

PERSONAL AND CONTACT INFORMATION

<i>Full name</i>	Eelke Spaak	<i>Born</i>	2 December 1985
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ACADEMIC POSITIONS

2022 – now	Assistant professor (tenured) Donders Institute, Radboud University
2019 – now	Member <i>Radboud Young Academy</i> (co-chair: 2020-2023) Body of young academics who foster and promote interdisciplinarity and sustainable and open science, and consult the university board on academic policy.
2018 – 2021	Research fellow / <i>Veni laureate</i> Donders Institute, Radboud University Nijmegen, The Netherlands Veni project: “Consciousness in context: Disentangling the paradoxical effects of prior expectations on subjective visual experience”
2017 – 2019	Junior Research Fellow New College, University of Oxford
2015 – 2018	Postdoctoral research fellow University of Oxford; advisor: dr. Mark Stokes Project: “Temporary connective architectures in mind and brain: The role of functional connectivity in working memory”
2006 – 2008	Research assistant Supervisor: prof. dr. Anne Cutler Max Planck Institute for Psycholinguistics, Nijmegen, The Netherlands

DEGREES

2010 – 2014	PhD in Cognitive Neuroscience Donders Institute, Radboud University Nijmegen, The Netherlands Supervisor: prof. dr. Ole Jensen Thesis title: “On the role of alpha oscillations in structuring neural information processing”
2009 – 2010	MSc in Philosophy University of Edinburgh, United Kingdom; supervisor: dr. Tom Roberts Thesis title: “Why stuff is real” (on the ontological equivalence of the micro- and macrophysical worlds)
2007 – 2009	MSc in Cognitive Neuroscience (<i>cum laude</i>) Radboud University Nijmegen, The Netherlands Supervisors: prof. dr. Stan Gielen, dr. Magteld Zeitler Thesis title: “Hippocampal theta modulation of neocortical spike times and gamma rhythm: A biophysical model study”
2005 – 2009	BA in Philosophy (<i>bene meritum</i>) Radboud University Nijmegen, The Netherlands; supervisor: prof. dr. Marc Slors
2003 – 2008	BSc in Artificial Intelligence (<i>bene meritum</i>) Radboud University Nijmegen, The Netherlands; supervisor: dr. Pim Haselager

PEER-REVIEWED PUBLICATIONS

- Pérez-Bellido, A., **Spaak, E.**, & De Lange, F.P. (2023) Magnetoencephalography recordings reveal the neural mechanisms of auditory contributions to improved visual detection. *Communications Biology*. 6(1). doi:10.1038/s42003-022-04335-3.
- Kern, P., Heilbron, M., De Lange, F.P., & **Spaak, E.** (2022) Cortical activity during naturalistic music listening reflects short-range predictions based on long-term experience. *eLife*. doi: 10.7554/eLife.80935
- Pike, A.C., Atherton, K.E., Bauer, Y., Crittenden, B.M., Van Ede, F., Hall-McMaster, S., Von Lautze, A.H., Muhle-Karbe, P.S., Murray, A.M., Myers, N.E., Printzlau, F., Salaris, I., **Spaak, E.**, Tankelevitch, L., Trübutschek, D., Wasmuht, D., & Noonan, M.P. (2022) 10 simple rules for a supportive lab environment. *Journal of Cognitive Neuroscience*. 35(1). doi:10.1162/jocn_a_01928
- Spaak, E.**, Peelen, M.V., & De Lange, F.P. (2022) Scene context impairs perception of semantically congruent objects. *Psychological Science*. 33(2). doi:10.1177/09567976211032676
- Barne, L.C., Cravo, A.M., De Lange, F.P., & **Spaak, E.** (2021) Temporal prediction elicits rhythmic pre-activation of relevant sensory cortices. *European Journal of Neuroscience*. 55(11-12). doi:10.1111/ejn.15405
- Bouwkamp, F.G., De Lange, F.P., & **Spaak, E.** (2021) No exploitation of temporal predictive context during visual search. *Royal Society Open Science*. 8(3). doi:10.1098/rsos.201565
- Van Es, M.W.J., Marshall, T.R., **Spaak, E.**, Jensen, O., & Schoffelen, J.-M. (2020) Phasic modulation of visual representations during sustained attention. *European Journal of Neuroscience*. doi:10.1111/ejn.15084
- Drijvers, L., Jensen, O., & **Spaak, E.** (2020) Rapid invisible frequency tagging reveals nonlinear integration of auditory and visual information. *Human Brain Mapping*. 42(4), 1138-1152. doi:10.1002/hbm.25282
- Fritsche, M., **Spaak, E.**, & De Lange, F.P. (2020). A Bayesian and efficient observer model explains concurrent attractive and repulsive history biases in visual perception. *eLife*. doi: 10.7554/eLife.55389.
- Tankelevitch, L., **Spaak, E.**, Rushworth, M.F.S., & Stokes, M.G. (2020). Previously reward-associated stimuli capture spatial attention in the absence of changes in the corresponding sensory representations as measured with MEG. *The Journal of Neuroscience*. 40(26), 5033-5050. doi: 10.1523/jneurosci.1172-19.2020.
- Manahova, M.E., **Spaak, E.**, & De Lange, F.P. (2020). Familiarity increases processing speed in the visual system. *Journal of Cognitive Neuroscience*. 32(4), 722-733. doi: 10.1162/jocn_a_01507.
- Spaak, E.** & De Lange, F.P. (2020) Hippocampal and prefrontal theta-band mechanisms underpin implicit spatial context learning. *The Journal of Neuroscience*. 40(1), 191-202. doi: 10.1523/jneurosci.1660-19.2019.
- Wasmuht, D.F., **Spaak, E.**, Buschman, T.J., Miller, E.K., & Stokes, M.G. (2018) Intrinsic neuronal dynamics predict distinct functional roles during working memory. *Nature Communications*. doi: 10.1038/s41467-018-05961-4.
- Spaak, E.**, Watanabe, K., Funahashi, S., & Stokes, M.G. (2017) Stable and dynamic coding for working memory in primate prefrontal cortex. *The Journal of Neuroscience*. 37(27), 6503-6516. doi:10.1523/jneurosci.3364-16.2017.
- Jensen, O., **Spaak, E.**, & Park, H. (2016) Discriminating valid from spurious indices of phase-amplitude coupling. *eNeuro*. 3(6). doi:10.1523/eneuro.0334-16.2016.
- Stokes, M.G. & **Spaak, E.** (2016) The importance of single-trial analyses in cognitive neuroscience. *Trends in Cognitive Sciences*. 20(7), 483-486, doi: 10.1016/j.tics.2016.05.008.
- Spaak, E.**, Fonken, Y., Jensen, O., & De Lange, F.P. (2016) The neural mechanisms of prediction in visual search. *Cerebral Cortex*. 26(11), 4327-4336, doi: 10.1093/cercor/bhv210.
- Stokes, M.G., Wolff, M.J., & **Spaak, E.** (2015) Decoding rich spatial information with high temporal resolution. *Trends in Cognitive Sciences*. 19(11), 636-638, doi:10.1016/j.tics.2015.08.016.

- Jensen, O., **Spaak, E.**, & Zumer, J.M. (2019/2014) Human brain oscillations: From physiological mechanisms to analysis and cognition. In Supek, S., & Aine, C.J. (Eds.), *Magneto-encephalography: From signals to dynamic cortical networks*. Berlin: Springer.
- Spaak, E.**, De Lange, F.P., & Jensen, O. (2014). Local entrainment of alpha oscillations by visual stimuli causes cyclic modulation of perception. *The Journal of Neuroscience*. 34(10), 3536-3544, doi:10.1523/jneurosci.4385-13.2014
- Spaak, E.**, Bonnefond, M., Maier, A., Leopold, D.A., & Jensen, O. (2012). Layer-specific entrainment of gamma-band neural activity by the alpha rhythm in monkey visual cortex. *Current Biology*, 22(24), 2313–2318. doi: 10.1016/j.cub.2012.10.020
- Spaak, E.**, Zeitler, M., & Gielen, C.C.A.M. (2012). Hippocampal theta modulation of neocortical spike times and gamma rhythm: A biophysical model study. *PLoS ONE*, 7(10): e45688. doi:10.1371/journal.pone.0045688
- Spaak, E.** (2009). No one is tricking anyone: A critique of Wegner's theory of conscious will. *Splijtstof*, 37(3), 15–26.
- Spaak, E.** & Haselager, P.F.G. (2008). Imitation and mirror neurons: An evolutionary robotics model. In A. Nijholt, M. Pantic, M. Poel, & H. Hondorp (Eds.) *Proceedings of BNAIC 2008, the Twentieth Belgian-Dutch Artificial Intelligence Conference*. (pp. 249–256). Enschede: University of Twente.

PREPRINTS & UNDER REVIEW

- Spaak, E.** (2021) The “Bayesian” brain, with a bit less Bayes. *arXiv*. doi:10.48550/arXiv.2111.09063
- Van Es, M.W.J., **Spaak, E.**, Schoffelen, J.-M., & Oostenveld, R. (2021) Reducing the efforts to create reproducible analysis code with FieldTrip. *bioRxiv*. doi: 10.1101/2021.02.05.429886

GRANTS AND AWARDS

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| 2023 | NWO Starting Grant |
| 2018 – 2021 | Veni Fellowship , Netherlands Organisation for Scientific Research (NWO) |
| 2017 – 2019 | Junior Research Fellowship, New College, Oxford |
| 2017 | Postdoctoral Fellow Award, Cognitive Neuroscience Society |
| 2016 | nVidia Academic Hardware Grant |
| 2015, 2017 | Guarantors of Brain Travel Grant (2x) |
| 2012, 2013 | Radboud University Internationalization Grant (2x) |
| 2009 – 2010 | Huygens Talent Programme (HSP) Grant |
| 2009 – 2010 | VSBfonds scholarship |

SELECTED PRESENTATIONS

- 2020 *Hippocampal and prefrontal theta-band mechanisms underpin implicit spatial context learning*. eLife Early Career Researcher online talk.
- 2019 *Implicit context learning in hippocampus and prefrontal cortex*. Free University Amsterdam. [invited talk]
- Implicit context learning in hippocampus and prefrontal cortex*. Brain & Cognition Meeting, University of Amsterdam. [invited talk]
- 2017 *Rapid synaptic plasticity as a substrate for working memory maintenance*. Cognitive Neuroscience Society, San Diego, USA. [postdoctoral fellow award poster]

- Rapid synaptic plasticity as a substrate for working memory maintenance.* School of Psychology, University of Birmingham. [invited talk]
- 2016 *The neural basis of dynamic coding during a spatial working memory task.* Society for Neuroscience (SfN), San Diego, USA. [symposium speaker]
- Stable and dynamic coding for working memory in primate prefrontal cortex.* International Conference on Biomagnetism (BioMAG), Seoul, South Korea. [**symposium speaker, organizer, and chair**]
- 2014 *Phase coding in the visual system & Sensorimotor predictions during resumed visual search* Oxford Centre for Human Brain Activity, University of Oxford. [invited talk]
- 2013 *Phase coding in the visual system.* NeuroSpin Center, Université Paris-Saclay. [invited talk]
- Phase coding in the visual system.* Institut du Cerveau et de la Moelle Épineière, Paris, France. [invited talk]
- Entrainment of alpha oscillations by visual stimuli and its effect on perception.* Philips Research, Eindhoven, The Netherlands. [invited talk]
- 2012 Participation in *The Cultural Meaning of the Natural Sciences*, Royal Dutch Academy of Sciences. With philosopher Prof Daniel Dennett, in honour of his receiving the Erasmus Prize from HRH Prince Willem-Alexander. [**all-day 'inner circle' panelist**]
- 2011 *Cross-laminar cross-frequency interactions in Monkey V1.* Champalimaud Neuroscience Symposium, Lisbon, Portugal. [poster]
- 2008 *From imitation to action understanding: On the evolution of mirror neurons.* European Society for Philosophy and Psychology, Utrecht, The Netherlands.

TEACHING EXPERIENCE

- 2023 - now **Lecturer** in the course 'Neuroimaging 2: Electrophysiological Methods', MSc Cognitive Neuroscience, Radboud University
- 2022 - now **Course coordinator, lecturer, & de-facto examiner**, Frequentist Statistics, B1 Artificial Intelligence, Radboud University
- 2022 - now **Course coordinator, lecturer, & de-facto examiner**, Research Design & Scientific Method, B1 Artificial Intelligence, Radboud University
- 2011 - 2019 **Lecturer and tutorial supervisor** at the 'Toolkit for Cognitive Neuroscience', a course on MEG/EEG advanced data analysis (level: MSc/PhD) at the DCCN
- 2015 - 2017 **Tutor** in the course 'Advanced Option: Working Memory', B3 Psychology, University of Oxford
- 2015 Obtained **qualification: Teaching and Learning Part 1** at the University of Oxford
- 2013 - 2015 **Lecturer** in the course 'Cognitive Neuroimaging and Neuroscience', B3 Biology, Radboud University
- 2012 - ongoing Several **FieldTrip data analysis workshops** (Max Planck Institute for Human Brain and Cognitive Sciences, Leipzig; Eberhard-Karls University Tübingen; Zürich University; King's College London; University of Exeter); **invited speaker and organizer**

SUPERVISION EXPERIENCE

- 2019 - ongoing PhD student Floortje Bouwkamp, Radboud University (formal **co-promotor** & daily supervisor)
- 2019 - 2022 PhD student Mariya Manahova, Radboud University (formal **co-promotor** & daily supervisor)

2015 – 2018	PhD student Lev Tankelevitch, University of Oxford (daily supervisor)
2015 – 2018	PhD student Dante Wasmuht, University of Oxford (daily supervisor)
2012 – ongoing	Multiple MSc/BSc students, formally and informally, and as second examiner

ORGANIZATIONAL/MANAGERIAL/OUTREACH/IMPACT

2023	Interviewed for national podcast “Jeugdjournaal” on gaming and the brain
2023	Interviewed for national podcast “Over de Kop” on music and the brain
2022 – now	Contributor BrainHelpdesk, answering brain-related questions for a lay audience
2021	Member of formal (6-year interval) visitation committee Radboud University IT services and university library
2020 – now	Member and co-chair of Radboud Young Academy
2020 – now	Open source software developer for PyMC3, a software package for constructing and sampling from hierarchical Bayesian models in Python
2010 – now	Open source software developer for FieldTrip, a software package for analysis of electrophysiological data in Matlab
2019 – 2021	City coordinator Pint of Science , international popular science festival
2019 – 2021	Postdoc/early career researcher representative at the Donders Centre for Cognitive Neuroimaging (DCCN).
2019 – 2020	Member selection committee for the VSBfonds scholarships
2018 – 2019	Invited speaker and chair (on different nights) at Science Café Nijmegen
2017	Invited speaker at the Dutch StarCraft League finals event
2008 – 2019	Co-owner at Spaak & Van Caspel Internet Presence, a small business dedicated to designing, developing and maintaining professional (e-commerce) websites
2012 – 2015	Founder and co-chair of the Foundations meeting at the DCCN, discussing theoretical and philosophical perspectives on neuroscience
2010 – 2013	Chair of the Electrophysiological Data Analysis meetings at the DCCN
2011 – 2013	PhD representative at the DCCN
2011 – 2013	Member and chair of the DCCN board of representatives for staff
2006 – 2008	Faculty Student Council of the Faculty of Philosophy at the RU Nijmegen
2006 – 2007	Educational Committee , Department of Artificial Intelligence, RU Nijmegen
2004 – 2005	Organisation of BNAIS, an international student symposium on artificial intelligence