

# Nicolas P. Rougier's bibliography

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[CN](#) Computational Neurosciences / Neurosciences – [CS](#) Cognitive Science / Philosophy – [OS](#) Open Science / Reproducible Science [SC](#) Scientific Computing / Scientific visualization – [CG](#) Computer Graphics

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## Preprints

- PP.1 A. Strock, X. Hinaut, and N. P. Rougier. “[A Robust Model of Gated Working Memory](#)”. In: *BioRxiv* (Mar. 2019). [CN](#)
- PP.2 N. P. Rougier and J. Timmer. “[Ten Simple Rules for Scientific Fraud & Misconduct](#)”. In: *HAL* (2017). [OS](#)
- PP.3 S. Shivkumar, V. S. Chakravarthy, and N. P. Rougier. “[Modeling the Role of Striatum in Stochastic Multi Context Tasks](#)”. In: *BioRxiv* (Sept. 2017). [CN](#)

## Replications

- RE.1 N. P. Rougier. “[\[Re\] Weighted Voronoi Stippling](#)”. In: *ReScience* 3.1 (2017). [CG](#)
- RE.2 M. Topalidou and N. P. Rougier. “[\[Re\] Interaction between cognitive and motor cortico-basal ganglia loops during decision making: a computational study](#)”. In: *ReScience* 1.1 (2015). [CN](#)

## Correspondences

- CO.1 N. P. Rougier and K. Hinsén. “[Code reviewing puts extra demands on referees](#)”. In: *Nature* 556.7701 (Apr. 2018), pp. 309–309. [OS](#)
- CO.2 O. Guest and N. P. Rougier. “[Diversity in reproducibility](#)”. In: *IEEE CDS Newsletter* 13.2 (2017). [OS](#)
- CO.3 O. Guest and N. P. Rougier. “[What is computational reproducibility?](#)” In: *IEEE CDS Newsletter* 13.1 (2016). [OS](#)
- CO.4 M. Topalidou, A. Leblois, T. Boraud, and N. P. Rougier. “[A Long Journey into Reproducible Computational Neuroscience](#)”. In: *Frontiers in Computational Neuroscience* 9.28 (2015). [OS](#)
- CO.5 N. P. Rougier and F. Alexandre. “[Emergence of Representations Through Interactions of a Robot with the Real World](#)”. In: *ERCIM News* 53 (2003), pp. 22–23. [CN](#)

## Highlights

- HI.1 M. Hutson. “[Artificial intelligence faces a replication crisis](#)”. In: *Science* 359.6377 (Feb. 2018). Interview about the [ReScience](#) journal, see also [\[IJ.7\]](#).
- HI.2 “[How to draw perfect figures](#)”. In: *Nature* 513.7519 (Sept. 2014), pp. 463–463. Social selection about [Ten Simple Rules for Better Figures](#), see also [\[IJ.12\]](#).
- HI.3 C. Woolston. “[How to dodge the pitfalls of bad illustrations](#)”. In: *Nature* (Sept. 2014). Highlight on [Ten Simple Rules for Better Figures](#), see also [\[IJ.12\]](#).

## Journals

- IJ.1 K. Hinsén and N. P. Rougier. “ReScience (R)evolution”. In: *ReScience* (2019). OS
- IJ.2 A. Nioche, B. Garcia, T. Boraud, S. Bourgeois-Gironde, and N. P. Rougier. “Induction of a Non-Competitive Behavior in a Duopoly”. In: *Palgrave Communication* 5 (6 2019). CN
- IJ.3 F. C. Y. Benureau and N. P. Rougier. “Re-run, Repeat, Reproduce, Reuse, Replicate: Transforming Code into Scientific Contributions”. In: *Frontiers in Neuroinformatics* 11 (Jan. 2018). OS
- IJ.4 T. Boraud, A. Leblois, and N. P. Rougier. “A Natural History of Skills”. In: *Progress in Neurobiology* (Aug. 2018). OS
- IJ.5 N. P. Rougier. “A Density-Driven Method for the Placement of Biological Cells Over Two-Dimensional Manifolds”. In: *Frontiers in Neuroinformatics* 12 (Mar. 2018). CN
- IJ.6 M. Topalidou, D. Kase, T. Boraud, and N. P. Rougier. “A Computational Model of Dual Competition between the Basal Ganglia and the Cortex”. In: *eNeuro* 5 (6 Dec. 2018). CN
- IJ.7 N. P. Rougier, K. Hinsén, F. Alexandre, T. Arildsen, L. Barba, F. C. Y. Benureau, C. T. Brown, P. de Buyl, O. Caglayan, A. P. Davison, M. A. Delsuc, G. Detorakis, A. K. Diem, D. Drix, P. Enel, B. Girard, O. Guest, M. G. Hall, R. N. Henriques, X. Hinaut, K. S. Jaron, M. Khamassi, A. Klein, T. Manninen, P. Marchesi, D. McGlinn, C. Metzner, O. L. Petchey, H. E. Plesser, T. Poisot, K. Ram, Y. Ram, E. Roesch, C. Rossant, V. Rostami, A. Shifman, J. Stachelek, M. Stimberg, F. Stollmeier, F. Vaggi, G. Viejo, J. Vitay, A. Vostinar, R. Yurchak, and T. Zito. “Sustainable computational science: the ReScience initiative”. In: *PeerJ Computer Science* 3 (Dec. 2017), e142. OS
- IJ.8 C. Piron, D. Kase, M. Topalidou, M. Goillandeau, N. P. Rougier, and T. Boraud. “The globus pallidus pars interna in goal-oriented and routine behaviors: Resolving a long-standing paradox”. In: *Movement Disorders* (2016). CN
- IJ.9 W. Taouali, L. Goffart, F. Alexandre, and N. P. Rougier. “A parsimonious computational model of visual target position encoding in the superior colliculus”. In: *Biological Cybernetics* 109.4-5 (2015). CN
- IJ.10 G. Detorakis and N. P. Rougier. “Structure of Receptive Fields in a Computational Model of Area 3b of Primary Sensory Cortex”. In: *Frontiers in Computational Neuroscience* (2014). CN
- IJ.11 N. P. Rougier. “Antialiased 2D Grid, Marker, and Arrow Shaders”. In: *Journal of Computer Graphics Techniques (JCGT)* 3.4 (2014), pp. 1–52. CG
- IJ.12 N. P. Rougier, M. Droettboom, and P. E. Bourne. “Ten Simple Rules for Better Figures”. In: *PLoS Computational Biology* 10.9 (2014). OS
- IJ.13 N. P. Rougier. “Higher Quality 2D Text Rendering”. In: *Journal of Computer Graphics Techniques (JCGT)* 2.1 (2013), pp. 50–64. CG
- IJ.14 N. P. Rougier. “Shader-based Antialiased Dashed Stroke Poylines”. In: *Journal of Computer Graphics Techniques (JCGT)* 2.2 (2013), pp. 105–121. CG
- IJ.15 G. I. Detorakis and N. P. Rougier. “A Neural Field Model of the Somatosensory Cortex: Formation, Maintenance and Reorganization of Ordered Topographic Maps”. In: *PLoS ONE* 7.7 (2012), e40257. CN
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- IJ.17 J. Fix, N. P. Rougier, and F. Alexandre. “A Dynamic Neural Field Approach to the Covert and Overt Deployment of Spatial Attention”. In: *Cognitive Computation* 3.1 (2011), pp. 279–293. CN
- IJ.18 N. P. Rougier and Y. Boniface. “Dynamic Self-Organising map”. In: *Neurocomputing* 74.11 (2011), pp. 1840–1847. CN
- IJ.19 N. P. Rougier and A. Hutt. “Synchronous and Asynchronous Evaluation of Dynamic Neural Fields”. In: *Journal of Difference Equations and Applications* 17.8 (2011). CN
- IJ.20 W. Taouali, T. Viéville, N. P. Rougier, and F. Alexandre. “No Clock to Rule Them All”. In: *Journal Of Neurophysiology, Paris* 105.1–3 (2011). CN
- IJ.21 A. Hutt and N. P. Rougier. “Activity spread and breathers induced by finite transmission speeds in two-dimensional neural fields”. In: *Physical Review E* 82.5 (2010). CN

- IJ.22 N. P. Rougier. “[Implicit and Explicit Representations](#)”. In: *Neural Networks* 22.2 (2009), pp. 155–160. CN
- IJ.23 J. Fix, N. P. Rougier, and F. Alexandre. “[From physiological principles to computational models of the cortex](#)”. In: *Journal of Physiology, Paris* (2007), pp. 32–39. CN
- IJ.24 N. P. Rougier. “[Dynamic Neural Field with Local Inhibition](#)”. In: *Biological Cybernetics* 94.3 (2006), pp. 169–179. CN
- IJ.25 N. P. Rougier and J. Vitay. “[Emergence of Attention within a Neural Population](#)”. In: *Neural Networks* 19.5 (2006), pp. 573–581. CN
- IJ.26 N. P. Rougier, D. C. Noelle, T. D. Braver, J. D. Cohen, and R. C. O’Reilly. “[Prefrontal Cortex and Flexible Cognitive Control: Rules Without Symbols](#)”. In: *Proceedings of the National Academy of Science* 102.20 (2005), pp. 7338–7343. CN
- IJ.27 N. P. Rougier and R. C. O’Reilly. “[A Gated Prefrontal Cortex Model of Dynamic Task Switching](#)”. In: *Cognitive Science* 26.4 (2002), pp. 503–520. CN

## Book & Thesis

- BK.1 V. André, Y. Boniface, A. Boumaza, A. Dutech, V. Giardino, M. Rebuschi, M. Renauld, N. P. Rougier, and F. Verhaegen, eds. *Cogitamus Ergo Sumus*. Presses Universitaires Paris Nanterres, 2019. CN
- BK.2 N. P. Rougier. *Python & OpenGL for Scientific Visualization*. Zenodo, 2018. SC
- BK.3 N. P. Rougier. *From Python to Numpy*. Zenodo, 2016. SC
- BK.4 G. Varoquaux, E. Gouillart, O. Vahtras, V. Haenel, N. P. Rougier, R. Gommers, F. Pedregosa, Z. Jedrzejewski-Szmek, P. Virtanen, C. Combelles, D. Pinte, R. Cimrman, A. Espaze, A. Chauve, and C. Burns. *Scipy Lecture Notes*. Zenodo, 2015. SC
- BK.5 N. P. Rougier. “[Fondements biologiques pour le calcul distribué, numérique et adaptatif](#)”. Habilitation. Université Nancy II, May 2011. CN
- BK.6 N. P. Rougier. “[Modèles de mémoires pour la navigation autonome](#)”. PhD thesis. Université Henri Poincaré - Nancy I, Oct. 2000. CN

## Book Chapters

- CH.1 F. Alexandre, P. F. Dominey, P. Gaussier, B. Girard, M. Khamassi, and N. P. Rougier. “When Artificial Intelligence and Computational Neuroscience meet”. In: *A guided tour of artificial intelligence research, Vol. 3 Interfaces and applications of artificial intelligence*. Springer-Verlag, 2019. CN
- CH.2 I. C. Kaadoud, N. P. Rougier, and F. Alexandre. “[Implicit Knowledge Extraction and Structuration from Electrical Diagrams](#)”. In: *Advances in Artificial Intelligence: From Theory to Practice*. Springer International Publishing, 2017, pp. 235–241. CN
- CH.3 A. Hutt and N. P. Rougier. “[Numerical simulation scheme of one-and two-dimensional neural fields involving space-dependent delays](#)”. In: *Neural Field Theory*. Ed. by P. beim Graben, S. Coombes, R. Potthast, and J. Wright. Springer, 2014. CN
- CH.4 N. P. Rougier and G. I. Detorakis. “[Self-Organizing Dynamic Neural Fields](#)”. In: *Advances in Cognitive Neurodynamics (III)*. Ed. by Y. Yamaguchi. Springer, 2013. CN
- CH.5 W. Taouali, N. P. Rougier, and F. Alexandre. “[Visual Target Selection Emerges from a Bio-inspired Network Topology](#)”. In: *Computational Intelligence*. Ed. by K. Kurosh Madani, A. Correia, A. Rosa, and J. Filipe. Springer-Verlag, 2012. CN
- CH.6 J. Fix, J. Vitay, and N. P. Rougier. “[A Computational Model of Spatial Memory Anticipation during Visual Search](#)”. In: *Anticipatory Behavior in Adaptive Learning Systems: From Brains to Individual and Social Behavior*. Ed. by M. Butz, O. Sigaud, G. Pezzulo, and G. Baldassarre. Springer-Verlag Berlin Heidelberg, 2007. CN
- CH.7 J. Vitay, N. P. Rougier, and F. Alexandre. “[A distributed model of visual spatial attention](#)”. In: *Biomimetic Neural Learning for Intelligent Robotics*. Ed. by S. Wermter, G. Palm, and M. Elshaw. Springer-Verlag, 2005. CN

- CH.8 H. Frezza-Buet, N. P. Rougier, and F. Alexandre. “A cerebral framework for the integration of biologically inspired temporal mechanisms for sequence processing”. In: *Neural, symbolic and Reinforcement methods for sequence learning*. Ed. by L. Giles and R. Sun. Springer, 2000. CN
- CH.9 N. P. Rougier. “Mémoires déclarative et procédurale pour la navigation autonome d’un animat”. In: *Intelligence artificielle située. Cerveau, corps et environnement*. Ed. by A. Drogoul and J. Meyer. Hermès, 1999. CN

### Conferences/Short Papers/Posters

- IC.1 N. P. Rougier. “The Eye of the Modeler”. In: *International Society for the History Philosophy and Social Studies of Biology biennial meeting*. Oslo (Norway), 2019.
- IC.2 L. Khacef, B. Girau, N. P. Rougier, A. Upegui, and B. Miramond. “Neuromorphic hardware as a self-organizing computing system”. In: *Neuromorphic Hardware In Practice and Use (NHPU) workshop 2018 in IEEE World Congress on Computational Intelligence (WCCI): International Joint Conference on Neural Networks (IJCNN)*. Ed. by IEEE. Rio de Janeiro, Brazil, July 2018. CN
- IC.3 N. P. Rougier and B. Esfahbod. “Digital Typography Rendering”. In: *ACM SIGGRAPH*. Vancouver, Canada, Aug. 2018. CG
- IC.4 N. P. Rougier and K. Hinsén. “ReScience C: a journal for reproducible replications in computational science”. In: *International Conference on Pattern Recognition*. Ed. by IEEE. Springer, Dec. 2018. OS
- IC.5 A. Strock, N. P. Rougier, and X. Hinaut. “A Simple Reservoir Model of Working Memory with Real Values”. en. In: *Third workshop on advanced methods in theoretical neuroscience*. Göttingen, Germany, June 2018. Poster. CN
- IC.6 A. Strock, N. P. Rougier, and X. Hinaut. “A Simple Reservoir Model of Working Memory with Real Values”. In: *International Joint Conference on Neural Networks (IJCNN)*. Ed. by IEEE. Rio de Janeiro, Brazil, July 2018. CN
- IC.7 A. Upegui, B. Girau, N. P. Rougier, F. Vannel, and B. Miramond. “Pruning Self-Organizing Maps for Cellular Hardware Architectures”. In: *NASA/ESA Conference on Adaptive Hardware and Systems*. Ed. by IEEE. Edinburgh, UK, Aug. 2018. CN
- IC.8 F. Benureau, T. Boraud, and N. P. Rougier. “Habits That Contradict Rewards”. In: *7th Joint IEEE International Conference on Development and Learning and on Epigenetic Robotics*. Lisbon, Portugal, Sept. 2017. Poster. CN
- IC.9 B. T. Nallapu, B. R. Surampudi, and N. P. Rougier. “The art of scaling up : a computational account on action selection in the basal ganglia”. In: *International Joint Conference in Neural Networks (IJCNN)*. May 2017. CN
- IC.10 N. P. Rougier and Y. Boniface. “Motivated Self-Organization”. In: *12th International Workshop on Self-Organizing Maps and Learning Vector Quantization*, Nancy, France, June 2017. CN
- IC.11 B. T. Nallapu, N. P. Rougier, and B. R. Surampudi. “The art of scaling up : a computational account on action selection in basal ganglia”. In: *3rd Annual Conference of the Association for Cognitive Science, India*. 2016. Poster. CN
- IC.12 B. T. Nallapu and N. P. Rougier. “Dynamics of reward based decision making a computational study”. In: *ICANN*. 2016. CN
- IC.13 L. Campagnola, A. Klein, C. Rossant, and N. P. Rougier. “VisPy: Harnessing The GPU For Fast, High-Level Visualization”. In: *Scipy, USA*. 2015. SC
- IC.14 K. Hinsén and N. P. Rougier. “The ReScience initiative”. In: *Euroscipy*. 2015. OS
- IC.15 B. T. Nallapu, B. R. Surampudi, and N. P. Rougier. “Factors affecting reward based decision making : a computational study”. In: *CBC, India*. 2015. CN
- IC.16 N. P. Rougier. “Glumpy”. In: *Euroscipy*. 2015. Poster. SC
- IC.17 M. Topalidou, D. Kase, T. Boraud, and N. P. Rougier. “The Formation of habits”. In: *CNS, Prague*. 2015. Poster. CN
- IC.18 M. Topalidou, C. Piron, D. Kase, T. Boraud, and N. P. Rougier. “The Formation of habits”. In: *SBDM, Paris*. 2015. Poster. CN

- IC.19 M. Topalidou, C. Piron, D. Kase, T. Boraud, and N. P. Rougier. “The Formation of Habits: implicit supervision of the basal ganglia”. In: *RLDM, Canada*. 2015. CN
- IC.20 N. P. Rougier. “Modern Scientific Visualization”. In: *X Developer’s Conference*. 2014. SC
- IC.21 L. Campagnola, A. Klein, C. Rossant, and N. P. Rougier. “Vispy – a future tool for interactive visualization”. In: *BI Forum*. 2013. SC
- IC.22 L. Campagnola, A. Klein, C. Rossant, and N. P. Rougier. “Vispy: A Modern and Interactive Visualization Framework”. In: *Euroscipy*. 2013. SC
- IC.23 G. I. Detorakis and N. P. Rougier. “Skin Topographic Maps in SI”. In: *Progress in Neural Field Theory*. 2012. CN
- IC.24 N. P. Rougier and G. I. Detorakis. “Self-Organizing Dynamic Neural Fields”. In: *Third International Conference on Cognitive Neurodynamics*. 2011. CN
- IC.25 N. P. Rougier and J. Fix. “Distributed, Numerical, Asynchronous and Adaptive computing framework”. In: *Python in Neuroscience, EuroScipy satellite*. 2011. CN
- IC.26 N. P. Rougier. “DANA”. In: *EuroScipy*. 2010. CN
- IC.27 N. P. Rougier. “From Computational Neuroscience to Cellular Automata”. In: *Automata*. 2010. CN
- IC.28 W. Taouali, N. P. Rougier, and A. Frédéric. “Saccades generation : from the visual input to the superior colliculus”. In: *International Conference on Neural Computation ICNC*. 2010. CN
- IC.29 W. Taouali, A. Frédéric, A. Hutt, and N. P. Rougier. “Asynchronous Evaluation as an Efficient and Natural Way to Compute Neural Networks”. In: *7th International Conference of Numerical Analysis and Applied Mathematics - ICNAAM*. 2009. CN
- IC.30 J. Fix, N. P. Rougier, and F. Alexandre. “A top-down attentional system scanning multiple targets with saccades”. In: *From Computational Cognitive Neuroscience to Computer Vision*. 2007. CN
- IC.31 F. Alexandre, N. P. Rougier, and T. Viéville. “A regularization process to implement self-organizing neuronal networks”. In: *International Conference on Engineering and Mathematics*. 2006. CN
- IC.32 J. Fix, J. Vitay, and N. P. Rougier. “A Computational Model of Spatial Memory Anticipation during Visual Search”. In: *Anticipatory Behavior in Adaptive Learning Systems*. 2006. CN
- IC.33 J. Vitay and N. P. Rougier. “Using Neural Dynamics to Switch Attention”. In: *International Joint Conference on Neural Networks*. 2005. CN
- IC.34 J. Vitay, N. P. Rougier, and F. Alexandre. “Reducing connectivity by using cortical modular bands”. In: *European Symposium on Artificial Neural Networks*. 2004. CN
- IC.35 N. P. Rougier. “Hippocampal Auto-Associative Memory”. In: *International Joint Conference on Neural Networks*. 2001. CN
- IC.36 N. P. Rougier and F. Alexandre. “A cerebral framework for integrating biologically plausible mechanisms in large connectionist models”. In: *International Conference on Systems in Biology*. 2001. CN
- IC.37 N. P. Rougier and F. Alexandre. “A Model of Hippocampal-Cortical Interaction Using a Synaptic Triad Mechanism”. In: *The Nature of Hippocampal-Cortical Interaction: Theoretical and Experimental Perspectives*. 2000. CN
- IC.38 N. P. Rougier and F. Alexandre. “Spatial Knowledge Transfer Between Models of Hippocampus and Associative Cortex”. In: *International Joint Conference on Neural Networks*. 1999. CN
- IC.39 N. P. Rougier, H. Frezza-Buet, and F. Alexandre. “Neuronal mechanisms for sequence learning in behavioral modeling”. In: *Neural, Symbolic, and Reinforcement Methods for Sequence Learning Workshop, Sixteenth International Joint Conference on Artificial Intelligence*. 1999. CN

## Science Outreach

- SO.1 N. P. Rougier. “Silicon soul: The vain dream of electronic immortality”. In: *The Conversation (US)* (2016).
- SO.2 N. P. Rougier. “Why you’ll never be able to upload your brain to the cloud”. In: *The Conversation (US)* (2016).
- SO.3 N. P. Rougier. “3615 EULA”. In: *Binaires* (2015).
- SO.4 N. P. Rougier. “Esprit in silico : les vains espoirs de l’immortalité”. In: *The Conversation (FR)* (2015).



- SO.5 N. P. Rougier. “Faut-il avoir peur de l’intelligence artificielle ?” In: *Thinkovery* #3 (2015).
- SO.6 N. P. Rougier. “L’intelligence artificielle n’aura pas lieu”. In: *Scilogs* (2015).
- SO.7 N. P. Rougier. “L’intelligence artificielle, mythes et réalités”. In: *Interstices* (2015).
- SO.8 N. P. Rougier. “Pourquoi l’idée de télécharger son cerveau n’a pas de sens”. In: *The Conversation (FR)* (2015).
- SO.9 N. P. Rougier. *Une brève histoire de l’intelligence artificielle*. Pint of Science, Bordeaux, France. 2015.
- SO.10 N. P. Rougier. “Outils et bibliothèques de visualisation”. In: *High Performance Computing* (Nov. 2013).
- SO.11 N. P. Rougier. “Percer les mystères du cerveau”. In: *Interstices* (2013).
- SO.12 N. P. Rougier. “Petite histoire de la cybercriminalité”. In: *Journée pédagogique pour l’ISN* (2013).
- SO.13 A. Rousseau, A. Darnaud, B. Goglin, C. Acharian, C. Leininger, C. Godin, C. Holik, C. Kirchner, D. Rives, E. Darquie, E. Kerrien, F. Neyret, F. Maseglia, F. Dufour, G. Berry, G. Dowek, H. Robak, H. Xypas, I. Illina, I. Gnaedig, J. Jongwane, J. Ehrel, L. Viennot, L. Guion, L. Calderan, L. Kovacic, M. Collin, M.-A. Enard, M.-H. Comte, M. Quinson, M. Olivi, M. Giraud, M. Dorémus, M. Ogouchi, M. Droin, N. Lacaux, N. P. Rougier, N. Roussel, P. Guitton, P. Peterlongo, R.-M. Cornus, S. Vandermeersch, S. Maheo, S. Lefebvre, S. Boldo, T. Viéville, V. Poirel, A. Chabreuil, A. Fischer, C. Farge, C. Vadel, I. Astic, J.-P. Dumont, L. Féjoz, P. Rambert, P. Paradinas, S. De Quatrebarbes, and S. Laurent. *Médiation Scientifique : une facette de nos métiers de la recherche*. Tech. rep. 2013.
- SO.14 N. P. Rougier. “Mémoire vive”. In: *Université* #4 (2011).