Curriculum Vitae

Prof. Pieter Roelf Roelfsema, MD, PhD

Address

Dept. Vision & Cognition
Netherlands Institute for Neuroscience
Meibergdreef 47, 1105 BA Amsterdam, the Netherlands
Tel: +31-20-5664587
Fax: +31-20-5666121
Email: p.roelfsema@nin.knaw.nl

Education

1977-1983	VWO (= gymnasium), Dr. Nassau College, Assen
1983-1987	Student medicine, Rijks Universiteit Groningen
1987-1989	Interrupted studies to do neuroscience
1987-1988	Electrophysiology, Free University Amsterdam (in the group of Prof. de Vlieger)
1988-1989	Electrophysiology, Netherlands Institute for Brain Research (in the group of Prof. Michael Corner)
Aug. 1989	MSc Medicine
1989-1991	Clinical stages, Rijks Universiteit Groningen
Sept. 1991	MD-degree
1991-1995	Work for thesis at the Max-Planck-Institute for Brain Research in Frankfurt, in the group of Prof. W. Singer.
June 1995	PhD (cum laude) University of Amsterdam, title of the thesis: "The functional role of neuronal synchronization in the visual cortex of the cat".

Positions

1995-1997	Postdoc at the Max-Planck-Institute for Brain Research in Frankfurt, Germany, in the group of Prof. W. Singer and (at the same time) postdoc at the University of Amsterdam in the group of Prof. H. Spekreijse.
1997-2002	Fellowship of the Royal Academy of Sciences of the Netherlands, dept. Medical Physics, AMC, University of Amsterdam.
2002-now	Head Dept. “Vision & Cognition”, Netherlands Institute for Neurosciences (NIN, KNAW).
2005-now	Strategic professor Vrije Universiteit, Amsterdam, NL
2007-now	Director of the Netherlands Institute for Neuroscience (NIN, KNAW)
2012-now	Strategic professor AMC, Amsterdam, NL
2014-now	Member National Committee on Animal Experiments in the Netherlands
2017-now	Chairman of NeuroTech-NL, a consortium within the top-sector Life Science and Health
2019-now	Co-founder of Phosphoenix, a company that aims to build a visual cortical prosthesis for the blind.

Awards

1995 PhD, *Cum Laude*
1996 Binkhorst award
1997 KNAW junior award
2008 NWO VICI award
2013 ERC advanced award

Honors

2005-2010 Membership Dutch Young Academy
2009-now Elected member INS (International Neuropsychology Symposium)
2012 Q&A Current Biology, vol. 22, R177-178
2018-now Member Koninklijke Hollandsche Maatschappij der Wetenschappen
2021 Rank price lecture ECVP

Committee work

2005-2010 Membership steering committee KNAW committee for Cognitive Science
2005-2010 Member of the jury for the Heineken Award in Cognitive Science
2009 Member Jury KNAW education price
2010 Member of the jury for the Heineken Young Scientists Award in Cognitive Science
2011 Member of the Attention & Performance Advisory Council
2012-2016 Member Committee on Animals in Research (CARE) of the FENS
2013-2018 Member Scientific Advisory Board of the Supercomputing and Modeling for the Human Brain (SMHB), Juelich (Germany)
2016-2019 Member Committee on Animals in Research (CAR) of the Society for Neuroscience (SfN)
2019-now Next Generation & Science Educator Awards Selection Committee (SfN).

Grants

Fellowship Netherlands Royal Academy of Arts and Science, 1997 (Hfl 350.000)
McDonnell-Pew Program in Cognitive Neuroscience, 1999 ($ 150.000)
Fellowship Netherlands Royal Academy of Arts and Science, 1999 (Hfl 300.000)
HFSP young investigator grant, 2001 ($ 275.000)
NWO-ALW, “Binding of shapes and locations in the visual cortex”, P. R. Roelfsema 2003-2006 (€ 180.000)
NWO-Exact, “A pyramid algorithm for contour grouping”, P. R. Roelfsema, 2005-2009 (€ 165.000)
EU-grant, 2005 “Decisions in motion”, M. Greenlee, H. Neumann, G. Deco, G.W. Humphreys, P.R. Roelfsema, S. Thorpe, P. West, P. Roland, A. Frisoli, 2006-2008, € 260.000 (for Roelfsema lab)
KNAW, 2006 Upgrade macaque facility M€ 3.100
NWO-ALW, “How the activity visual neurons becomes visible” ”, P. R. Roelfsema, 2007-2010 (€ 246.000)
NWO-MaGW, VICI grant “The inner structure of cognitive networks”, P. R. Roelfsema, 2008-2013 (€ 1.250.000)

HFSP project grant “The brain’s Turing machine”, 2007-2010 with S. Dehaene, W. Vanduffel, K. Shapiro, and M. Sigman, ($270.000 for Roelfsema lab)

NWO-MaGW, Open Competition “Perceptual grouping in natural images”, 2010-2014 (€ 209.500)

NWO-Cognition, “How do neurons in the visual cortex code motivation? A multidisciplinary approach: from mice to humans” 2010-2014 with C. M. A. Pennartz (€ 250.000 for Roelfsema lab)

FET Flagship Coordination Action for a flagship entitled RoboCom (2011) Coordinator for the Neuroscience activities within the flagship proposal (€ 50.000 for these coordination activities).

FP7 – Initial Training Network “Adaptive Brain Computations” 2011-2014 with Z. Kourtzi, R. Goebel, I. Gutberlet, S. Panzeri, R. Vogels, H. Johansen-Berg, M. Giese, S. Debener (~€ 200.000 for Roelfsema lab)

FP7 - BrainScales Enlarged, 2011-2014 with G. Masson, G. Einevoll, Z. Kisvarday, D. Lester. M. Lengyel, S. Furber (€ 108.000 for Roelfsema lab)

FP7 - Erasmus Mundus NeuroTime. 2011-2014 (~€ 150.000 for Roelfsema lab)

NWO-ALW, “The neuronal mechanisms for complex decisions in the visual cortex”, P. R. Roelfsema & Jeannette Lorteije, 2013-2017 (€ 336.000)

Human Brain Project grant “Large-scale and sub-millimeter functional comparisons between human and non-human primates” with Wim Vanduffel, Rainer Goebel and Elia Formisano (€ 108.000).

ERC Advanced Grant “Cortical algorithms for perceptual grouping”, 2014-2019 (€ 2.500.000)

KNAW 3R-fund, 2013, mouse enrichment cages (€ 33.000)

NWO Natural Artificial Intelligence, 2014-2019 (€ 219.170) “REASON: REward-bAsed learning of SubrOutines by Neural networks”.

Visiting Professors Programme KNAW, Heiko Neumann, 2015-2016 (€ 5.000)

Flag-ERA CHAMPmouse with Alexander Heimel, 2016-2019 (€ 250.000)

Human Brain Project SP2, SGA1, 2016-2018 (€ 80.000)

Human Brain Project SP3, SGA1 with Christiaan Levelt, 2016-2018 (€ 460.000; €230.000 for Roelfsema lab)

STW-Perspectief “NESTOR, NEural STimulation fOr Recovery of function”, 2017-2021 (€ 2.600.000; €1.370.000 for Roelfsema lab) with Rainer Goebel, Richard van Wezel, Marcel van Gerven and Mark Bentum

KNAW-NWA “The influence of attention and reward on learning in the human brain” 2018-2021 € 260.000 with Serge Dumoulin

Human Brain Project SP2&3, SGA2, 2018-2020 (€ 598.500 for Roelfsema lab)

NWO – Crossover grant “INTENSE: Innovative NeuroTEchNology for SociEty” 2020-2027 (Roelfsema is main PI; € 14.900.000; €3.800.000 for Roelfsema lab)

Human Brain Project SGA3, 2020-2023 (€ 1.400.000 for Roelfsema lab)

FET-Open NeuraViper, “Neural Active Visual Prosthesis for Restoring Function”, 2020-2024 (€ 580.000 for Roelfsema lab)

NWO ENW Klein, “How inhibition puts an image in context” 2020-2024 (€ 350.000 for Roelfsema lab)

Collaborations outside the NIN

1. Prof. Dr. V.A.F. Lamme, Department of Psychology, University of Amsterdam, Amsterdam, The Netherlands
   - The role of area V1 in perceptual organization and attention
2. Prof. Dr. W. Vanduffel, Dept. Radiology Massachusetts General Hospital, Charlestown, USA
   - Interactions between areas of the visual cortex (HFSP grant)
3. Prof. Dr. H. Mansvelder, Dept. Integrative Neuroscience
4. Prof. C.M.A. Pennartz, University of Amsterdam, Amsterdam, the Netherlands
   - Role of the frontal cortex in reinforcement learning and visual routines
5. Prof. Dr. R. Goebel, University of Limburg, Maastricht, the Netherlands
   - Human brain imaging of the relation between working memory and attention
6. Dr. L. Reddy, Dr. H. Baayen, Prof. C. Stam, Prof. H. Mansvelder
   - Single cell recordings in the human cortex
7. Prof. Dr. S. Dehaene, NeuroSpin, Paris
   - Measurement of single units in human patients in story comprehension
8. Prof. Dr. M. Sigman, Buenos Aires
   - Analysis of serial processing during the PRP and decision making
9. Prof. H. Neumann, Ulm
   - Investigation of neurobiologically plausible learning rules
10. Prof. Dr. G. Deco, Barcelona
    - Analysis of neuronal data in learning tasks
11. Dr. S. Bohte, CWI
    - Reinforcement learning models
12. Prof. R. van Wezel, Dr. M van Gerven, Nijmgen, visual prosthesis
13. Dr. Mark Bentum, Technical Univ. Twente, wireless technology
14. Prof. Dr. J. Reynolds, Salk Institute
    - Collaboration through a Marie-Curie grant of Dr. T Franken.

Reviewer

Journals

Acta Psychologica, Biological Psychology, Cell, Cell Reports, Cerebral Cortex, Current Biology, Current Directions in Psychological Science, European Journal of Neuroscience, Experimental Brain Research, International Joint Conference on Neural Networks, Journal of Comparative Neurology, Journal of Experimental Psychology: Human Perception and Performance, Journal of Neurophysiology, Journal of Neuroscience, Journal of Neuroscience Methods, Journal of Vision, Nature, Nature Human Behaviour, Nature Neuroscience, Naturwissenschaften, NeuroImage, Neuron, Perception & Psychophysics, PLoS Biology, Psychological Science, Science, Scientific Reports, Vision Research, Visual Cognition, Trends in Cognitive Sciences.

Granting agencies

BELSPO (Belgium), Biotechnology and Biological Sciences Research Council (UK), National Science Foundation (USA), NWO–MaGW (Netherlands), The Wellcome Trust (UK), ERC starting grant, ERC consolidator grant, Israel Science Foundation.

Conference abstracts
ECVP

Teaching

I have considerable experience guiding graduate students, PhD-students and postdocs. I gave invited lectures at more than 10 "summer/autumn/winter/spring schools including a regular, two-yearly lecture at the summerschool Visual Neuroscience that is held in Rauischholzhausen, Germany. Each year I give lectures about the visual system at the University of Amsterdam and about reinforcement learning in the course "Computational Neuroscience" at the faculty earth and life sciences of the Free University of Amsterdam. I give additional lectures in yearly and two-yearly courses, for example in those that are organized by the ONWAR, which is a collaboration between research institutes and universities in Amsterdam and Rotterdam.

Membership

-Federation of European Neuroscience Societies
-The Society for Neuroscience

Symposia & Conferences

(Co-) organiser of the following symposia:

1. Third Annual Vision Research Conference, Ford Lauderdale USA, May, 1999
2. 31st Annual Meeting of the Society for Neuroscience, San Diego, Nov 2001
3. 35th European Brain and Behavior Society (EBBS), Barcelona (Spain) 2003
4. 23rd International Summerschool of Brain Research, Amsterdam, June 2003
5. Symposium 'Cognition' of The Dutch Young Academy, March 2006
6. Academy Colloquium 'Perceptual learning, Motor learning and Automaticity', Dec. 2008
7. 26th International Summer school of Brain Research, `Slow brain oscillations` Amsterdam, June 2010
8. Motivation & Vision Symposium, University of Amsterdam & Netherlands Inst. Neuroscience-KNAW, June 2011.
9. SFN Meeting San Diego, Symposium "Neurotransmitter Receptors for Visual Cognition in Primates", Nov 2013.
10. INS Meeting, Viareggio (Italy), "The mystery of feedback", June 2014
11. HBP Meeting "Feedforward and feedback processing: anatomy, function and physiology", Paris (France), April 2017.
12. KNAW Academy Symposium, Amsterdam (Chair), "Deep learning in the brain", May 2019.
13. FENS Summer school (Chair), "Brain reading and writing: new perspectives of neurotechnology" Bertinoro (Italy), June 2019.

Thesis

I have supervised the following thesis:

Paul Khayat, Attention and eye movements during contour grouping, UvA, December 2004

(co-supervised with Prof. H. Spekreijse)

Rozemarijn Houtkamp, Perceptual grouping and selective attention, UvA, July 2007 (co-supervised with Prof. V.A.F. Lamme)

Judith Peters, Top-down control of visual attention and its reflection in human visual cortex, October 2007 (co-supervised with Prof. R Goebel)

Arezoo Pooresmaeili, Neuronal basis of visual perception and attention in visual and frontal cortex, April 2010

Jasper Poort, Attentional modulation of neural populations distributed across the visual cortical hierarchy, May 2012

Liviu Stanisor, Coding of object significance and reward in the visual and frontal cortex, September 2012

Jaldert Rombouts, Biologically plausible reinforcement learning, September 2015

Timo van Kerkoerle, Feedforward and Feedback Processing in Monkey Visual Cortex, December 2015

Danique Jeurissen, Perceptual grouping of complex objects in the primate system, March 2016

Bruno Dagnino, Cortical activity that enters into awareness: the role of feedforward and feedback connections, Nov 2016

Roxana Kooijmans, Inhibitory interneurons of macaque primary visual cortex, Dec 2016

Marie-Alice Gariel-Mathis, Connectivity and processing in the macaque cerebral cortex, 11 January 2017

Bram van Vugt, Hierarchical information processing in the visual system, February 9th 2018.

Devavrat Vartak, Influence of attention on perception, learning, memory and awareness, June 25th 2018.

Ulf Schabel, Contextual effects on visual perception, May 18th 2021.

Supervision

I have supervised the following post-docs (and junior researchers), Matthew Self, Chris Klink, Areg Barsegyan, Catherine Wacongne, Xing Chen, Antonio Lozano, Bingshuo Li, Paolo Papale, Chris van der Togt, Jillian Fecteau, Sancho Moro, Brian Ouelette, Joris Vangeneugten, Aurel Wannig, Ariel Zylberberg, Jeannette Lorteije and Jonathan Williford.

Valorization

2010 Lecture for the Amsterdam Innovation Motor in the 'Life science café'

2016- Coordinator of NeuroTech-NL a consortium of Neuroscientists, neurologists, psychiatrists, neurosurgeons, and patient organizations aiming to promote interfaces with the nervous system within the "topsector" policy of the Dutch government.

2017 15 February, Organizer of the kick-off meeting of NeuroTech-NL at the AMC.

Patent

A neuroprosthetic system and method for substituting a sensory modality of a mammal by high-density stimulation of a regions of the cerebral cortex. Roelfsema, P.R. and Chen, X. WO 2020/043790 A1

SCI Publications

1. Van den Bogert, C., Holtrop, M., Melis, T., Roelfsema, P.R. & Kroon, A.M. (1987) Different effects of oxytetracycline and doxycycline on mitochondrial protein synthesis in rat liver after long-term treatment. *Biochem. Pharmacol., 36,* 1555-1559.

2. Roelfsema, P.R., König, P., Engel, A. K., Sireteanu, R. & Singer, W. (1994) Reduced neuronal synchronization in the visual cortex of cats with strabismic amblyopia. *European Journal of Neuroscience, 6,* 1645-1655.

3. König, P., Engel, A.K., Roelfsema, P.R. & Singer, W. (1995) How precise is neuronal synchronization? *Neural Computation, 7,* 469-485.

4. Roelfsema, P.R., Engel, A.K., König, P. & Singer, W. (1996) The role of neuronal synchronization in response selection: a biologically plausible theory of structured representations in the visual cortex, *Journal of Cognitive Neuroscience, 8*, 603-625.

5. Munk, M.H.J., Roelfsema, P.R., König, P., Engel, A.K., & Singer, W. (1996) Role of reticular activation in the modulation of intracortical synchronization. *Science, 272*, 271-274.

6. Singer, W., Kreiter, A.K., Engel, A.K., Fries, P., Roelfsema, P.R. & Volgushev, M. (1996) Precise timing of neuronal discharges within and across cortical areas: Implications for synaptic transmission. *Journal of Physiology (Paris)*, *90*, 221-222.

7. Engel, A.K., Roelfsema, P.R., Fries, P., Brecht, M. & Singer, W. (1997) Role of temporal domain for response selection and perceptual binding. *Cerebral Cortex, 7,* 571-582.

8. Engel, A.K., Roelfsema, P.R., Fries, P., Brecht, M., Singer, W. (1997). Binding and response selection in the temporal domain - a new paradigm for neurobiological research. *Theory in Biosciences, 116*, 241-266.

9. Fries, P., Roelfsema, P.R., Engel, A. K., König, P. & Singer, W. (1997) Synchronization of oscillatory responses in visual cortex correlates with perception in interocular rivalry. *Proc. Natl. Acad. Sci. USA, 94*, 12699-12704.

10. Roelfsema, P.R., Engel, A.K., König, P. & Singer, W. (1997) Visuomotor integration is associated with zero time-lag synchronization among cortical areas. *Nature, 385*, 157-161.

11. Singer, W., Engel, A.K., Kreiter, A.K., Munk, M.H.J., Neuenschwander, S. & Roelfsema, P.R. (1997) Neuronal assemblies: necessity, significance, and detectability. *Trends in Cognitive Sciences, 1*, 252-261.

12. Roelfsema, P.R. & Singer, W. (1998) Detecting connectedness, *Cerebral Cortex, 8,* 385-396.

13. Roelfsema, P.R. (1998) Solutions for the binding problem. *Zeitschrift für Naturforschung C, 53,* 691-715.

14. Roelfsema, P.R., Lamme, V.A.F. & Spekreijse, H. (1998) Object-based attention in the primary visual cortex of the macaque monkey. *Nature, 395,* 376-381.

15. Roelfsema, P.R., Scholte, S. & Spekreijse, H. (1999) Temporal constraints on the grouping of contour segments into spatially extended objects. *Vision Research, 39,* 1509-1529.

16. Bohte, S., Spekreijse, H. & Roelfsema, P.R. (2000) The effects of pair-wise and higher order correlations on the firing rate of a post-synaptic neuron. *Neural Computation, 12*, 153-179.

17. Lamme, V.A.F., Supèr, H., Landman, R., Roelfsema, P.R. & Spekreijse, H. (2000) The role of primary visual cortex (V1) in visual awareness. *Vision Research,40,* 1507-1521.

18. Lamme, V.A.F. & Roelfsema, P.R. (2000) The distinct modes of vision offered by feedforward and recurrent processing. *Trends in Neuroscience, 23,* 571-579.

19. Roelfsema, P.R., Lamme, V.A.F. & Spekreijse, H. (2000) The implementation of visual routines. *Vision Research, 40,* 1385-1411.

20. Roelfsema, P.R. & Lamme, V.A.F. (2001) Which brain mechanism cannot count beyond four? *Behavioral & Brain Sciences, 24,* 142-143.

21. Roelfsema, P.R. & Spekreijse, H. (2001) The representation of erroneously perceived stimuli in the primary visual cortex. *Neuron 31,* 853-863.

22. Scholte, H.S., Spekreijse, H. & Roelfsema, P.R. (2001) The spatial profile of visual attention in mental curve tracing. *Vision Research, 41*, 2569-2580.

23. Fries, P., Schröder, J.-H., Singer, W., Roelfsema, P.R., Engel, A.K. (2002) Oscillatory neuronal synchronization in primary visual cortex as a correlate of perceptual stimulus selection. *J. Neurosci., 22,* 3739-3754.

24. Roelfsema, P.R. (2002) Do neurons predict the future? *Science, 295,* 227.

25. Roelfsema, P.R., Lamme, V.A.F., Spekreijse, H. & Bosch, H. (2002) Figure-ground segregation in a recurrent network architecture. *Journal of Cognitive Neuroscience, 14,* 525-537.

26. Schröder, J.-H., Fries,P., Roelfsema, P.R., Singer, W., Engel, A.K. (2002). Ocular dominance in extrastriate cortex of strabismic amblyopic cats, *Vision Res*., 42, 29-39.

27. Houtkamp, R., Spekreijse, H. & Roelfsema, P.R. (2003) The cause of delays in contour integration. *Perception & Psychophysics*, 65, 1136-1144.

28. Roelfsema, P.R., Khayat, P. S. & Spekreijse, H. (2003) Subtask sequencing in the primary visual cortex. *Proc. Natl. Acad. Sci. USA*, 100, 5467-5472.

29. Roelfsema, P.R. & Supèr, H. (2003) Why do schizophrenic patients hallucinate? *Behavioral & Brain Sciences*, 26, 101-103.

30. Khayat, P.S., Spekreijse, H. & Roelfsema, P.R. (2004). Visual information transfer across eye movements in monkey. *Vision Res., 44*, 2901-2917.

31. Khayat, P.S., Spekreijse, H. & Roelfsema, P.R. (2004). Correlates of transsaccadic integration in the primary visual cortex. *Proc. Natl. Acad. Sci. USA, 101*, 12712-12717.

32. Roelfsema, P.R., Lamme, V.A.F. & Spekreijse, H. (2004) Synchrony and covariation of firing rates in the primary visual cortex during contour grouping. *Nature Neurosci., 7,* 982-991.

33. Supèr, H. & Roelfsema, P.R. (2005) Chronic multi-unit recordings in behaving animals:

advantages and limitations *Prog. Brain Res*., 147, 263-282.

34. Roelfsema, P.R., (2005) Elemental operations in vision, *Trends in Cognitive Sciences*, 9, 226-233.

35. Roelfsema, P.R. & Van Ooyen, A. (2005) Attention-gated reinforcement learning of internal representations for classification, *Neural Computation*, 17, 2176-2214.

36. Houtkamp, R. & Roelfsema, P.R. (2006) The effect of items in working memory on the deployment of attention and the eyes during visual search*. J. Exp. Psychol.: Human Percept. Perform*., 32, 423-442.

37. Khayat, P.S., Spekreijse, H. & Roelfsema, P.R. (2006) Attention lights up new object representations before the old ones fade away. *J. Neurosci*, 26, 138-142.

38. Roelfsema, P.R. (2006) Cortical algorithms for perceptual grouping. *Annu. Rev. Neurosci.*, *29*, 203-227.

39. Van Ooyen, A. & Roelfsema, P.R. (2006) Envisioning the reward, [commentary] *Neuron*, 50, 188-190.

40. Self, M. & Roelfsema, P.R. (2007) A field of dreams [book review], *Trends in Cognitive Sciences, 11*, 6-7.

41. Jehee, J., Lamme, V.A.F. & Roelfsema, P.R. (2007) Boundary assignment in a recurrent network architecture, *Vision Res*., *47*, 1153-65.

42. Jehee, J., Roelfsema, P.R., Deco, G., Murre, J.M.J. & Lamme, V.A.F. (2007) Interactions between higher and lower visual areas improve shape selectivity of higher level neurons – explaining crowding phenomena, *Brain Res.*, 1157, 167-176.

43. Roelfsema, P.R., Tolboom, M. & Khayat, P.S. (2007) Different processing phases for features, figures and selective attention in the primary visual cortex. *Neuron*, *56*, 785-792.

44. Ekstrom, L.B., Roelfsema, P.R., Arsenault, J.T., Bonmassar, G. & Vanduffel, W. (2008) Bottom-up dependent gating of frontal signals in early visual cortex, *Science, 321*, 414-417.

45. Poort, J. & Roelfsema, P.R. (2009) Noise correlations have little influence on the coding of selective attention in area V1. *Cerebral Cortex, 19,* 543-553.

46. Houtkamp, R. & Roelfsema, P.R. (2009) Matching of visual input to only one item in working memory at any one time. *Psych. Res., 73*, 317–326.

47. Khayat, P.S., Pooresmaeili, A. and Roelfsema, P.R. (2009) Time-course of attentional modulation in the frontal eye field during curve-tracing, *J. Neurophysiol*., *101*, 1813-1822.

48. Peters, J.C., Goebel, R. & Roelfsema, P.R. (2009) Remembered but unused: the accessory items in working memory that do not guide attention. *J. Cognit. Neurosci.*, *21*, 1081-1091.

49. Fecteau, J.H., Korjoukov, I., & Roelfsema, P.R. (2009) Statistical learning reveals that locations biases exert a general benefit in selective attention, whereas color biases produce an object specific advantage, *Vision Res*., *49,* 996-1005.

50. Ekstrom, L., Roelfsema, P.R., Arsenault, J., Kolster, H. and Vanduffel, W. (2009) Modulation of the contrast response function by electrical microstimulation of the macaque frontal eye field, *J. Neurosci.*, 29, 10683–10694.

51. Thiele, A., Pooresmaeili, A. Delicato, L.S. Herrero, J. and Roelfsema, P.R. (2009) Additive effects of attention and stimulus contrast in primary visual cortex, *Cerebral Cortex*, *19*, 2970-2981.

52. Fecteau, J. H., Roelfsema, P.R., De Zeeuw, C. I. and Kousta, S. (2010) Perceptual learning, motor learning, and automaticity [series introduction], *Trends in Cognitive Sciences, 14,* 1.

53. Roelfsema, P.R., van Ooyen, A. & Watanabe, T. (2010) Perceptual learning rules based on reinforcers and attention. *Trends in Cognitive Sciences, 14*, 64-71.

54. Roelfsema, P.R., Houtkamp, R. and Korjoukov, I. (2010) Further evidence for the spread of attention during contour grouping: A reply to Crundall, Dewhurst & Underwood (2008), *Attention, Perception and Psychophysics, 72,* 849-862.

55. Zylberberg, A., Fernández Slezak, D., Roelfsema, P.R., Dehaene, S. and Sigman, M. (2010) The brain's router: a cortical network model of serial processing in the primate brain. *PLoS Computational Biology, 6,* e1000765.

56. Self, M.W. and Roelfsema, P.R. (2010) Monocular cueing reveals unconscious components of attention, *Journal of Vision, 10(4):17*, 1–22.

57. Pooresmaeili, A., Poort, J., Thiele, A. and Roelfsema, P.R. (2010) Separable codes for attention and luminance contrast in the primary visual cortex. *J. Neurosci.,* 30*,* 12701–12711.

58. Pooresmaeili, A., Herrero, J.L. Self, M.W., Roelfsema, P.R. and Thiele, A. (2010) Suppressive lateral interactions at parafoveal representations in primary visual cortex. *J. Neurosci.,* 30*,*12745–12758.

59. Moro, S.I., Tolboom, M., Khayat, P.S. and Roelfsema, P.R. (2010) Neuronal activity in the visual cortex reveals the temporal order of cognitive operations. *J. Neurosci*., 30, 16293-16303.

60. Houtkamp, R. & Roelfsema, P.R. (2010) Parallel and serial grouping of image elements in visual perception. *Journal of Experimental Psychology: Human Perception and Performance* 36, 1443-1459.

61. Roelfsema, P.R. (2011) Attention: Voluntary control of brain cells, *Science, 332*, 1512-1513.

62. Zylberberg, A., Dehaene, S., Roelfsema, P.R. and Sigman, M. (2011) The human turing machine: a neural framework for mental programs. *Trends in Cognitive Sciences, 15*, 293-300.

63. Olivers, C.N., Peters, J., Houtkamp, R. and Roelfsema, P.R. (2011) Different states in working memory: When it guides attention and when not. *Trends in Cognitive Sciences, 15*, 327-334.

64. Van Someren, E.J.W., van der Werf, Y.D., Roelfsema, P.R., Mansvelder, H.D. and Lopes da

Silva, F.H. (2011) Slow brain oscillations of sleep, resting state and vigilance. *Prog. Brain Res*., 193, 3-15.

65. Wannig, A., Stanisor, L. and Roelfsema, P.R. (2011) Automatic spread of attentional response modulation according to Gestalt criteria in primary visual cortex. *Nature Neurosci., 14,* 1243-1244.

66. Lefebvre, C., Dell'Acqua, R., Roelfsema, P. R. and Jolicœur, P. (2011) Surfing the attentional waves during visual curve tracing: Evidence from the sustained posterior contralateral negativity. *Psychophysiology*, 48, 1509-1515.

67. Roelfsema, P.R. and Houtkamp, R. (2011) Incremental grouping of image elements in vision. *Attention, Perception & Psychophysics*, 73, 2542-2572.

68. Self, M.W., Voitcu, R.N., Supèr, H., Lamme, V. and Roelfsema, P.R. (2012) Different contributions of glutamate receptors to figure-ground modulation and visually driven activity in primary visual cortex. *Proc. Natl. Acad. Sci. USA*, 109, 11031–11036.

69. Poort, J., Raudies, F., Wannig, A., Lamme, V.A.F., Neumann, H. and Roelfsema, P.R. (2012) The role of attention in figure-ground segregation in areas V1 and V4 of the visual cortex. *Neuron*, 75, 143-156.

70. Premereur, E., Vanduffel, W., Roelfsema, P.R. and Janssen, P. (2012) Frontal eye field microstimulation induces task-dependent gamma oscillations in the lateral intraparietal area. *J. Neurophysiol*., *108*, 1392–1402.

71. Self, M.W. and Roelfsema P.R. (2012) [commentary] Optogenetics: Eye movements at light speed. *Curr. Biol. 22*, R804-806

72. Zylberberg, A., Ouellette, B., Sigman, M. and Roelfsema, P.R. (2012) Decision making during the psychological refractory period. *Curr. Biol. 22*, 1795-1799.

73. Peters, J.C., Roelfsema, P.R. and Goebel, R. (2012) Task-relevant and accessory items in working memory have opposite effects on representations in extrastriate cortex. *J. Neurosci*. 32, 17003–17011.

74. Korjoukov, I., Jeurissen, D.J.J.D.M., Kloosterman, N.A., Verhoeven, J.E., Scholte, H.S. and Roelfsema, P.R. (2012) The time-course of perceptual grouping in natural scenes. *Psych. Sci.* 23, 1482-1489.

75. Jeurissen, D., Self, M.W. and Roelfsema, P.R. (2013) Surface reconstruction, figure-ground modulation, and border-ownership. *Cognit. Neurosci.* 4, 50-52.

76. Watson, P., Korjoukov, I., Vartak, D. and Roelfsema, P.R. (2013) Luminance contrast has little influence on the spread of object-based attention. *Vision Res.* 85, 90-103.

77. Stanisor, L., van der Togt, C., Pennartz, C.M.A. and Roelfsema, P.R. (2013) A unified selection signal for attention and reward in primary visual cortex. *Proc. Natl. Acad. Sci. USA* 110, 9136–9141 [Faculty1000: recommended as being of special significance by Matteo Carandini].

78. Goltstein, P., Coffey, E.B., Roelfsema, P.R. and Pennartz, C.A.M. (2013) In vivo two-photon Ca2+ imaging reveals selective reward effects on stimulus specific assemblies in

mouse visual cortex. *J. Neurosci.* 33 11540-11555.

79. Zylberberg, A., Paz, L., Roelfsema, P.R., Dehaene, S. and Sigman, M. (2013) A neuronal device for the control of multi-step computations. *Papers in Physics,* 5, 050006.

80. Self, M.W., van Kerkoerle, T., Supèr, H. and Roelfsema, P.R. (2013) Distinct roles of the cortical layers of area V1 in figure-ground segregation, *Curr. Biol.,* 23, 2121-2129.

81. Pooresmaeili, A., Poort, J. and Roelfsema, P.R. (2014) Simultaneous selection by object-based attention in visual and frontal cortex, *Proc. Natl. Acad. Sci. USA,* 111, 6467–6472.

82. Kooijmans, R.N., Self, M.W., Wouterlood, F.G., Beliën, J.A.M. and Roelfsema P.R. (2014) Inhibitory interneuron classes express complementary AMPA-receptor patterns in macaque primary visual cortex. *J. Neurosci*., 34, 6303– 6315.

83. Zylberberg, A., Roelfsema, P.R. and Sigman, M. (2014) Variance misperception explains illusions of confidence in simple perceptual decisions. *Consciousness and Cognition*, 27, 246-253.

84. Roelfsema, P.R. and Treue, S. (2014) Basic neuroscience research with non-human primates - a small but indispensable component of biomedical research. *Neuron*, 82, 1200-1204.

85. Self, M.W., Lorteije, J.A.M., Vangeneugden, J., van Beest, E.H., Grigore, M.E., Levelt, C., Heimel, J.A. and Roelfsema, P.R. (2014) Orientation-tuned surround suppression in mouse visual cortex. *J. Neurosci*. 34, 9290-9304.

86. van Kerkoerle, T., Self, M.W., Dagnino, B., Gariel-Mathis, M.-A., Poort, J., van der Togt, C. and Roelfsema, P.R. (2014) Alpha and gamma oscillations characterize feedback and feed-forward processing in monkey visual cortex, *Proc. Natl. Acad. Sci. USA*. 111, 6467-6472.

87. Pooresmaeili, A. and Roelfsema, P.R. (2014) A growth-cone model for the spread of object-based attention during contour grouping, *Curr. Biol.* 24, 2869-2877.

88. Nienborg H. and Roelfsema, P.R. (2015) Belief states as a framework to explain extra-retinal influences in visual cortex, *Curr. Opin. Neurobiol.* 32, 45–52.

89. Dagnino, B., Gariel-Mathis, M.-A. and Roelfsema, P.R. (2015) Microstimulation of area V4 has little effect on spatial attention and on the perception of phosphenes evoked in area V1, *J. Neurophysiol*., 113: 730–739.

90. Self, M.W., Mookhoek, A., Tjalma, N. and Roelfsema, P.R. (2015) Contextual effects on perceived contrast: figure-ground assignment and orientation contrast, *J. Vision*. 15(2):2, 1–21.

91. Rombouts, J.O., Bohte, S.M. and Roelfsema, P.R. (2015) How attention creates synaptic tags for learning sequential tasks, *PLoS Comput Biol*. *11,* e1004060. doi:10.1371/journal.pcbi.1004060.

92. Self, M.W. and Roelfsema, P.R. (2015) [commentary] Scene perception in early vision: figure-ground organization in the lateral geniculate nucleus, *Proc. Natl. Acad. Sci. USA*. 112, 6784-6785.

93. Rombouts, J.O. Bohte, S.M. Martinez-Trujillo, J. and Roelfsema, P.R. (2015) A learning rule that explains how rewards teach attention, *Visual Cognition* 23, 179–205.

94. Lorteije, J.A.M., Zylberberg, A., Ouellette, B.G., De Zeeuw, C.I., Sigman, M. and Roelfsema, P.R. (2015) The formation of hierarchical decisions in the visual cortex. *Neuron*, 87, 1344–1356 [preview in *Neuron* by Connor & Stuphorn].

95. Reddy, L., Poncet, M., Self, M.W., Peters, J.C., Douw, L., van Dellen, E., Claus, S., Reijneveld, J.C., Baayen, J.C. and Roelfsema, P.R. (2015) Learning of anticipatory responses in single neurons of the human medial temporal lobe. *Nature Communications* 6:8556, doi 10.1038/ncomms9556.

96. Brosch, T., Neumann, H. and Roelfsema, P.R. Reinforcement learning of linking and tracing contours in recurrent neural networks (2015), *PLoS Comput Biol*. *11(10):* e1004489. doi:10.1371/journal.pcbi.1004489.

97. Self, M.W., Peters, J.C., Possel, J.K., Reithler, J., Goebel, R., Ris, P., Jeurissen, D., Reddy, L., Claus, S., Baayen, H. and Roelfsema, P.R. (2016) The effects of context and attention on spiking activity in human early visual cortex. *PLoS Biology* 14 (3), e1002420.

98. Jeurissen, D., Self, M.W. and Roelfsema, P.R. (2016) Serial grouping of 2D-image regions with object-based attention in humans, *eLife 5*, e14320.

99. Klink, P.C. and Roelfsema, P.R. (2016) [commentary] Binocular rivalry outside the scope of awareness, *Proc. Natl. Acad. Sci. USA*. 113, 8352–8354, doi: 10.1073/pnas.1609314113.

100. van der Togt, C., Stănişor, L., Pooresmaeili, A., Albantakis, L., Deco, G. and Roelfsema, P.R. (2016) Learning a new selection rule in visual and frontal cortex. *Cereb. Ctx.* 26, 3611–3626, doi: 10.1093/cercor/bhw155.

101. Poort, J., Self, M.W., van Vugt, B., Malkki, H. and Roelfsema, P.R. (2016) Texture segregation causes early figure enhancement and later ground suppression in areas V1 and V4 of visual cortex, *Cereb. Ctx*. 26, 3964–3976, doi: 10.1093/cercor/bhw235

102. Roelfsema, P.R. and de Lange, F.P. (2016) Early visual cortex as a multi-scale cognitive blackboard. *Annu. Rev. Vision Sci.* 2, 131-151.

103. Self, M.W. and Roelfsema, P.R. (2017) Paying attention to the cortical layers [preview] *Neuron* 93*,* 9-11.

104. van Kerkoerle, T., Self, M.W. and Roelfsema, P.R. (2017) Layer specificity in the effects of attention and working memory on neuronal activity in primary visual cortex. *Nature Communications* 8:13804, DOI: 10.1038/ncomms13804 [spotlight in *TINS* by Muckli & Petro, 2017].

105. Christophel, T.B., Klink, P.C., Spitzer, B., Roelfsema, P.R. and John-Dylan Haynes (2017) The distributed nature of working memory. *Trends in Cognitive Sciences. 21*, 111-124*.*

106. Self, M.W. and Roelfsema, P.R. (2017) Out of sight but not out of mind [dispatch], *Curr. Biol.* 27, R259–271.

107. Zylberberg, A., Lorteije, J.A.M., Ouellette, B.G., De Zeeuw, C.I., Sigman, M. and

Roelfsema, P.R. (2017) Serial, parallel and hierarchical decision-making in primates. *eLife* 6, e17331. DOI: 10.7554/eLife.17331.

108. Chen, X., Possel, J.K., Wacongne, C. van Ham, A., Klink, P.C. and Roelfsema, P.R. (2017) 3D printing and modelling of customized implants and surgical guides for non-human primates. *J. Neurosci. Methods* 286, 38-55.

109. Klink, P.C., Dagnino, B., Gariel-Mathis, M.-A. and Roelfsema, P.R. (2017) Distinct feedforward and feedback effects of microstimulation in visual cortex reveal neural mechanisms of texture-segregation, *Neuron* 95, 209-220.

110. Klink, P.C., Boucherie, D., Denys, D. Roelfsema, P.R. & Self, M.W. (2017) Interocularly merged face percepts eliminate binocular rivalry. *Sci. Rep.* 7, 7585, DOI:10.1038/s41598-017-08023-9.

111. Vartak, D., Jeurissen, D., Self, M.W. and Roelfsema, P.R. (2017) The influence of attention and reward on the learning of stimulus-response associations. *Sci. Rep.* 7, 9036, DOI:10.1038/s41598-017-08200-w

112. Vartak, D., van der Togt, C., van Vugt, B. and Roelfsema, P.R. (2017) Electrochemical measurement of acetylcholine in the dorsolateral prefrontal cortex: a technical report bioRXiv doi: https://doi.org/10.1101/120691

113. Klink, P.C., Jeurissen, D. Theeuwes, J., Denys, D. and Roelfsema, P.R. (2017) Working memory accuracy for multiple targets is driven by reward expectation and stimulus contrast with different time-courses. *Sci. Rep.* 7, 9082, DOI: 10.1038/s41598-017-08608-4

114. Roelfsema, P.R. & Holtmaat, A. (2018) Control of synaptic plasticity in deep cortical networks. *Nature Reviews Neuroscience* 19, 166-180.

115. van Vugt, B. Dagnino, B., Vartak, D., Safaai, H., Panzeri, S., Dehaene, S. & Roelfsema, P.R. (2018) The threshold of conscious report: Signal loss and response bias in visual and frontal cortex. *Science* 360, 537-542.

116. Roelfsema, P.R., Denys, D. & Klink, P.C. (2018) Mind reading and writing: the future of neurotechnology, *Trends in Cognitive Sciences* 22, 598-610.

117. Roelfsema, P.R. & Holtmaat, A. [reply] (2018) Feedback connections: do they convey signed or unsigned signals to gate plasticity? *Nature Reviews Neuroscience 19*, 637-638.

118. Milham, M.P., Ai, L., Koo, B., Xu, T., Amiez, C., Balezeau, F. Baxter, M.G. Brochier, T., Chen, A. Croxson, P.L., Damatac, C.G., Dehaene, S., Everling, S., Fair, D.A. Fleysher, L., Freiwald, W. Froudist-Walsh, S., Griffiths, T.D., Guedj, C., Hadj-Bouziane, F., Ben Hamed, S., Harel, N., Hiba, B., Jarraya, B., Jung, B., Kastner, S., Klink, P.C., Kwok, S.C., Leopold, D.A., Mars, R.B., Menon, R.S., Messinger, A., Meunier, M., Mok, K., Morrison, J.H., Nacef, J., Nagy, J., Rios, M.O., Petkov, C.I., Pinsk, M., Poirier, C., Procyk, E., Rajimehr, R., Roelfsema, P.R., Rudko, D.A., Rushworth, M.F.S., Russ, B.E., Sallet, J., Schmid, M.C., Schwiedrzik, C.M., Seidlitz, J., Sein, J., Shmuel, A., Sullivan, E.L., Ungerleider, L., Thiele, A., Tsao, D., Wang, Z., Wilson, C.R.E., Yacoub E., Ye, F.Q., Zarco, W., Zhou, J.-d., Margulies, D.S. & Schroeder, C.E. (2018) An open resource for non-human primate imaging, *Neuron 100*, 61-74.

119. Schnabel, U.H., Bossens, C., Lorteije, J.A.M., Self, M.W., Op de Beeck, H. and Roelfsema, P.R. (2018) Figure-ground perception in the awake mouse and its neuronal correlates in the primary visual cortex. *Sci. Rep. 8.* 17800, DOI: 10.1038/s41598-018-36087-8

120. Self, M.W., van Kerkoerle, T., Goebel, R. and Roelfsema, P.R. (2019) Benchmarking laminar fMRI: Neuronal spiking and synaptic activity during top-down and bottom-up processing in the different layers of cortex. *NeuroImage 197*, 806-819.

121. Self, M.W., Jeurissen, D., van Ham, A.F., van Vugt, B., Poort, J. and Roelfsema, P.R. (2019) The segmentation of proto-objects in monkey primary visual cortex. *Curr. Biol. 29,* 1019-1029.

122. Self, M.W. and Roelfsema, P.R. (2019) [dispatch] Neuroscience: Figured out by feedback to the thalamus. *Curr. Biol. 29,* R574-577.

123. Richards, B.A., Lillicrap, T.P., Beaudoin, P., Bengio, Y., Bogacz, R., Christensen, A., Clopath, C., de Berker, A., Ganguli, S., Gillon, C.J., Hafner, D., Kepecs, A., Kriegeskorte, N., Latham, P., Lindsay, G.W., Miller, K., Naud, R., Pack, C.C., Poirazi, P., Costa, R.P., Roelfsema, P., Sacramento, J., Saxe, A., Schapiro, A., Senn, W., Wayne, G., Yamins, D., Zenke, F., Zylberberg, J., Therien, D. and Kording, K.P. (2019) The essential components of an optimization-based framework for systems neuroscience. *Nature Neurosci. 22,* 1761-1770.

124. Roelfsema, P.R. (2019) Going from neurons to minds [editorial-voices], *Cell 179*, 283-284.

125. Vangeneugden, J., van Beest, E.H., Cohen, M.X., Lorteije, J.A.M., Mukherjee, S., Kirchberger, L., Montijn, J.S., Thamizharasu, P., Camillo, D., Levelt, C.N., Roelfsema, P.R., Self, M.S. and Heimel, J.A. (2019) Activity in lateral visual areas contributes to surround suppression in awake mouse V1, *Curr. Biol. 29,* 1-8, https://doi.org/10.1016/j.cub.2019.10.037

126. Reddy, L., Self, M. and Roelfsema, P.R. (2020) How does our brain link Hansel with Gretel? *Frontiers Young Minds. https://kids.frontiersin.org/article/10.3389/frym.2019.00144*

127. The PRIMatE Data Exchange (PRIME-DE) Global Collaboration Workshop and Consortium,Accelerating the evolution of nonhuman primate neuroimaging (2020), *Neuron 105*, 600-603

128. Mashour, G.A., Roelfsema, P.R. Changeux, J.-P. and Dehaene, S. (2020) Conscious processing and the global neuronal workspace hypothesis, *Neuron 105*, 776-798.

129. van Vugt, B., van Kerkoerle, T., Vartak, D. and Roelfsema, P.R. (2020) The contribution of AMPA and NMDA receptors to persistent firing in the dorsolateral prefrontal cortex in working memory. *J. Neurosci. 40,* 2458-2470.

130. Roelfsema, P.R. Writing to the mind's eye of the blind (2020) [preview] *Cell* 181, 758-759

131. Olivers, C.N.L. and Roelfsema, P.R. (2020) Attention for action in visual working memory. *Cortex 131,* 179-194.

132. Bassett, D.S., Cullen, K.E., Eickhoff, S.B., Farah, M. Goda, Y. Haggard, P., Hu, H., Hurd, Y., Josselyn, S. Khakh, B.S., Knoblich, J. Poirazi, P., Poldrack, R., Prinz, M., Roelfsema, P.R., Spires-Jones, T., Sur, M. and Ueda, H. (2020) [invited article] Reflections on the past decades of neuroscience, *Nature Reviews Neuroscience, doi.org/10.1038/s41583-020-0363-6*

133. Kooijmans, R.N., Sierhuis, W., Self, M.W. and Roelfsema, P.R. (2020) A comparison of inhibitory interneurons of mouse and macaque V1 using calcium-binding proteins. *Cerebral Cortex Communications, doi.org/10.1093/texcom/tgaa068*

134. Ekman, M., Roelfsema, P.R. and de Lange, F.P. (2020), Object selection by automatic spreading of top-down attentional signals in V1. *J. Neurosci. 40*, 9250-9259.

135. Chen, X. Wang, F., Fernandez, E. and Roelfsema, P.R. (2020) Shape perception via a high-channel-count neuroprosthesis in monkey visual cortex. *Science 370*, 1191-1196. [a preview by Beauchamp & Yoshor appeared in the same issue]

136. Kruijne, W., Bohte, S.M., Roelfsema, P.R. and Olivers, C.N.L. (2021) Flexible working memory through selective gating and attentional tagging. *Neural Comp. 33,* 1-40.

137. Beest, van, E.H., Mukherjee, S., Kirchberger, L., Schnabel, U., Togt, van der, C., Teeuwen, R.R.M. Barsegyan, A. Meyer, A.F., Poort, J., Roelfsema, P.R. & Self, M.W. (2021) Mouse visual cortex contains a region of enhanced spatial resolution. *Nature Communications 12*: 4029, DOI: 10.1038/s41467-021-24311-5

138. Kirchberger, L., Mukherjee, S., Schnabel, U.H., van Beest, E.H., Barsegyan, A., Levelt, C.N. Heimel, J.A., Lorteije, J.A.M., van der Togt, C., Self, M.W. and Roelfsema, P.R. (2021) The essential role of feedback processing for figure-ground perception in mice, *Science Advances, 7*, eabe1833.

139. Zambrano, D., Roelfsema, P.R. and Bohte, S. (accepted) Learning continuous-time working memory tasks with on-policy neural reinforcement learning. *Neurocomputing*.

140. Schnabel, U.H., van der Bijl, T. Roelfsema, P.R. and Lorteije, J.A.M. (in press). A direct comparison of spatial attention and stimulus-response compatibility between mice and humans. *J. Cognit. Neurosci.*

141. Reddy, L., Self, M.W., Zoefel, B., Poncet, M., Possel, J.K., Peters, J.C., Baayen, J.C., Idema, S., VanRullen, R., Roelfsema, P.R. (in press) Theta-phase dependent neuronal coding during sequence learning in human single neurons. *Nature Communications*.

142. Teeuwen, R.R.M., Wacongne, C., Schnabel, U.H., Self, M.W., Roelfsema, P.R. (accepted) A neuronal basis of iconic memory in macaque primary visual cortex, *Curr. Biol.*

142. Klink, P.C., Chen, X., Vanduffel, W. & Roelfsema, P.R. A comparison of population receptive fields from fMRI and large-scale neurophysiological recordings in non-human primates (in revision).

143. Fernández, E., Alfaro, A., Soto, C., Gonzalez-Lopez, P., Lozano, A., Peña, S., Dolores Grima, M., Rodil, A., Gómez, B., Chen, X., Roelfsema, P.R., Rolston, J.D., Davis, T., Normann, R.A. Visual percepts evoked with an Intracortical 96-channel Microelectrode Array inserted in human occipital cortex (in revision).

Refereed Conference Proceedings

van Ooyen, A. & Roelfsema, P.R. (2003) A biologically plausible implementation of error-backpropagation for classification tasks. Proceedings International Conference on Artificial Neural Networks, Suppl Proc of ICANN/ICONIP, p442-444.

Rombouts, J. O., Bohte, S. M., & Roelfsema, P. R. (2012). Neurally Plausible Reinforcement Learning of Working Memory Tasks. Advances in Neural Information Processing Systems 25.

Rombouts, J. O., Ooyen, A. van, Roelfsema, P. R., & Bohte, S. M. (2012). Biologically Plausible Multi-Dimensional Reinforcement Learning in Neural Networks. In A. E. P. Villa, W. Duch, P. Érdi, F. Masulli, & G. Palm (Eds.), ICANN (pp. 443–450).

Rombouts, J. O., Roelfsema, P. R., & Bohte, S. M. (2013). Biologically plausible reinforcement learning of continuous actions, BMC Neuroscience, 14, Suppl 1, p28

Rombouts, J. O., Roelfsema, P. R., & Bohte, S. M. (2014). Learning Resets of Neural Working Memory, ESANN.

Zambrano, D., Roelfsema P.R. & Bohte S.M. (2015). Continuous-time on-policy neural reinforcement learning of working memory tasks, IJCNN 2015

Pozzi, I., Bohte, S. M. & Roelfsema, P. R. (2020). Attention-Gated Brain Propagation: How the brain can implement reward-based error backpropagation. NeurIPS.

Other publications/ pre-prints

Roelfsema, P.R., Engel, A.K., König, P. & Singer, W. (1994) Oscillations and synchrony in the visual cortex: evidence for their functional relevance. In Pantev, C. (Ed.), *Oscillatory event related brain dynamics*, Plenum Press, New York.

Roelfsema, P.R. (1995) Role of neuronal synchronization in the visual cortex of the cat, *Thesis, University of Amsterdam*.

Engel, A.K., Roelfsema, P.R., König, P. & Singer, W. (1997) Neurophysiological relevance of time. In Atmanspacher, H. & Ruhnau, E. (Eds.),*Time, Temporality, Now*, Springer-Verlag, Berlin.

Engel, A.K., Fries P., Roelfsema P.R., Konig P. & Singer W. (1997). Temporal Binding, Binolcular Rivalry and Consciousness (ASSC E-Seminar <http:www.phil.vt.edu/ ASSC/sem3.html>).

Roelfsema, P.R., Bohte, S. & Spekreijse, H. (1999) Algorithms for the detection of connectedness and their neural implementation. In: Burdet, G., Combe, P. & Parodi,O. (Eds.) *Neuronal Information Processing: From Biological Data to Modelling and Applications.* Series in Mathematical Biology and Medicine, Vol. 7. Singapore: World Scientific.

Roelfsema, P.R. & Spekreijse, H. (2005) Binding contour segments into spatially extended objects, In: *Neurobiology of Attention*, Itti, L., Rees, G. & Tsotsos, J.K. (Eds.), Elsevier, San Diego, CA.

Poort, J., Pooresmaeili, A. & Roelfsema, P.R. (2012) Multineuron representations of visual attention. In: *Visual population codes*, Kriegeskorte, N. & Kreiman, G. (Eds.), MIT Press.

Self, M.W. & Roelfsema, P.R. (2015) The neural mechanisms of figure-ground segregation. In *Oxford Handbook of Perceptual Organization* J. Wagemans (Ed.) Oxford, U.K.: Oxford University Press.

Klink, P.C., Self, M.W., Lamme, V.A.F. & Roelfsema, P.R. (2015) Theories and methods in the scientific study of consciousness. In *The constitution of Phenomenal Consciousness. Toward a science and theory* S.M. Miller (Ed.) John Benjamins Publishing Company

Vartak, D., van der Togt, C., van Vugt, B. & Roelfsema, P.R. (2017) Electrochemical measurement of acetylcholine in the dorsolateral prefrontal cortex: A technical report. BioRxiv, http://biorxiv.org/content/biorxiv/early/2017/04/08/120691.full. Pdf.

Pozzi, I, Isabella Pozzi, Bohté, S. Roelfsema, P.R. (2018) A Biologically Plausible Learning Rule for Deep Learning in the Brain, arXiv, https://arxiv.org/abs/1811.01768

Reddy, L., Self, M.W., Zoefel, B. Poncet, M., Possel, J.K. Peters, J.C. Baayen, J.C. Idema, S. VanRullen, R. Roelfsema, P.R. (2019) Theta-phase dependent neuronal coding during sequence learning in human single neurons. bioRxiv, https://www.biorxiv.org/content/10.1101/630095v1

Ekman, M. Roelfsema, P.R., de Lange, F.P. (2020) Object selection by automatic spreading of top-down attentional signals in V1. bioRXiv, https://doi.org/10.1101/2020.02.24.962761

Klink, P.C., Chen, X., Vanduffel, W. & Roelfsema, P.R. (2020) Direct comparison of population receptive fields from fMRI and large-scale neurophysiological recordings in awake non-human primates. bioRXiv, https://doi.org/10.1101/2020.09.05.284133

van Beest, E., Mukherjee, S., Kirchberger, L., Schnabel, U., van der Togt, C., Teeuwen, R.R.M., Barsegyan, A., Meyer, A., Poort, J., Roelfsema, P.R, Self, M.W., Mouse visual cortex contains a region of enhanced spatial resolution (2020). SSRN: https://ssrn.com/abstract=3676469

Avila, E., Flierman, N. Holland, P.J., Roelfsema, P.R., Frens, M.A., Badura, A., De Zeeuw, C.I. (2021) Purkinje Cell Activity During Suppression of Voluntary Eye Movements in Rhesus Macaques, bioRxiv, https://www.biorxiv.org/content/10.1101/2021.03.26.437236v1

Guest-editorship

Development, dynamics and pathology of neuronal networks: from molecules to functional networks, Progress in Brain Research, Volume 147, J. van Pelt, M. Kamermans, C.N. Levelt, A. van Ooyen, G.J.A. Ramakers and P.R. Roelfsema (Eds.), Elsevier Science Publishers, Amsterdam, 2004

Slow brain oscillations of sleep, resting state and vigilance. Progress in Brain Research, Volume 193, E. J. W. van Someren, Y. D. Van der Werf, P. R. Roelfsema, H. D. Mansvelder, F. H. Lopes da Silva (Eds.), Elsevier Science Publishers, Amsterdam, 2011

Citations

According to Google Scholar, Roelfsema's papers were cited more than 17.000 times and his h-index is 59.

Invited international lectures

1. Woods Hole summerschool, USA, aug 1993
2. MIT, Cambridge, USA, sept 1993
3. University of New York, USA, sept 1993
4. National Institute of Health, Washington, USA, Sept 1993
5. Max-Planck-Institute for Psychiatry, München, Germany, Oct 1994
6. Conference on Child Vision, Frankfurt, Germany, Aug 1995
7. Summeratelier at the Neurosciences Institute, San Diego, USA, Sept 1995
8. Winter Brain Conference on Neural Plasticity, St. Lucia, Feb 1996
9. Graduierten Kolleg, University of München, Germany, June 1997
10. Summerschool on Neuronal Synchronization, Corsica, July 1997
11. Leuven, Belgium, march 1998
12. The Wellcome Department of Cognitive Neurology, London, May 1998
13. Conf. Eur. Neurosci. Assoc., Berlin, July 1998
14. Institut fur Neuroinformatik, ETH / Universitat Zurich, Dec 1998
15. Dipartimento di Scienze Neurologiche e della Visione, Verona, Italy, Feb, 1999
16. Third Annual Vision Research Conference, Ford Lauderdale USA, May, 1999
17. Dept. Neurology, Univ. Freiburg, Germany, June, 1999
18. Université Catholique de Louvain, Belgium, July 1999
19. Department of Psychology, University of Iowa, Oct 1999
20. University of Antwerpen, Dec 1999
21. Symposium on the FEPS 2000, Amsterdam, May 2000.
22. Symposium on the FENS 2000, Brighton, June 2000.
23. Workshop "Exogeneous and endogeneous control of visual selection", Amsterdam, June 2000.
24. Workshop on "Selectivity of Neurons in Sensory and Motor Cortices", Paris, France, July 2000
25. Lecturer at Summerschool, Cold Spring Harbor Laboratory, USA, June 2001
26. Symposium at the 5th Meeting of the German Cognitive Science Society, Leipzig, Sept 2001
27. Institute Theoretical Physics Workshop, Santa Barbara (USA), Oct 2001
26. Symposium at the 31th Annual Meeting of the Society for Neuroscience, San Diego, Nov 2001
27. FENS Winter School "Structure and formation of neuronal representations", Dec 2001
28. Workshop "Neural and Artificial Computation", Zuerich, Switserland, Feb 2002
29. Workshop "Interareal processing in the cortex", Lyon, France, March 2002
30. University College London, June 2002
31. Workshop "Feature integration", Sicily, Aug. 2002
32. Workshop "Assessing the dynamics of human brain function", Marburg, Germany, Aug. 2002.

33. Beckman Institute, Champain, USA, Nov, 2002.
34. University of Leuven, Belgium, Nov, 2002.
35. Workshop “Changing your mind” Jerusalem, Israel, May 2003.
36. Graduierten Kolleg, University of Frankfurt, Germany, June 2003.
37. Symposium at the European Brain and Behavior Society Meeting (EBBS), Barcelona, Sept 2003.
38. Autumn School in Cognitive Neuroscience, Oxford, October 2003.
39. Carnegy Mellon University, Pittsburgh, November 2003
40. Vanderbilt University, Nashville, November 2003
41. John Hopkins University, Baltimore, November 2003
42. Laboratoire de Psychologie Expérimentale, Paris, Januari, 2004
43. University of Osnabrueck, May 2004.
44. Washington University, St. Louis, November, 2004
45. University of Bangor, Wales, Feb. 2005
46. Karolinska Institute, Stockholm, Sweden, April, 2005
47. ESF workshop Computational Neuroscience, Barcelona, Spain, June 2005
48. Instituto de Neurociencias de Alicante, Spain, June 2005
49. International Neuropsychological Symposium, Alghero, Sardinie, June, 2005
50. Escop meeting, Leiden, Netherlands, 2005
51. Regensburg, Germany, Januari, 2006
52. Newcastle, UK, February, 2006
53. Paris, France, February, 2006
54. Leuven, Belgium, March, 2006
55. Tuebingen, Germany, May, 2006
56. Workshop ‘Neuroscience & Neuroeconomics’, Osnabrück, Germany, May, 2006.
57. Max-Planck-Institute Goettingen, Germany, July, 2006
58. Symposium at the FENS-meeting, Vienna, July 2006
59. Summerschool Visual Neuroscience, Marburg, Germany, Sept., 2006
60. ETH, Zuerich, Switzerland, Oct 2006
61. Univ. Hamburg, Germany, Dec 2006
62. Lyon, INSERM, Jan 2007
63. 11th Int. Conference on Cognitive and Neural Systems, Boston, May, 2007
64. FIL London, England, Nov 2007
65. Brussels, Belgium, March 2008
66. CNRS, Toulouse, France, June 2008
67. Summerschool, Rauischholzhausen, Germany, Sept., 2008
68. Summerschool, Barcelona, Spain, Sept., 2008
69. Bernstein symposium, München, Oct 2008
70. University of München, May 2009
71. Université Catholique de Louvain, Belgium, June 2009
72. 3rd Rovereto Attention Workshop, Oct 2009
73. 4th Computational Cognitive Neuroscience Conference, Boston, Nov 2009
74. Cellular and Integrative Neuroscience Meeting, Cardiff (UK), Dec 2009
75. Vision Science Society, symposium speaker, Napels FL, May 2010
76. Symposium for the 10th Anniversary of Die Junge Akademie, Berlin, June 2010

77. FENS meeting, symposium speaker, Amsterdam, June 2010
78. FENS-IBRO Summerschool "From spikes to awareness", Rauischholzhausen, Germany, Sept, 2010
79. Max-Planck-Institute for Brain research, Frankfurt, Sept. 2010
80. Bernstein Center for Computational Neuroscience, Berlin, Nov 2010
81. Cosyne workshop, Salt Lake City, Feb. 2011
82. Colloque de la Société des Neurosciences, Marseille, May 2011
83. Vision Science Colloquium, Univ. Bielefeld, Germany, July 2011
84. ECVP Lecture in symposium on Gestalts. Toulouse, France, August 2011
85. Attention workshop, Allahabad, India, Sept 2011
86. Colloquium, 'La vie des formes', Collège de France, Paris, October, 2011
87. 5th Annual Schwartz Symposium, Yale University, USA, October 2011
88. Bodian Seminar, John Hopkins University, Baltimore, USA, November 2011
89. University Muenchen, Germany, June 2012
90. Summerschool, Rauischholzhausen, Germany, August, 2012
91. Second Champalimaud Symposium, Lisbon, Portugal, October, 2012
92. KEOpS Workshop, Bordeaux, France, October, 2012
93. University Goettingen, Germany, November 2012
94. IDIBAPS, Barcelona Spain, December 2012
95. NIH, Washington, January, 2013
96. Salk Institute, February, 2013
97. University of Ulm, February, 2013
98. Institut du Cerveau et de la Moelle épinière, Paris, May 2013
99. Symposium speaker at the Vision Science Society, Napels USA, May 2013
100. University of Glasgow, UK, May 2013
101. International Conference on Cognitive and Neural Systems, Boston USA, June 2013
102. University of Graz, Austria, August 2013
103. Bernstein Conference (2 invited lectures), Tuebingen, Sept. 2013
104. Delmenhorst (Germany), Sept. 2013
105. Prague (Czech Rep.), CARE lecture, Sept, 2013
106. Symposium "Neurotransmitter receptors for visual cognition in primates" at the SFN meeting, San Diego (USA), Nov 2013
107. Bangalore Cognition Workshop, Bangalore (India), December 2013.
108. EPFL Lausanne (Switzerland), 'The neuronal mechanisms for perceptual organization', January 2014.
109. EPFL Lausanne (Switzerland), 'The role of feedback connections and synaptic tags in reinforcement learning ', January 2014.
110. Kenneth Craik lecture, Cambridge (UK), March 2014, "Neuronal mechanisms for perceptual organization".
111. University of Tuebingen (Germany), April 2014, "The implementation of visual routines"
112. HBP Meeting, Fuerberg (Austria), May 2014, "The virtues of feedback connections for perception"
113. BAPS Meeting, Leuven (Belgium), May 2014, "How the visual brain construct objects from features"
114. INS Meeting, Viareggio (Italy), June 2014, "Role of feedback connections in perceptual

organization"

115. Summerschool Gestalt ReVision, Leuven (Belgium) August 2014, "Contour grouping – on the role of feedforward and recurrent connections"
116. Summerschool Gestalt ReVision, Leuven (Belgium) August 2014, "Algorithms for perceptual grouping as they are implemented in our brains"
117. Summerschool, Rauischholzhausen (Germany) August, 2014, "Algorithms for perceptual grouping as implemented in our brain"
118. Bernstein Center for Computational Neuroscience, Berlin (Germany) December 2014, "How attention creates synaptic tags for the guidance of plasticity and learning"
119. Neurospin symposium Brain dynamics in the primate brain, Paris (France), January 2015, "Top-down influences for attention and working memory in visual cortex"
120. UCL London (UK), February 2015, "The role of feedforward and feedback connections in vision"
121. Magdeburg workshop Emergent Cognition (Germany), March 2015, "The formation of hierarchical decisions in the visual cortex"
122. FENS Brain conference, Copenhagen (Denmark), April 2015, "The neuronal mechanisms for perceptual organization and object-based attention"
123. VSS Meeting Symposium, Florida (USA), May 2015, "The role of the different layers of primary visual cortex in working memory"
124. Rovereto (Italy), June 2015 "The role of the different layers of primary visual cortex in attention and working memory"
125. York Vision Meeting, Toronto (Canada), June 2015, "The virtues of feedback connections in the visual cortex for perceptual organization"
126. European Vision Meeting, Muenchen (Germany), September 2015, "Interactions between attention and reward for the guidance of plasticity, learning and memory"
127. HBP Meeting Madrid (Spain), Sept. 2015, "Feedforward and feedback processing"
128. NYU, New York (US), Jan. 2016 "The role of feedback connections in plasticity and visual cognition"
129. Simons Foundation, New York (US) Jan. 2016 "The primate's Turing machine"
130. NeuroCure, Berlin, May 2016, "Beyond vision: Decision making and working memory in the different layers of early visual cortex"
131. Sensing: from minds to machine, Be'er Sheva (Israel), May 2016 "Decision making and working memory in early visual cortex"
132. U4 meeting, Gent, May 2016, "Decision making and working memory in the different layers of early visual cortex"
133. INS Meeting Baiona (Spain), May 2016, "Is there a role for neuronal oscillations in cognition?"
134. FENS Meeting, Copenhagen, Symposium, July 2016 "How rewards drive attentional selection signals in the visual cortex"
135. ESI systems neuroscience conference, Frankfurt, July 2016, "Decision making and working memory in early visual cortex"
136. Summerschool, Rauischholzhausen (Germany) Sept., 2016, "Seeing and thinking with your visual brain"
137. Hierarchical Processing Advanced Course, Champalimaud center, Lisbon (Portugal), Sept 2016, "Feedforward and feedback processing in vision"

138. 7th annual meeting of the GDR NeuralNet, Marseille (France), Oct 2016, “Seeing, thinking, memorizing with your visual brain”
139. Human single neuron recordings meeting, Los Angeles (USA), Nov 2016, “The activity of neurons in early visual cortex of humans and monkeys during perceptual organization”
140. Insights from Inside, Tel Aviv (Israel), Nov 2016, “Perception and thinking in the visual cortex of monkeys and humans”
141. University of Cambridge (UK), Jan 2017, “The visual cortex as a cognitive blackboard”
142. University of Geneva (Switzerland), Jan 2017, “Training the brain’s Turing machine: the role of cortical feedback connections in learning”
143. EPFL, Lausanne (Switzerland), Jan 2017, “Training the brain’s Turing machine: the role of cortical feedback connections in learning”
144. Primate Neurobiology Meeting, Göttingen (Germany). March 2017, Keynote lecture: “Seeing, thinking and memorizing with the visual brain”
145. CapoCaccia Cognitive Neuromorphic Engineering Workshop, Alghero (Italy), April 2017, “Visual cortex and receptive fields”.
146. Ernst-Struengmann-Institut, Frankfurt (Germany), May 2017, “Feedforward and feedback interactions in the cerebral cortex during visual perception”
147. Symposium Johns Hopkins University, Baltmore (USA), May 2017, “Thinking and perceiving with the visual brain”
148. HBP Meeting on network learning, Fuerberg (Austria), May 2017, “Feedforward and feedback interactions in the cerebral cortex during visual perception”
149. INS institute, Marseille (France), June 2017, “Interactions between cortical neurons during visual perception and the emergence of awareness”.
150. Institute de la Vision, Paris (France), June 2017, “Interactions between cortical neurons during visual perception and the emergence of awareness”.
151. Workshop “Different elements of primate neural networks in the connectome era”, Erice (Italy), June 2017, “Seeing and thinking with your visual brain”
152. 6th European Visual Cortex Meeting, London (UK), September 2017, “Figure-ground segregation in mouse, monkey and man”
153. HBP Summit, Glasgow (UK), October 2017, “Deep dive”
154. University Medical Center Hamburg-Eppendorf (Germany), November 2017, “How the interactions between cortical neurons enable visual thinking and conscious perception”
155. IMT School of Advanced Studies, Lucca (Italy), January 2018, “Interactions between neurons in the visual and frontal cortex during perception and awareness”
156. Institute of Bioengineering, Universidad Miguel Hernández de Elche, Alicante, February 2018, “Feedforward and feedback interactions for visual perception and awareness”
157. Brain Engineering & Computational Neuroscience Conference, Tehran (Iran), February 2018, “Interactions between the visual and frontal cortex during visual perception and the emergence of awareness”.
158. School of Psychology University of Birmingham, Birmingham (UK), March 2018, “How interactions between neurons in the visual and frontal cortex construct perception and awareness”
159. Symposium Cortico-cortical connectivity: from structure to dynamic networks & control of behavior, Tuebingen (Germany), March 2018, “How neurons in the visual and frontal cortex interact to enable visual perception and the emergence of awareness”

160. Computational Theories of the Brain, Simons Foundation Workshop Berkeley (USA), April 2018, “Control of synaptic plasticity in deep cortical networks”
161. University Texas at Austin (USA), May 2018, “Feedforward and feedback interactions between neurons in visual and frontal cortex for perception and conscious awareness”
162. Symposium “Understanding Consciousness”, Barcelona (Spain), June 2018, “The threshold for conscious report: signal loss and response bias in visual and frontal cortex”
163. Summerschool, Rauischholzhausen (Germany) Sept., 2018, “Cortical algorithms for visual perception”
164. University of Newcastle (UK), Oct. 2018, “Feedforward and feedback interactions for perception and awareness”
165. Cognitive computing conference, Hannover (Germany), Dec. 2018, “Cortical mechanisms for visual perception and restoring them in blindness”
166. CAS-Shanghai, Shanghai (China), Jan 2019, “Feedforward and feedback interactions for visual perception and awareness”
167. Beijing Normal University, Beijing (China), Jan 2019, “Feedforward and feedback interactions for visual perception and awareness”
168. 3rd HBP Student Conference, Gent (Belgium), Feb 2019, “Seeing and thinking with your visual brain”
169. “Learning in the neocortex”, Barbados, Feb 2019.
170. Workshop on non-human primates, Lyon, Feb 2019, “Visual perception and restoring rudimentary vision for the blind”
171. “Brain research and tech”, Brussels, March 2019, “A visual prosthesis interfacing with the cerebral cortex”
172. FENS summer school “Brain reading and writing: new perspectives of neurotechnology”, Bertinoro (Italy), June 2019, “Cortical mechanisms for visual perception and restoring them in blindness”
173. EPFL Symposium “Neuroscience meets deep learning”, Lausanne (Switzerland), July 2019 “How deep reinforcement learning can be implemented in the brain”
174. ECVP Symposium “Comparing deep nets and primate vision”, Leuven (Belgium), August 2019 “How deep reinforcement learning can be implemented in the brain”.
175. Mystery of the Brain Symposium, Tuebingen (Germany), Sept. 2019, “ The brain’s cognitive blackboard”
176. Columbia University, New York, Oct 2019, “Visual perception and how to restore it with a visual cortical prosthesis”
177. Future Investment Initiative, Artificial Intelligence Symposium, Riyadh (Saudi Arabie), Oct 2019.
178. EITN Sympsium, Paris, Nov. 2019 “Feedforward and feedback processing during figure-ground perception”
179. WIRED Paris (France) (keynote lecture), Nov 2019, “The cortical mechanisms for visual perception and addressing them to restore a rudimentary form of sight for the blind”
180. IIAS School “Deconstructing and Reconstructing Consciousness”Jerusalem, Jan 2020, “Visual stimuli that do and do not make it into consciousness”
181. Zuerich (Switzerland on Zoom - corona), March 2020, “Visual perception and how to restore it with a visual cortical prosthesis for the blind”
182. Osnabruck (Germany on Zoom - corona), May 2020, “Visual perception, awareness and

restoring it with a visual cortical prosthesis for the blind"

183. Bremen (Germany, on Zoom - corona), June 2020, "Cortical mechanisms for visual perception and restoring them in blindness"
184. Rovereto Cimec (Italy, on Zoom - corona), Jun 2020, "Interactions between visual cortical neurons for perception and restoring them for the blind"
185. Ankara (Turkey, on Zoom - corona), Oct 2020, "How visual perception emerges from interactions between the different areas of the cerebral cortex"
186. Helsinki (Finland, on Zoom - corona). Oct 2020, "Interactions between areas of the visual cortex that are essential for perception"
187. Jerusalem (Israel, on Zoom - corona), Oct 2020, "Interactions between cortical neurons for visual perception"
188. Ankara (Turkey, on Zoom - corona), Oct 2000, "How visual perception emerges from interactions between the different areas of the cerebral cortex"
189. EU Microwave Conference, Key Note (Amsterdam, on Zoom - corona), Jan 2021, "Interfacing with the visual cortex to restore vision in blind people"
190. Bremen (Germany, on Zoom-corona), "Cortical mechanisms for visual perception and restoring them in blindness"
191. Annual meeting of the Israel Society for Neuroscience (Israel, on Zoom), Feb 2021, "A cortical interface aiming to restore a rudimentary form of vision for the blind"
192. National Eye Institute lecture series (Washington, USA, on zoom), Feb 2021, "Insight into the interactions between neurons in the visual cortex: how they help with the creation of a visual cortical prosthesis"
193. BIU Vision Science Seminar (Israel, on Zoom), March 2021, "Interactions between neurons during visual perception and restoring them in blindness"

National lectures (since 2015)

1. Dutch Neuroscience meeting: Why reward and attention jointly gate learning, June 2015
2. Biologically plausible models of reinforcement learning, CWI, Amsterdam, Nov 2015
3. Decision making and working memory in early visual cortex, Ned. Vereniging voor Psychonomie, Winter conference, Egmond aan Zee, Dec 2015
4. Donders Discussions, debunking synchrony and oscillations, Nijmegen, April 2016
5. Nationale wetenschapsagenda, Den Haag, April, 2016
6. Univ. Utrecht, July 2016, "Seeing and perceiving: new insights from the human brain"
7. ECCV workshop, Amsterdam, Sept 2016 "Feedforward and recurrent processing in the visual system"
8. EPOS workshop, Amsterdam, Nov 2016 "Perceptual grouping: the role of attention"
9. NIN-KNAW Summerschool on procedural learning, June 2017, "Deep learning in the brain: the role of cortical feedback connections in the plasticity of sensory representations"
10. Oogzorgnetwerk dag, Rotterdam, September 2017, "Hersenschorsprothese voor blinden?"
11. Amsterdam Neuroscience Annual Meeting, October 2017, "NeuroTech session"
12. Neurovation, Nijmegen, November 2017, "NeuroTech-NL"
13. VU University, Amsterdam, December 2017, "Vision in the cerebral cortex and how to fix it if the eyes fail"

14. University of Utrecht, June 2018, Mind the Brain Symposium, “Visual perception and visual thinking – and how to restore a rudimentary form of it when it fails”
15. Joannes Juda Groen symposium, Amsterdam, Sept 2018 “Cortical mechanisms for visual perception and restoring them in blindness”
16. Open day of the human brain project, Maastricht, Oct 2018 “Neurotechnology & HBP: The future of neuroprosthetics”,
17. TUe, open day, Eindhoven, Oct. 2018 “Seeing and thinking with the visual brain – even if the eyes don’t work”
18. Biotechnische dagen, Vechel, Nov 2018 “Hersenonderzoek gericht op herstel van visuele perceptie”.
19. Nederlandse Vereniging voor Neurologie, Nov. 2018, Nunspeet, “Elektrische stimulatie van de visuele hersenschors om blinden een rudimentaire vorm van zien terug te geven”
20. Oogcongres, Utrecht, Nov. 2018 “De ontwikkeling van een hersenschorsprothese voor blinden”
21. EPOS Summerschool, Amsterdam, Dec. 2018, “The role of inhibition in figure-ground perception”
22. Congres Nationale Vereniging Optometristen (NVO), Feb. 2019, Den Bosch “Een hersenschorsprothese om aan blinden een rudimentaire vorm van zien terug te geven”
23. KNAW Academy Symposium “Deep learning in the brain”, Amsterdam, May 2019, “Biologically plausible learning rules in the brain”
24. University Maastricht, July 2019, “Feedforward and feedback interactions for visual perception and restoring a rudimentary form of vision in the blind”
25. EuroVision Leiden, Sept. 2019 “ Feedforward and feedback processing during figure-ground perception in mice”
26. KNF, VU Amsterdam, Sept 2019 “Deep learning in the brain”
27. Teknowlogy, the yearly NWO event, Nov 2020, plenary session “The development of a visual cortical prosthesis for the blind”
28. University of Groningen (on Zoom-COVID), March 2021, “Fundamental insights into visual perception .. and applying this knowledge for the blind”
29. Vereniging voor de revalidatie van Slechtzienden, June 2021, “Elektrische stimulatie van de visuele hersenen om blinden een vorm van zien terug te geven”

Popularization of science

2004 Public lecture during "Publieksdag over de hersenen” organized by Hersenstichting and Neurofederation

2006 Discussion meeting about the brain with general audience “Reset your Brain!” organized by the Rathenau institute

2007 Poort, J. & Roelfsema, P.R. (2008) Het hoofd dat de geest geeft. In de Beta-canon, Volkskrant 2007-2008

2007 Interview for Parool about the Spinoza centre

2008 Two interviews with Hoe?Zo! radio

2009 Interviews with Avro “de praktijk” http://player.omroep.nl/?serid=3747

2010 Interview Vrij Nederland, published 31 July 2010.

2010 Press release with articles in e.g. Telegraaf

2011 April Interview for Dutch television, NCRV 'Altijd Wat'

2013 Lecture CREA Amsterdam, "The brain explained – connections in the brain"

2013 Lecture ASML, Veldhoven. "Seeing and Thinking"

2014 January 5th, Radio interview Amsterdam FM, Swammerdam; wetenschap in Amsterdam

2014 January 31th, Interview met de Telegraaf voor de hersenbijlage

2014 February 17th, Lezing culturele kring Oisterwijk

2015 Januari 10th, Interview met Trouw

2015 March 26th, Het Brein, bijlage bij de Volkskrant

2016 January 23th, lecture at the Slechtziendendag over hersenschorsprothesen, Utrecht.

2016 April 7th, Trouw, artikel over kweekschors

2016 April 9th, AVRO-TROS Nieuwsshow, radio 1, interview over kweekschors, http://www.nporadio1.nl/nieuwsshow/onderwerpen/351818-kweekschors

2016 6 juni interview hersenbijlage Telegraaf

2016 Quest Psychologie, nummer 3: p. 76,"Wat is de zwaarste alledaagse taak voor je hersenen?"

2016 Amsterdam Science "Visual brain cells also think"; http://amsterdamscience.org/visual-brain-cells-also-think/

2017 January 14th, Interview with NTR/NOS http://dekennisvannu.nl/site/artikel/Zo-maken-wetenschappers-zombiemuizen-/8769

2017 March 25th, WNL op zaterdag radio 1, debate about the use of smartphones in the parliament

2017 April 22nd, lecture at the Macula day, "The brain and visual perception", Nieuwegein.

2017 Sept 28th, lecture at the Oogzorgnetwerk day, "Hersenschorsprothese voor blinden?"

2018 Jan 6th, 2 page article about our research on the visual prosthesis in Algemeen Dagblad.

https://www.ad.nl/binnenland/licht-in-de-duisternis-blind-zijn-is-niet-meer-voor-altijd~a421b117/

2018 Jan 10th, interview in "Evers staat op", radio 538, about the visual cortical prosthesis. https://www.538.nl/evers-staat-op/over-5-jaar-kunnen-blinden-weer-zien

2018 Jan 15th, 2 page article in Parool about the visual cortical prosthesis. https://www.parool.nl/amsterdam/blinden-laten-zien-het-kan-denken-amsterdamse-wetenschappers~a4557032/

2018 Jan 16th, interview radio 1 "Langs de lijn en omstreken". https://www.nporadio1.nl/langs-de-lijn-en-omstreken/onderwerpen/441043-blinden-nemen-weer-waar-dankzij-ingebouwde-chip

2018 Feb 10th, 6 page article in Volkskrant about the visual cortical prosthesis. https://www.volkskrant.nl/wetenschap/maar-zestig-pixels-kunnen-zien-het-is-een-wereld-van-verschil-voor-jeroen-die-eerst-blind-was~a4567848/

2018, March, article Nemo Kennislink

https://www.nemokennislink.nl/publicaties/bewust-van-ons-brein/

2018, March 23rd– Medical Facts – Niet alles wat we zien dringt door tot ons bewustzijn

https://www.medicalfacts.nl/2018/03/23/niet-alles-wat-we-zien-dringt-door-tot-ons-bewustzijn/

2018, March 26th – Human Brain Project – Failed ignition - why some visual cues don't reach consciousness https://www.humanbrainproject.eu/en/follow-hbp/news/failed-ignition-why-some-visual-cues-dont-reach-consciousness/

2018, March 27th – News Medical – New study reveals why some visual cues remain subliminal https://www.news-medical.net/news/20180327/New-study-reveals-why-some-visual-cues-remain-subliminal.aspx

2018. April 28st, Parool – Amsterdamse centra voorlopig niet zonder proefdieren https://www.parool.nl/amsterdam/amsterdamse-centra-voorlopig-niet-zonder-proefdieren~a4596276/

2018, May 2nd – Medical Facts - Gedachten lezen en schrijven via chips on het brein https://www.medicalfacts.nl/2018/05/03/gedachten-lezen-en-schrijven-via-chips-in-het-brein/

2018, May 3rd – Faqt – Pas op: wetenschappers kunnen gedachten lezen http://www.faqt.nl/recent/wetenschappers-kunnen-gedachten-lezen/

2018, May 8th – ICT&Health - Neurale technologie helpt steeds beter bij herstel functies na ziekte of ongeluk https://www.icthealth.nl/nieuws/neurale-technologie-helpt-steeds-beter-bij-herstel-functies-na-ziekte-of-ongeluk/

2018, May 29th – Kennislink – Zien zonder zicht https://www.nemokennislink.nl/publicaties/zien-zonder-zicht/

2018, AMC Magazine, 2 p article about the visual cortical prosthesis https://issuu.com/amcamsterdam/docs/124509_amcmagazine_03-2018_v3web/12

2018, Sept 20th BNR radio, interview about the visual cortical prosthesis

2018, Sciencmag.org: contribution to "Brain stimulation could let some blind people 'see' shapes made of light"; https://www.sciencemag.org/news/2018/11/brain-stimulation-could-let-some-blind-people-see-shapes-made-light

October 2018 – Eos Psyche en Brein magazine – Laat de blinden zien

2018, December 28th – NEMO Kennislink - Wat heeft 2019 voor ons in petto? https://www.nemokennislink.nl/publicaties/wat-heeft-2019-voor-ons-in-petto/

2019, Februari 13th, Editie-NL (Dutch television RTL4) about the visual cortical prosthesis, https://www.rtlnieuws.nl/editienl/laatste-videos-editienl/video/4608141/blinde-kan-toekomst-kijken

11/04/2019 Grijs gebied Quest (National), Netherlands, Printed press

2019, April 15th, AD "Chinese wetenschappers maken apen (een beetje) slimmer met menselijke genen, https://www.ad.nl/wetenschap/chinese-wetenschappers-maken-apen-een-beetje-slimmer-met-menselijke-genen~ab22a0eb/

15/04/2019 Chinese wetenschappers maken apen (een beetje) slimmer met menselijke genen De Gelderlander (Regional), Netherlands, Online journalism https://www.gelderlander.nl/wetenschap/chinese-wetenschappers-maken-apen-een-beetje-slimmer-met-menselijkegenen~ab22a0eb/

15/04/2019 Chinese wetenschappers maken apen (een beetje) slimmer met menselijke genen BN de Stem (Regional), Netherlands, Online journalism

2019 April 11th "FEIT: Onze hersenen hebben speciale Jan Smit-cellen", 100% NL, https://www.100p.nl/nieuws/feit-onze-hersenen-hebben-speciale-jan-smit-cellen

25/04/2019 Kunnen we straks onze herseninhoud uploaden? BNR (National), Netherlands, Other https://podcastluisteren.nl/ep/BNR-Questcast-or-BNR-10-Kunnen-we-straks-onze-herseninhoud-uploaden Podcast 2019 Mei, Quest "Hoe werkt ons brein? Grijs gebied"

20/05/2019 Failed ignition - why some visual information doesn't reach consciousness Amsterdam Science (National), Netherlands, Printed press https://issuu.com/amsterdamscience/docs/scienceamsterdammagazine_issue_9_20/8

13/06/2019 Hoe kan techniek blinden laten zien BNR nieuwsradio (National), Netherlands, Radio https://www.bnr.nl/podcast/wetenschap-vandaag/10380808/hoe-kan-techniek-blinden-laten-zien

04/07/2019 Blind zijn en toch zien Medisch Contact (National), Netherlands, Online journalism https://www.medischcontact.nl/nieuws/laatste-nieuws/artikel/blind-zijn-en-toch-zien.htm

07/08/2019 Hersenwetenschappers zien weinig mogelijkheden voor vermindering dierproeven Science Guide (National), Netherlands, Online journalism https://www.scienceguide.nl/2019/08/neurowetenschappen-proefdieren/

04/10/2019 Kunnen blinden straks zien met een chip in hun hersenen? Wetenschap begint met Verwondering (National), Netherlands, Online journalism https://www.wetenschapbegintmetverwondering.nl/artikelen/kunnen-blinden-straks-zien-met-een-chip-in-hun-hersenen/

31/10/2019 New technologies promise sharper artificial vision for blind people Science Mag (International), United States, Online journalism https://www.sciencemag.org/news/2019/10/new-technologies-promise-sharper-artificial-vision-blind-people

2019 October, Nationale Wetenschapsagenda https://www.wetenschapbegint metverwondering.nl/artikelen/kunnen-blinden-straks-zien-met-een-chip-in-hun-hersenen/

04/12/2019 Minipacemaker voor kapotte zenuw De Volkskrant (National), Netherlands, Printed press Deze chip bootst een menselijke zenuwcel na

03/12/2019 De Volkskrant (National), Netherlands, Online journalism https://www.volkskrant.nl/wetenschap/deze-chip-bootst-een-menselijke-zenuwcel-na~b8f6041f/

13/12/2019 Blinden weer laten zien? 'Onze droom wordt werkelijkheid…'Meer over medisch (National), Netherlands, Online journalism https://www.meerovermedisch.nl/article/blinden-weer-laten-zien-de-droom-wordt-waarheid/

18/9/2020 Horizon, audiomagazine voor mensen met een leesbeperking

http://www.iedereenkanlezen.nl/audiomagazine-horizon/

Dec 3-4 2020, publicity after our Science paper on the visual cortical prosthesis. The paper gave rise to >300 items in the popular press in more than 51 countries, with a total reach > 1,4 billion people https://pure.knaw.nl/portal/en/clippings/nieuw-hersenimplantaat-kan-blinden-vorm-van-zien-teruggeven. Some of the highlights are:

AD https://www.ad.nl/binnenland/dankzij-deze-vinding-kunnen-blinden-niet-alleen-stipjes-maar-ook-vormen-zien~ab2a627f/

Trouw https://www.trouw.nl/wetenschap/zien-zonder-ogen-een-nieuwe-studie-wijst-uit-dat-het-kan~bb320ffa/

Volkskrant https://www.volkskrant.nl/wetenschap/zien-zonder-ogen-hersenimplantaat-kan-blinden-mogelijk-deel-van-hun-zicht-teruggeven~b6e083fc/

Tijd voor Max (TV) https://www.npostart.nl/tijd-voor-max/04-12-2020/POW_04776966

NOS journaal https://www.npostart.nl/nos-journaal/04-12-2020/POW_04508473 https://nos.nl/artikel/2359209-blinde-mensen-kunnen-zicht-mogelijk-deels-terugkrijgen-door-nieuw-implantaat.html

NRC https://www.nrc.nl/nieuws/2020/12/03/hersenimplantaat-laat-apen-lezen-zonder-ogen-met-1024-pixels-a4022524

CNN https://edition.cnn.com/2020/12/03/europe/brain-implant-blind-intl-scli-scn/index.html

Scientific american https://www.scientificamerican.com/article/bionic-eye-tech-learns-its-abcs/

New Scientist https://www.newscientist.com/article/2261853-brain-stimulation-device-lets-monkeys-see-shapes-without-using-eyes/

New Scientist (NL) https://www.newscientist.nl/nieuws/ons-hersenimplantaat-kan-blinden-een-vorm-van-zicht-teruggeven/

NOS nieuwsradio https://www.nporadio1.nl/nos-radio-1-journaal/uitzendingen/1486664-2020-12-04 -- 13:21 min

BNR nieuwsradio

RTL nieuws https://www.rtlnieuws.nl/video/uitzendingen/video/5201335/rtl-nieuws-1930-uur

FBR smart brief: https://www2.smartbrief.com/getLast.action?mode=last&b=FBR

31/12/2020 RTL Nieuws '2020 in je brein: 'Alles waar emotie bij komt kijken, herinner je je beter'

https://www.rtlnieuws.nl/lifestyle/gezondheid/artikel/5205931/alles-waar-emotie-bij-komt-kijken-herinner-je-je-beter-corona.

18/2/2021 Quanta Magazine 'Artificial neural nets finally yield clues to how brains learn.' https://www.quantamagazine.org/artificial-neural-nets-finally-yield-clues-to-how-brains-learn-20210218/

12/4/2021 Editie-NL (TV) 'Leven terug door brain chip',

https://www.rtlnieuws.nl/video/uitzendingen/video/5224974/afl-102?fbclid=IwAR1l-cm8P2kBbXV_tMJBMaxMHUulPMwiOXualJ5Ks9_-B2wmpGQ9-WSO9M4

13/4/2021 EOS wetenschap (podcast) 'Waarom we niet kunnen multitasken' https://www.eoswetenschap.eu/psyche-brein/waarom-we-niet-kunnen-multitasken

5/7/2021 Feedback activity in the visual cortex is necessary for the perception of objects https://medicalxpress.com/news/2021-06-feedback-visual-cortex-perception.html

27/7/2021 Quanta on deep learning in the brain.
https://d2r55xnwy6nx47.cloudfront.net/uploads/2021/05/Quanta-163_Artificial-Nets_FINAL.mp3