni. A 2D+t tensor voting based approach for tracking. In *Proceedings of the International Conference on Pattern Recognition*, volume 3, pages 1104–1107, Barcelona, Spain, September 2000. Computer Society Press.
- [57] P. Kornprobst, R. Deriche, and G. Aubert. Image sequence restoration: A PDE based coupled method for image restoration and motion segmentation. In H. Burkhardt and B. Neumann, editors, *Proceedings of the 5th European Conference on Computer Vision*, volume II of *Lecture Notes in Computer Science*, pages 548–562, Freiburg, Germany, June 1998. Springer-Verlag.
- [58] P. Kornprobst, R. Deriche, and G. Aubert. Nonlinear operators in image restoration. In *Proceedings of the International Conference on Computer Vision and Pattern Recognition*, pages 325–331, San Juan, Puerto Rico, June 1997. IEEE Computer Society, IEEE Computer Society.
- [59] P. Kornprobst, R. Deriche, and G. Aubert. Image coupling, restoration and enhancement via PDEs. In *Proceedings of the 4th International Conference on Image Processing*, volume 4, pages 458–461. IEEE Computer Society Press, October 1997.
- [60] R. Deriche, P. Kornprobst, and G. Aubert. Optical flow estimation while preserving its discontinuities: A variational approach. In *Proceedings of the 2nd Asian Conference on Computer Vision*, volume 2, pages 71–80, Singapore, December 1995.

### 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.
- [63] T. Brox, R. van den Boomgaard, F. Lauze, J. van de Weijer, J. Weickert, P. Mrázek, and P. Kornprobst. Adaptive structure tensors and their applications. In J. Weickert and H. Hagen, editors, *Visualization and Processing of Tensor Fields*, pages 19–47. Springer, 2006.

- [64] G. Aubert and P. Kornprobst. Mathematics of image processing. In J. P. Françoise, G. Naber, and S. Tsou, editors, *Encyclopedia of Mathematical Physics*, volume 3, pages 1–9. Elsevier, Oxford, 2006.
- [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.
- [68] A. Drogoul, G. Aubert, B. Cessac, and P. Kornprobst. A variational approach for receptive field estimation in the nonconvex case. In *International Conference on Mathematical Neuroscience (ICMNS)*, 2016.
- [69] B. Cessac, P. Kornprobst, S. Kraria, H. Nasser, D. Pamplona, G. Portelli, and T. Vieville. ENAS: A new software for spike train analysis and simulation. Bernstein conference, September 2016. Poster.
- [70] D. Pamplona, G. Hilgen, S. Pirmoradian, M. H. Hennig, B. Cessac, E. Sernagor, and P. Kornprobst. A super-resolution approach for receptive fields estimation of neuronal ensembles. Computational Neuroscience (CNS), July 2015. Poster.
- [71] D. Pamplona, B. Cessac, and P. Kornprobst. Shifting stimulus for faster receptive fields estimation of ensembles of neurons. Computational and Systems Neuroscience (Cosyne), March 2015. Poster.
- [72] K. Medathati, M. Chessa, G. Masson, P. Kornprobst, and F. Solari. Adaptive motion pooling and diffusion for optical flow. In *Workshop MODVIS: Computational and Mathematical Models in Vision*, 2015.
- [73] G. Hilgen, S. Softley, D. Pamplona, P. Kornprobst, B. Cessac, and E. Sernagor. The effect of retinal GABA Depletion by Allylglycineon mouse retinal ganglion cell responses to light. European Retina Meeting, October 2015. Poster.
- [74] F. Solari, M. Chessa, K. Medathati, and P. Kornprobst. Benchmarking biologically inspired spatio-temporal filter based optical flow estimation on modern datasets. In *Workshop on Visual Image Interpretation in Humans and Machines*, 2014.
- [75] G. Portelli, J. Barrett, E. S. and Timothée Masquelier, and P. Kornprobst. Rapid neural coding in the mouse retina with the first wave of spikes. In *Computational Neuroscience meeting (CNS)*, 2014.
- [76] K. Medathati, J. Rankin, G. Masson, and P. Kornprobst. Exploring the richness of center-surround dynamics: A bifurcation study. In *Conference on Nonlinear dynamics and stochastic methods: from neuroscience to other biological applications*, 2014.
- [77] T. Masquelier, G. Portelli, and P. Kornprobst. Microsaccades enable efficient synchrony-based visual feature learning and detection. In *Computational Neuroscience meeting (CNS)*, 2014.
- [78] C. Hilario, K. Medathati, P. Kornprobst, V. Murino, and D. Sona. A retina-inspired descriptor for image classification. In *Workshop on Visual Image Interpretation in Humans and Machines*, 2014.
- [79] G. Portelli, J. Barrett, E. Sernagor, and P. Kornprobst. Decoding the retina with the first wave of spikes. In *European Retina Meeting*, 2013.
- [80] A. I. Meso, J. Rankin, P. Kornprobst, and G. S. Masson. Can we predict which direction comes next during multi-stable motion perception? In *Cosyne*, 2013.
- [81] N. V. K. Medathati, J. Rankin, P. Kornprobst, and G. S. Masson. A retinotopic neural fields model of perceptual switching in 2d motion integration. In *Bernstein Conference*, 2013.

- [82] M.-J. Escobar, P. F. Toledo, G. Masson, and P. Kornprobst. Mt motion integration can be explained by the spatiotemporal frequency content of v1 surround suppression. In *Vision Sciences Society Annual Meeting*, 2013.
- [83] J. Rankin, A. Meso, G. S. Masson, O. Faugeras, and P. Kornprobst. Perceptual transition dynamics of a multi-stable visual motion stimulus II: modelling. In *Vision Sciences Society 12th Annual Meeting*, 2012.
- [84] J. Rankin, A. Meso, G. S. Masson, O. Faugeras, and P. Kornprobst. Motion direction integration following the onset of multistable stimuli (II): stability properties explain dynamic shifts in the dominant perceived direction. In *European Conference on Visual Perception*, September 2012.
- [85] G. Portelli, O. Marre, M. J. B. II, M. Antonini, and P. Kornprobst. Rate and latency coding for natural image identification. In *Sensory Coding and Natural Environment*, 2012.
- [86] A. Meso, J. Rankin, P. Kornprobst, O. Faugeras, and G. S. Masson. Perceptual transition dynamics of a multi-stable visual motion stimulus I: experiments. In *Vision Sciences Society 12th Annual Meeting*, 2012.
- [87] A. Meso, J. Rankin, O. Faugeras, P. Kornprobst, and G. S. Masson. Motion direction integration following the onset of multistable stimuli (I): dynamic shifts in both perception and eye movements depend on signal strength. In *European Conference on Visual Perception*, 2012.
- [88] J. Rankin, E. Tlapale, R. Veltz, P. Kornprobst, and O. Faugeras. Multistability and bifurcations in a model of motion perception. In *Developments in Dynamical Systems Arising from the Biosciences*, March 2011.
- [89] M.-J. Escobar, G. Masson, and P. Kornprobst. How MT neurons get influenced by V1 surround suppression ? In *Perception ECVF*, September 2011.
- [90] M.-J. Escobar, G. Masson, and P. Kornprobst. Can V1 surround suppression mechanism explain MT motion integration ? In *International Conference on Cognitive and Neural Systems (ICNS)*, 2011.
- [91] E. Tlapale, G. Masson, and P. Kornprobst. A dynamical neural model of motion integration. In *VSS*, 2010.
- [92] K. Masmoudi, M. Antonini, and P. Kornprobst. Encoding and decoding stimuli using a biologically realistic model: the non-determinism in spike timings seen as a dither signal. In *Research in Encoding And Decoding of Neural Ensembles (AREADNE)*, page 21, June 2010.
- [93] P. Kornprobst, E. Tlapale, J. Bouecke, H. Neumann, and G. Masson. A bio-inspired evaluation methodology for motion estimation. In *VSS*, 2010.
- [94] D. Endres, F. Vintila, N. Bruce, J. Bouecke, P. Kornprobst, H. Neumann, and M. Giese. Hooligan detection: the effects of saliency and expert knowledge. In *Perception ECVF*, volume 39, page 193, 2010.
- [95] J.-B. Bernard, É. Tlapale, A. Calabrèse, É. Castet, and P. Kornprobst. Solairepdf, un logiciel d'aide à la lecture de documents pdf pour les patients basse vision. In *Congrès de la Société Française d'Ophthalmologie*, 2008.
- [96] É. Tlapale, G. Masson, T. Viéville, and P. Kornprobst. Model of motion field diffusion controlled by form cues. In *Perception 36 ECVF Abstract Supplement*, September 2007.
- [97] L. Gérard, P. Kornprobst, and T. Viéville. From variational to spiking network image-segmentation techniques. In *Perception 36 ECVF Abstract Supplement*, 2007.
- [98] M.-J. Escobar, P. Kornprobst, and T. Viéville. Spike to spike MT model and applications. In W. R. Holmes, R. Jung, and F. Skinner, editors, *Sixteenth Annual Computational Neuroscience Meeting (CNS)*, volume 8, Suppl 2 of *BMC Neuroscience*, July 2007.
- [99] S. Chemla, F. Chavane, T. Viéville, and P. Kornprobst. Biophysical cortical column model for optical signal analysis. In W. R. Holmes, R. Jung, and F. Skinner, editors, *Sixteenth Annual Computational Neuroscience Meeting (CNS)*, volume 8, Suppl 2 of *BMC Neuroscience*, July 2007.

- [100] A. Wohrer, G. Masson, L. Perrinet, P. Kornprobst, and T. Vieville. Contrast sensitivity adaptation in a virtual spiking retina and its adequation with mammalians retinas. In *29th European Conference on Visual Perception*, page 67, August 2006.
- [101] T. Viéville and P. Kornprobst. Modeling cortical maps with feed-backs. In *International Conf. on Cognitive and Neural Systems*, 2006.
- [102] P. Kornprobst, T. Vieville, S. Chemla, and O. Rochel. Modeling cortical maps with feed-backs. In *29th European Conference on Visual Perception*, page 53, August 2006.
- [103] P. Kornprobst, F. Chavane, S. Chemla, A. Reynaud, and T. Vieville. Reverse-engineering of the visual brain cortical maps computation using optical-imaging. In *29th European Conference on Visual Perception*, page 54, August 2006.
- [104] A. Wohrer, P. Kornprobst, and T. Viéville. A biologically-inspired spiking retina model for the encoding of visual sequences. In *European Conference on Visual Perception*, 2005.
- [105] T. Viéville and P. Kornprobst. How fast-brain object categorization allows top-down processes of segmentation. In *European Conference on Visual Perception*, 2005.
- [106] R. Peeters, P. Kornprobst, S. Sunaert, T. Viéville, O. Faugeras, and P. V. Hecke. The use of superresolution reconstruction algorithms to enhance spatial resolution in fMRI. In *ISMRM 11th Scientific Meeting and Exhibition*. International Society for Magnetic Resonance in Medicine, 2003.
- [107] C. Barthou, D. Bouvier, O. Faugeras, P. Kornprobst, R. Keriven, and T. Papadopoulo. A level set method for the inverse eeg/meg problem. In *Applied Inverse Problems: Theoretical and Computational Aspects*, page 127, June 2001.
- [108] P. Kornprobst, R. Deriche, and G. Aubert. Image coupling, restoration and enhancement via PDEs. In *International Conference Image Processing, Oct. 1997.*, volume 4, pages 458–461, October 1997.
- [109] P. Kornprobst, R. Deriche, and G. Aubert. Etude mathématique du problème du flot optique dans l'espace BV. In *Proceedings of the 29th Congrès Annuel d'Analyse Numérique*, pages 229–230, Larnas, France, November 1997.
- [110] P. Kornprobst, R. Deriche, and G. Aubert. Image restoration via PDE's. In *First Annual Symposium on Enabling Technologies for Law Enforcement and Security - SPIE Conference 2942 : Investigative Image Processing.*, Boston, Massachusetts, USA, November 1996.

### Reviewed national conferences

- [111] E. Tlapale, G. Masson, and P. Kornprobst. Motion integration modulated by form information. In *Deuxième conférence française de Neurosciences Computationnelles*, 2008.
- [112] M.-J. Escobar, G. S. Masson, and P. Kornprobst. A simple mechanism to reproduce the neural solution of the aperture problem in monkey area MT. In *Deuxième conférence française de Neurosciences Computationnelles*, 2008.
- [113] A. Wohrer, P. Kornprobst, and T. Vieville. Contrast gain control through a feedback in the retina. In *1ère conférence francophone de Neurosciences Computationnelles*, 2006.
- [114] P. Kornprobst, S. Chemla, O. Rochel, and T. Vieville. A 1st step towards an abstract view of computation in spiking neural-networks. In *1ère conférence francophone de Neurosciences Computationnelles*, 2006.
- [115] M.-J. Escobar, A. Wohrer, P. Kornprobst, and T. Viéville. Biological motion recognition using an mt-like model. In *1ère conférence francophone de Neurosciences Computationnelles*, 2006.
- [116] F.-B. Lauze, P. Kornprobst, C. Lenglet, R. Deriche, and M. Nielsen. Sur quelques méthodes de calcul de flot optique à partir du tenseur de structure : Synthèse et contribution. In *14ème Congrès Francophone AFRIF-AFIA de Reconnaissance des Formes et Intelligence Artificielle*, 2004.
- [117] C. Lacombe, G. Aubert, L. Blanc-Féraud, and P. Kornprobst. Filtrage adaptatif des interférogrammes par diffusion anisotrope. In *Journées Orasis 2003*, 2003.

- [118] P. Kornprobst, R. Deriche, and G. Aubert. Une méthode variationnelle pour l'analyse des séquences d'images. In *Proceedings of the 30th Congrès Annuel d'Analyse Numérique*, page 239, Arles, France, November 1998.
- [119] P. Kornprobst, R. Deriche, and G. Aubert. EDP, débruitage et réhaussement en traitement d'image: Analyse et contributions. In *11ème Congrès RFIA*, volume 1, pages 277–286. AFCET, January 1998.
- [120] P. Kornprobst, R. Deriche, and G. Aubert. Estimation du flot optique avec préservation des discontinuités: Une approche variationnelle. In *Journées ORASIS'96*, pages 81–86, May 1996.

**Research reports and publications under review**

- [121] A. Drogoul, G. Aubert, B. Cessac, and P. Kornprobst. A nonconvex variational approach for receptive field estimation. Research Report 8837, Inria Sophia Antipolis, August 2016.