

## **CV Sander Nieuwenhuis**

### Personal data:

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### Education/Professional History:

1997	M.S. in Experimental Psychology, Rijksuniversiteit Groningen Thesis Title: The temporal dynamics of task switching Thesis Advisor: Ritske de Jong
1992-1996	Classical guitar studies at the Groningen Conservatory
01-06/1997	Visiting researcher, University of Cambridge, Department of Experimental Psychology (Stephen Monsell)
1997-2001	Ph.D. in Cognitive Neuroscience, University of Amsterdam Dissertation Title: Control failures, error processing, and cognitive aging Thesis Advisors: Richard Ridderinkhof, Maurits van der Molen & Albert Kok
2001-2002	Lecturer, University of Amsterdam
2002-2003	Postdoctoral Fellow, Princeton University Neuroscience of Cognitive Control Lab (Jonathan Cohen)
2003-2006	Postdoctoral Fellow, Vrije Universiteit Amsterdam Department of Cognitive Psychology
2006-2008	Assistant Professor, Leiden University Cognitive Psychology Unit
2009-2012	Associate Professor, Leiden University Cognitive Psychology Unit
2012-	Full Professor, Leiden University Cognitive Psychology Unit
2017-	Chair of the Cognitive Psychology Unit
2021-2022	Research director ad interim of the Institute of Psychology, Leiden University

### Publications (h-index = 53):

- Lloyd, B., de Voogd, L.D., Mäki-Marttunen, V., & **Nieuwenhuis**, S. (submitted). Assessing pupil size as an index of activation of subcortical ascending arousal system nuclei during rest.
- Giraudier, M., Ventura-Bort, C., Burger, A.M., Claes, N., D'Agostini, M., Fischer, R., Franssen, M., Kaess, M., Koenig, J., Liepelt, L., **Nieuwenhuis**, S., Sommer, A., Usichenko, T., Van Diest, I., von Leupoldt, A., Warren, C.M., & Weymar, M. (submitted). Evidence for a modulating effect of transcutaneous auricular vagus nerve stimulation (taVNS) on salivary alpha-amylase as indirect noradrenergic marker: a pooled mega-analysis.
- Kolnes, M., Uusberg, A., & **Nieuwenhuis**, S. (submitted). Broadening of attention dilates the pupil.

- Scheffer, M., Borsboom, D., **Nieuwenhuis**, S., & Westley, F. (accepted). Belief traps: Understanding and managing the resilience of harmful beliefs. *Proceedings of the National Academy of Sciences*.
- Tromp, J., **Nieuwenhuis**, S., & Murphy, P.R. (accepted). The effects of neural gain on reactive cognitive control. *Computational Brain & Behavior*.
- van den Brink, R.L., Murphy, P.R., Desender, K., de Ru, N., & **Nieuwenhuis**, S. (2021). Temporal expectation hastens sensory encoding but does not affect evidence quality. *Journal of Neuroscience*, 41, 130-143.
- Tona, K.D., Revers, H., Verkuil, B., & **Nieuwenhuis**, S. (2020). Noradrenergic regulation of cognitive flexibility: no effects of stress, transcutaneous vagus nerve stimulation and atomoxetine on task-switching. *Journal of Cognitive Neuroscience*, 32, 1881-1895.
- Ásgeirsson, Á.G. & **Nieuwenhuis**, S. (2019). Effects of arousal on biased competition in attention and short-term memory. *Attention, Perception, & Psychophysics*, 81, 1901-1912.
- Warren, C.M., Tona, K.D., Ouwerkerk, L., van Paridon, J., Poletiek, F., van Steenbergen, H., Bosch, J.A., & **Nieuwenhuis**, S. (2019). The neuromodulatory and hormonal effects of transcutaneous vagus nerve stimulation as evidenced by salivary alpha amylase, salivary cortisol, pupil diameter, and the P3 event-related potential. *Brain Stimulation*, 12, 635-642.
- Tona, K.D., van Osch, M.J.P., **Nieuwenhuis**, S., & Keuken, M.C. (2019). Visualizing the human locus coeruleus in vivo at 7 Tesla MRI. *PLoS ONE*, 14: e0209842.
- Jepma, M., Brown, S.B., Murphy, P.R., Koelewijn, S.C., de Vries, B., van den Maagdenberg, A.M., & **Nieuwenhuis**, S. (2018). Noradrenergic and cholinergic modulation of belief updating. *Journal of Cognitive Neuroscience*, 30, 1803-1820.
- van den Brink, R.L., **Nieuwenhuis**, S., & Donner, T.H. (2018). Amplification and suppression of distinct brain-wide functional networks by catecholamines. *Journal of Neuroscience*, 38, 7476-7491.
- Shine, J.M., van den Brink, R.L., Hernaus, D., **Nieuwenhuis**, S., & Poldrack, R.A. (2018). Catecholaminergic manipulation alters dynamic network topology across cognitive states. *Network Neuroscience*, 2, 381-396.
- Harsay, H.A., Cohen, M.X., Spaan, M., Weeda, W.D., **Nieuwenhuis**, S., & Ridderinkhof, K.R. (2018). Error awareness and motivational significance: Shifts in networks centering on anterior insula co-vary with error blindness and pupil dilation. *Behavioural Brain Research*, 355, 24-35.
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- Ásgeirsson, Á.G. & **Nieuwenhuis**, S. (2017). No arousal-biased competition in focused visuospatial attention. *Cognition*, 168, 191-204.
- Tona, K.D., Keuken, M.C., de Rover, M., Lakke, E., Forstmann, B.U., **Nieuwenhuis**, S., & van Osch, M.J.P. (2017). In vivo visualization of the locus coeruleus in humans: Quantifying the test-retest reliability. *Brain Structure and Function*, 222, 4203-4217.
- Warren, C.M., Wilson, R.C., van der Wee, N.J., Giltay, E.J., van Noorden, M.S., Cohen, J.D., & **Nieuwenhuis**, S. (2017). The effect of atomoxetine on random and directed exploration in humans. *PLoS ONE*, 12: e0176034.
- de Gee, J.W., Colizoli, O., Kloosterman, N., Knapen, T., **Nieuwenhuis**, S., & Donner, T.H. (2017). Dynamic modulation of decision biases by brainstem arousal systems. *eLife*, 6: e23232.
- Warren, C.M., van den Brink, R.L., **Nieuwenhuis**, S., & Bosch, J.A. (2017). The norepinephrine transporter blocker atomoxetine increases salivary alpha amylase. *Psychoneuroendocrinology*, 78, 233-236.

- Murphy, P.R., Boonstra, E., & **Nieuwenhuis**, S. (2016). Global gain modulation generates time-dependent urgency during perceptual choice in humans. *Nature Communications*, 7, 13526.
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- van den Brink, R.L., Murphy, P.R., & **Nieuwenhuis**, S. (2016). Pupil diameter tracks lapses of attention. *PLoS ONE*, 11: e0165274.
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- Naber, M., Brown, S. B., Vedder, A., & **Nieuwenhuis**, S. (2016). Speed and lateral inhibition of stimulus processing contribute to individual differences in Stroop-task performance. *Frontiers in Psychology*, 7:822.
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- Murphy, P.R., van Moort, M., & **Nieuwenhuis**, S. (2016). The pupillary orienting response predicts adaptive behavioral adjustment after errors. *PLoS ONE* 11: e0151763.
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- Nieuwenhuis**, S., & de Kleijn, R. (2011). Consciousness of targets during the attentional blink: A gradual or all-or-none dimension? *Attention, Perception, & Psychophysics*, 73, 364-373.
- Nieuwenhuis**, S., de Geus, E.J., & Aston-Jones, G. (2011). The anatomical and functional relationship between the P3 and autonomic components of the orienting response. *Psychophysiology*, 48, 162-175.
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- Gilzenrat, M.S., **Nieuwenhuis** S., Jepma, M., & Cohen, J.D. (2010). Pupil diameter tracks changes in control state predicted by the adaptive gain theory of locus coeruleus function. *Cognitive, Affective, & Behavioral Neuroscience*, 10, 252-269.
- (selected by the Psychonomic Society as “Best Article published in CABN in 2010”)**
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- Nieuwenhuis**, S., Yeung, N., & Cohen, J.D. (2003). A computational simulation of electrophysiological markers of anterior cingulate activity in a Go/NoGo task. Technical Report 2003/1, Center for the Study of Brain, Mind, and Behavior, Princeton University.

- Holroyd, C.B., Coles, M.G.H., & **Nieuwenhuis**, S. (2002). Medial prefrontal cortex and error potentials. *Science*, 296, 1610-1611 (Letter).
- Nieuwenhuis**, S., Ridderinkhof, K.R., Talsma, D., Coles, M.G.H., Holroyd, C.B., Kok, A., & Van der Molen (2002). A computational account of altered error processing in older age: Dopamine and the error-related negativity. *Cognitive, Affective & Behavioral Neuroscience*, 2, 19-36.
- Nieuwenhuis**, S., & Monsell, S. (2002). Residual costs in task-switching: Testing the failure-to-engage hypothesis. *Psychonomic Bulletin & Review*, 9, 86-92.
- Nieuwenhuis**, S., Ridderinkhof, K.R., Blom, J., Band, G.P.H., & Kok (2001). Error-related brain potentials are differentially related to awareness of response errors: Evidence from an antisaccade task. *Psychophysiology*, 38, 752-760.
- Nieuwenhuis**, S., Ridderinkhof, K.R., De Jong, R., Kok, A., & Van der Molen, M.W. (2000). Inhibitory inefficiency and failures of intention activation: Age-related decline in the control of saccadic eye movements. *Psychology and Aging*, 15, 635-647.
- Lorist, M.M., Klein, M., **Nieuwenhuis**, S., De Jong, R., Mulder, G., & Meijman, T.F. (2000). Mental fatigue and task control: Planning and preparation. *Psychophysiology*, 37, 614-625.

#### Dutch publications:

- van Nunspeet, F., Derkx, B., Ellemers, N., & **Nieuwenhuis**, S. (2012). Willen, denken, doen: Een ERP-onderzoek naar de invloed van morele motieven op sociale categorisatie in een impliciete associatietest. In M. Stick, M. Baas, L. van Dillen, R. Dotsch, D. Lakens, & M. de Vries (Eds.) Jaarboek Sociale Psychologie 2012. Groningen: ASPO Pers.
- Wagenmakers, E.J., & **Nieuwenhuis**, S. (2005). Damasio's error? De somatic marker hypothese onder vuur. *Neuropraxis*, nr. 6, 165-169.
- Nieuwenhuis**, S. (2005). Foutendetectie in de menselijke hersenen. *Neuropraxis*, nr. 3, 59-63.
- Nieuwenhuis**, S. & Olsthoorn, N. (1999). *Stamboom van de Nederlandse Psychonomie* (poster).

#### Invited presentations (selection)

- 01/2003 Invited presentation at Brock University, St Catherine's, Canada.
- 04/2003 International workshop "Performance Monitoring & Interference Control: Basic Issues & Individual Differences" in Amsterdam.
- 07/2003 Workshop "Errors, Conflicts and the Brain. Current Opinions on Performance Monitoring" in Dortmund, Germany.
- 05/2004 International workshop "Unique and shared processing limitations in dual-task performance" in Leiden, the Netherlands.
- 12/2004 Invited presentation at the University of Ghent, Belgium.
- 01/2005 Invited presentation at the 2005 Carmel Meeting "Forty Years of P300" in St Petersburg, Florida.
- 03/2005 International workshop "Control in Attention and Action" in Amsterdam, the Netherlands.
- 09/2005 Annual Meeting of the Society for Psychophysiological Research (SPR) in Lisbon, Portugal.
- 06/2006 Young Scientist Award lecture at the 6<sup>th</sup> European Conference of the Federation of European Psychophysiology Societies (FEPS) in Budapest, Hungary.
- 05/2008 Annual Cognition Lecture Wolfram Schultz at the KNAW in Amsterdam. How to investigate the role of neuromodulatory systems in human cognition? (supporting act)

07/2008	International symposium “Attention and Performance XXIII: Decision making” in Stowe, VT, USA.
05/2009	Invited presentation at the University of Magdeburg, Germany.
10/2009	Early Career Award lecture at the 49 <sup>th</sup> annual meeting of the Society for Psychophysiological Research (SPR) in Berlin, Germany.
12/2009	Invited presentation at the University of Trier, Germany.
06/2010	International workshop “Motivational & Cognitive Control” in Oxford.
01/2013	Invited presentation at the University of Exeter, U.K.

### Teaching:

1997-2001	Several practical courses in research- and writing skills, University of Amsterdam
2004-2006	Bachelor course “Attention” (lecturing)
2005-2006	Bachelor course “Cognitive Neuroscience & Neuropsychology” (development, coordination, lecturing)
2008-2011	Bachelor course “Cognitieve Neurowetenschap” (coordination, lecturing)
2009-	Research master course “Scientific Writing” (coordination, lecturing)
2011	Basiskwalificatie Onderwijs (BKO)
2013-2019	Bachelor course “Attention: Theory and Practice” (coordination, lecturing)
2017-2020	Designing an Empirical Study (coordination, lecturing)

### Supervision / postdocs

#### *Research assistants*

Nisan Mol (2003-2004)  
 Niels Alting von Geusau (2004-2006)  
 Sabrina La Fors (2006-2007)  
 Saskia Heijnen (2015-2016)  
 Iliana Samara (2016-2017)  
 Myrthe Vel Tromp (2020-2021)  
 Lysanne Groenewegen (2022)

#### *Graduate students*

Marieke Jepma (2006-2010)(cum laude)  
 Stephen Brown (2009-2014)  
 Rudy van den Brink (2012-2017)  
 Klodian Daphne Tona (2013-2018)  
 Martin Kolnes (visiting, 2019)  
 Beth Lloyd (2019-2023)  
 Jeshua Tromp 2019-2023)

#### *Postdocs*

Mischa de Rover (2008-2011)  
 Marieke Jepma (2010-2011)  
 Christopher Warren (2012-2016)  
 Peter Murphy (2012-2015)  
 Árni Ásgeirsson (2015-2016)  
 Szymon Wichary (2018d-2020)

Verónica Mäki-Marttunen (2020-2022)  
Franz Wurm (2020-2023)

### Honors, Awards, and Grants

2002	NWO TALENT-stipendium (\$32,000)
2002	Winner A.F. Sanders Award for best research paper by EPOS graduate student
2003	NWO-VENI grant (€200,000)
2005	NWO-Cognitie netwerksubsidie (€10,000) and NWO-Fonds Internationalisering Sociale Wetenschappen (€7,500)
2006	Young Scientist Award from the Federation of European Psychophysiology Societies
2006	Beurs voor KNAW Akademie-Colloquium (€19,500)
2006	A.N.T. Young Scientist Award (international award for “exceptional advances in EEG/MEG research”)
2006	NWO-VIDI grant (€600,000)
2009	NWO-MaGW “Vrije Competitie” PhD grant (€218,000)
2009	Award for Distinguished Early Career Contributions to Psychophysiology from the Society for Psychophysiological Research (SPR)
2010	Co-applicant of NWO-ALW “Open Competitie” PhD grant (€208,193; main applicant Eric-Jan Wagenmakers)
2011	ERC Starting Grant (consolidator group; €1,500,000)
2018	Marie Curie Intra-European Fellowship, Szymon Wichary (role: scientist in charge; €200,000)
2018	Leiden University Profile Area Grant €120,000; co-applicants Else Tolner and Gisela Terwindt)
2019	NWO-VICI grant (€1,500,000)

### Reviewing and Editorships

1998-1999	Associate editor of quarterly journal of the Nederlandse Vereniging voor Psychonomie: “De Psychonom”
1999	Editor of the “Stamboom van de Nederlandse Psychonomie” (PhD family tree of Dutch Experimental Psychology; with Nomi Olsthoorn)
2000 -	Reviewer for various professional journals: <b>Psychology:</b> Acta Psychologica, Attention, Perception & Psychophysics; Cognition; Cognition and Emotion; Cognitive Psychology; Current Directions in Psychological Science; Emotion; Emotion Review. Experimental Psychology; Journal of Experimental Psychology: General; Journal of Experimental Psychology: Human Perception and Performance; Journal of Experimental Psychology: Learning, Memory, and Cognition; Memory & Cognition; Psychological Bulletin; Psychological Research; Psychological Review; Psychological Science; Psychology and Aging; Psychonomic Bulletin & Review; Quarterly Journal of Experimental Psychology; Trends in Cognitive Sciences; Vision Research <b>Psychophysiology:</b> Biological Psychology; International Journal of Psychophysiology; Journal of Psychophysiology; Psychophysiology <b>Cognitive Neuroscience:</b> Behavioral and Brain Functions; Behavioural Brain Research; Brain and Cognition; Cognitive, Affective & Behavioral

	<p>Neuroscience; Cognitive Brain Research; Experimental Brain Research; Journal of Cognitive Neuroscience; Social Cognitive and Affective Neuroscience; Social Neuroscience</p> <p><b>Neuroscience:</b> Cerebral Cortex; Cortex; European Journal of Neuroscience; Frontiers in Neuroscience; Human Brain Mapping; Journal of Neurophysiology; Journal of Neuroscience; Nature Neuroscience; Neural Computation; NeuroImage; Neuron; Neuroreport; Neuroscience &amp; Biobehavioral Reviews; Neuroscience Letters</p> <p><b>Psychiatry, neurology and neuropsychology:</b> Archives of General Psychiatry; Biological Psychiatry; Brain; Journal of Psychiatric Research; Psychiatry Research; Neuropsychologia; Schizophrenia Research</p> <p><b>Psychopharmacology:</b> International Journal of Neuropsychopharmacology; Journal of Psychopharmacology; Progress in Neuro-Psychopharmacology &amp; Biological Psychiatry; Psychopharmacology</p> <p><b>Other:</b> Current Biology; eLife; IEEE:Systems, Man, &amp; Cybernetics; JoVE; Nature Communications; Nature Human Behaviour; PLoS Biology; PLoS Computational Biology (guest editor); PLoS ONE; PNAS; Science Advances. Action editor for <i>Brain and Cognition</i> Guest editor for special issue of <i>Cognitive, Affective &amp; Behavioral Neuroscience</i> on medial frontal cortex function (with Richard Ridderinkhof and Todd Braver)</p>
2004 - 2007	
2007	
2005 -	Reviewer for the National Science Foundation (USA); the Netherlands Organization of Scientific Research (NWO); Research into Ageing (UK); the Irish Research Council; the Research Foundation Flanders (Belgium, FWO); the Medical Research Council (UK, MRC); the Handbook of Emotion Regulation (2nd ed., Guilford Press); the Deutsche Forschungsgemeinschaft (Germany, DFG); the European Research Council (ERC); the French National Research Agency; the Volkswagen Foundation; the Wellcome Trust
2018 -	Associate editor for <i>Psychophysiology</i>

#### Member of PhD committees:

Elkan Akyürek (2005, Leiden), Lorenza Colzato (2005, Leiden), Jennifer Ramautar (2005, University of Amsterdam), Zoe Tieges (2007, University of Amsterdam), Edita Poljac (2009, Radboud University Nijmegen), Simon van Gaal (2009, University of Amsterdam), Nelleke van Wouwe (2009, University of Amsterdam), André Keizer (2010, Leiden), Shaozheng Qin (2010, Radboud University Nijmegen), Martijn Lamers (2011, Radboud University Nijmegen), Christopher Warren (2011, University of Victoria, Canada), Henk van Steenbergen (2012, Leiden), Martine van Schouwenburg (2012, Radboud University Nijmegen), Alexander Logemann (2013, Utrecht University), Pascal Haazebroek (2014, Leiden), Anna Wilschut (2014, Vrije Universiteit Amsterdam), Félice van Nunspeet (2014, Leiden), Helga Harsay (2014, University of Amsterdam), Stephan Verschoor (2014, Leiden), Anouk van Loon (2014, University of Amsterdam), Judith Schomaker (2015, Vrije Universiteit Amsterdam), Margot Schel (2015, Leiden), Niels Kloosterman (2015, University of Amsterdam), Marret Noordewier (2016, Leiden), Ke Ma (2016, Leiden), Mirte Brom (2016, Leiden); Laura Steenbergen (2016, Leiden, as promotor); Mikael Kowal (2016, Leiden); Willem Slegers (2017, Tilburg); Brett MacDonald (2017, University of Wollongong, Australia); Roy de Kleijn (2017, Leiden); Michele Colombo (2018, University of Amsterdam); Antonino Visalli (2018, University of Padova); Neeltje Blankenstein (2019, Leiden); Bryant Jongkees (2019, Leiden, as promotor); Andreas Burger (2019, Leiden); Iris Schutte (2019, Utrecht University); Anne Bolders

(2021, Leiden), Eliska Prochazkova (2021, Leiden), Michael Rojek-Giffin (2021, Leiden), Marloes van Moort (2022, Leiden).

Other Relevant Professional Experience:

2005	Co-organizer NVP Wintercongres in Egmond aan Zee
2006	Organizer International Workshop “Errors, Conflicts, and Rewards: The Role of Medial Frontal Cortex in Cognitive Control and Performance Monitoring” in Amsterdam
2007	Co-organizer International Symposium “Blinks of the mind: New insights in temporal attention and consciousness” in Amsterdam
2007-2012	Member of the Board of Examiners, Institute of Psychology, Leiden
2008-2022	Coordinator of the Research Master programme at the Institute of Psychology, Leiden
2008-	Chair of the Research Master Programme Committee of the MSc Psychology (Research)
2008-2009	Leergang Bestuurlijke Vaardigheden, Universiteit Leiden
2009	Member of the beoordelingscommissie NWO-Veni 2009
2009-2011	Executive Board, Leiden Institute for Brain and Cognition
2011	Member of the Scientific Committee for the 11th meeting of the International Conference on Cognitive Neuroscience (ICON XI) in Mallorca, Spain
2011	Jury member NVP dissertatieprijs 2011
2011-	Member of the Attention & Performance Advisory Council
2012-2013	Member of the NWO-Rubiconcommissie 2012
2012	Organizer of LIBC Public Symposium “Drugs and the Brain: Bio-psychologische effecten van geneesmiddelen en recreatieve drugs” (with Serge Rombouts)
2013-2021	Implementation of data-management policy, Institute of Psychology, Leiden
2017	Member of the beoordelingscommissie NWO-SGW Veni 2017
2017	Member of the beoordelingscommissie NWO-SGW Vidi 2017 (preselection)
2018-2019	Member of the program committee for the annual meeting of the Society for Psychophysiological Research 2019 in Washington, DC
2019	Chair of the Midterm Review Committee of the master Developmental Psychopathology in Education and Child Studies (Research) of Leiden University
2019-2022	Chair of the Early Career Award committee of the (Dutch) Society for Brain and Cognition (NVP)
2021	Member of the panel for the assessment of the BSc Biologie, BSc Psychobiologie and MSc Biological Sciences, University of Amsterdam
2022	Member of the beoordelingscommissie NWO-SGW Vici 2022