

# Curriculum Vitae

Prof. Pieter Roelf Roelfsema, MD, PhD

## Address

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## 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

## 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

### 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  
 2014-now Committee Advise Animal Experimentation of the Netherlands  
 2016-now Member Committee on Animals in Research (CAR) of the Society for Neuroscience

### 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 Buntum

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

### 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, Nijmegen, 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 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 Rauschholzhausen, 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. 31<sup>st</sup> Annual Meeting of the Society for Neuroscience, San Diego, Nov 2001
3. 35<sup>th</sup> European Brain and Behavior Society (EBBS), Barcelona (Spain) 2003
4. 23<sup>rd</sup> 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. 26<sup>th</sup> International Summerschool 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, “The mystery of feedback”, June 2014
11. HBP Meeting Feedforward and feedback processing: anatomy, function and physiology, Paris, April 2017

### 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, 9 February 2018.

### Popularization of science

- 2004 Public lecture during "Publieksdag over de hersenen" organized by Hersenstichting and Neurofederatie
- 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 5<sup>th</sup>, Radio interview Amsterdam FM, Swammerdam; wetenschap in Amsterdam
- 2014 January 31<sup>th</sup>, Interview met de Telegraaf voor de hersenbijlage
- 2014 February 17<sup>th</sup>, Lezing culturele kring Oisterwijk
- 2015 Januari 10<sup>th</sup>, Interview met Trouw
- 2015 March 26<sup>th</sup>, Het Brein, bijlage bij de Volkskrant
- 2016 January 23<sup>th</sup>, lecture at the Slechtiendendag over hersenschorsprothesen, Utrecht.
- 2016 April 7<sup>th</sup>, Trouw, artikel over kweekschors
- 2016 April 9<sup>th</sup>, 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 14<sup>th</sup>, Interview with NTR/NOS <http://dekennisvannu.nl/site/artikel/Zo-maken-wetenschappers-zombiemuizen-/8769>
- 2017 March 25<sup>th</sup>, WNL op zaterdag radio 1, debate about the use of smartphones in the parliament
- 2017 April 22<sup>nd</sup>, lecture at the Macula day, "The brain and visual perception", Nieuwegein.
- 2017 Sept 28<sup>th</sup>, lecture at the Oogzorgnetwerk day, "Hersenschorsprothese voor blinden?"
- 2018 Jan 6<sup>th</sup>, 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 10<sup>th</sup>, 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 15<sup>th</sup>, 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 16<sup>th</sup>, 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 10<sup>th</sup>, 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, AMC Magazine, 2 p article about the visual cortical prosthesis  
[https://issuu.com/amcamsterdam/docs/124509\\_amcmagazine\\_03-2018\\_v3web/12](https://issuu.com/amcamsterdam/docs/124509_amcmagazine_03-2018_v3web/12)

### 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

### 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.
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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.
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72. Zylberberg, A., Ouellette, B., Sigman, M. and Roelfsema, P.R. (2012) Decision making during the psychological refractory period. *Curr. Biol.* 22, 1795-1799.
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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].
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116. Self, M.W., van Kerkoerle, T., Goebel, R. and Roelfsema, P.R. (in press) Benchmarking laminar fMRI: Neuronal spiking and synaptic activity during top-down and bottom-up processing in the different layers of cortex. *NeuroImage*.
117. Roelfsema, P.R., Denys, D. & Klink, P.C. (in press) Mind reading and writing: the future of neurotechnology, *Trends in Cognitive Sciences*
118. Kooijmans, R.N., Sierhuis, W., Self, M.W. and Roelfsema, P.R. (subm) A comparison of inhibitory interneurons of mouse and macaque V1 using calcium-binding proteins.
119. Schnabel, U.H., Bossens, C., Lorteije, J.A.M., Self, M.W., Op de Beeck, H. and Roelfsema, P.R. (subm) Figure-ground perception in the awake mouse and its neuronal correlates in the primary visual cortex.
120. Kruijne, W., Bohte, S.M., Roelfsema, P.R., Olivers, C.N.L. (subm) Flexible working memory through selective gating and attentional tagging.

### 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*

### Other publications

- 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., König P. & Singer W. (1997). Temporal Binding, Binocular Rivalry and Consciousness (ASSC E-Seminar <<http://www.phil.vt.edu/ASSC/sem3.html>>).
- Roelfsema, P.R., Bohte, S. & Spekrijse, 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. & Spekrijse, 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.

### 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 10.000 times and his h-index is 44.

## 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 für Neuroinformatik, ETH / Universität 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 5<sup>th</sup> 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, Switzerland, 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, Champaign, 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. Carnegie 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, Rauschholzhausen, 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. 4<sup>th</sup> 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 10<sup>th</sup> 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. ECVF 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. 5<sup>th</sup> 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 (Ger), 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 (Canda), 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, Baltimore (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. 6<sup>th</sup> 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”

#### **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 Psychologie, Winter conference, Egmond aan Zee, Dec 2015
4. Donders Discussions, debunking synchrony and oscillations, Nijmegen, April 2016
5. Nationale wetenschaps agenda, 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”