

Janneke F.M. Jehee

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Principal Investigator

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Academic Positions

- 2017-present Principal Investigator (tenured), Center for Cognitive Neuroimaging, Donders Institute for Brain, Cognition and Behavior, Nijmegen, Netherlands
- 2010-2016 Tenure-track Principal Investigator, Center for Cognitive Neuroimaging, Donders Institute for Brain, Cognition and Behavior, Nijmegen, Netherlands
- 2007-2010 Postdoctoral Fellow, Department of Psychology, Vanderbilt University, TN
- 2005-2007 Postdoctoral Fellow, Center for Visual Science and Department of Computer Science, University of Rochester, NY

Education

- 2006 Ph.D. in Psychology, University of Amsterdam, Netherlands
- 2000 M.A. in Psychology, University of Amsterdam, Netherlands

Grants and Fellowships

- 2016-2022 ERC Starting Grant, European Research Council (grant number 677601, Role: PI, €1,500,000)
- 2016-2019 ALW Open Competition Grant, Netherlands Organization for Scientific Research (NWO) (grant number 824.15.016, Role: PI, €262,663; declined to accept ERC Starting Grant)

- 2014-2018 Marie Curie FP7-PEOPLE-2013-ITN Innovative Doctoral Program (IDP) grant, European Union (grant number 604063, Role: co-PI, together with 10 others, €3,349,230)
- 2010-2014 Marie Curie International Re-integration Grant, European Union (grant number 256456, Role: PI, €100,000)
- 2007-2009 Postdoctoral research fellowship, Netherlands Organization for Scientific Research (NWO) (grant number 446-06-030, Role: PI, €67,620)
- 2004 National Computer Facilities (NCF) grant, Netherlands Organization for Scientific Research (Role: co-author, together with HPC support center SARA, Amsterdam, Netherlands, €20,600)

Honors and Awards

- 2018 Vanderbilt University Early Career Award
- 2017 Vision Sciences Society (VSS) Young Investigator Award
- 2006 Travel award, Marine Biological Laboratory, Woods Hole, MA
- 2004 Travel award, International Conference on Cognitive and Neural Systems, Boston University, Boston, MA
- 2003 Travel award, Department of Psychology, Amsterdam University, Netherlands

Publications

- Chetverikov, A. & Jehee, J.F.M. (submitted). Motion direction is represented as a bimodal probability distribution in the human visual cortex.
- Takashima, A., Carota, F., Schoots, V., Redmann, A., Jehee, J.F.M., & Indefrey, P. (submitted). Naming objects involves the retrieval of colour information.
- van Bergen, R.S., & Jehee, J.F.M. (preprint). TAFKAP: An improved method for probabilistic decoding of cortical activity. *bioRxiv*. doi:10.1101/2021.03.04.433946.
- Rahnev, D., Block, N., Denison, R., & Jehee, J.F.M. (preprint). Is perception probabilistic? Clarifying the definitions. *PsyArXiv*. doi:10.31234/osf.io/f8v5r.
- van Mourik, T., Koopmans, P.J., Bains, L.J., Norris, D.G., & Jehee, J.F.M. (accepted). Investigation of layer specific BOLD in the human visual cortex during visual attention. *Aperture Neuro*. Preprint on *bioRxiv*, doi:10.1101/2021.02.07.430129.

Geurts, L.S., Cooke, J.R.H., van Bergen, R.S., & Jehee, J.F.M. (2022). Subjective confidence reflects representation of Bayesian probability in cortex. *Nature Human Behaviour*, *6*, 294-305. doi:10.1038/s41562-021-01247-w.

See for an independent commentary on this work:

Mamassian, P. (2022). *Nature Human Behaviour*. doi:10.1038/s41562-021-01248-9.

Rahnev, D., et al. (2022). Consensus goals for the field of visual metacognition. *Perspectives on Psychological Science*. doi:10.1177/17456916221075615.

Bertana, A., Chetverikov, A., van Bergen, R.S., Ling, S., & Jehee, J.F.M. (2021). Dual strategies in human confidence judgments. *Journal of Vision*, *21*, 21. doi:10.1167/jov.21.5.21

van Bergen, R.S., & Jehee, J.F.M. (2019). Probabilistic representation in human visual cortex reflects uncertainty in serial decisions. *Journal of Neuroscience*, *39*, 8164-8176. doi:10.1523/jneurosci.3212-18.2019.

See for an independent commentary on this work:

de Azevedo Neto, RM. (2020). doi:10.3389/fnhum.2020.580581.

Geurts, L.S., Chetverikov, A., Van Bergen, R.S., Zhou, Y.J., Bertana, A., & Jehee, J.F.M. (2018). Optimality is critical when it comes to testing computation-level hypotheses. *Behavioral and Brain Sciences*, *41*, e231. doi:10.1017/S0140525X18001450.

van Bergen, R.S., & Jehee, J.F.M. (2018). Modeling correlated noise is necessary to decode uncertainty. *NeuroImage*, *180*, 78-87. doi:10.1016/j.neuroimage.2017.08.015.

Moerel, D., Ling, S., & Jehee, J.F.M. (2016). Perceptual learning increases orientation sampling efficiency. *Journal of Vision*, *16:36*, 1-9. doi:10.1167/16.3.36.

van Bergen, R.S., Ma, W.J., Pratte, M.S., & Jehee, J.F.M. (2015). Sensory uncertainty decoded from visual cortex predicts behavior. *Nature Neuroscience*, *18*, 1728-30. doi:10.1038/nn.4150.

Ling*, S., Jehee*, J.F.M., & Pestilli*, F. (2015). A review of the mechanisms by which attentional feedback shapes selectivity. *Brain Structure and Function*, *220*, 1237-50. doi:10.1007/s00429-014-0818-5.

* These authors contributed equally to this work.

Bosch, S, Jehee, J.F.M., Fernández, G., & Doeller, C.F. (2014). Reinstatement of associate memories in early visual cortex is signaled by the hippocampus. *Journal of Neuroscience*, *34*, 7493-7500.

- Jehee, J.F.M., Ling, S., Swisher, J.D., van Bergen, R.S., & Tong, F. (2012). Perceptual learning selectively refines orientation representations in early visual cortex. *Journal of Neuroscience*, *32*, 16747-16753.
- Kok, P., Jehee, J.F.M., & de Lange, F.P. (2012). Less is more: Expectation sharpens representations in the primary visual cortex. *Neuron*, *75*, 265-270.
- Ballard, D.H., & Jehee, J.F.M. (2012). Dynamic coding of signed quantities in cortical feedback circuits. *Frontiers in Psychology*, *3*. doi:10.3389/fpsyg.2012.00254.
- Jehee, J.F.M., Brady, D.K., & Tong, F. (2011). Attention improves encoding of task-relevant features in the human visual cortex. *Journal of Neuroscience*, *31*, 8210-8219.
- Kok, P., Rahnev, D., Jehee, J.F.M., Lau, H.C., & de Lange, F.P. (2011). Attention reverses the effect of prediction in silencing sensory signals, *Cerebral Cortex*, *9*, 2197-206. doi:10.1093/cercor/bhr310.
- Ballard, D.H., & Jehee, J.F.M. (2011). Dual roles for spike signaling in cortical neural populations. *Frontiers in Computational Neuroscience*, *5*. doi:10.3389/fncom.2011.00022.
- Jehee, J.F.M., & Ballard, D.H. (2009). Predictive feedback can account for biphasic responses in the lateral geniculate nucleus. *PLoS: Computational Biology*, *5*. doi:10.1371/journal.pcbi.1000373.
- Jehee, J.F.M., & Murre, J.M.J. (2008). The scalable mammalian brain: Emergent distributions of glia and neurons. *Biological Cybernetics*, *98*, 439-445.
- Jehee, J.F.M., Lamme, V.A.F., & Roelfsema, P.R. (2007). Boundary assignment in a recurrent network architecture. *Vision Research*, *47*, 1153-1165.
- Jehee, J.F.M., 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 Research*, *1157*, 167-176.
- Meeter, M., Jehee, J.F.M., & Murre, J.M.J. (2007). Neural models that convince: Model hierarchies and other strategies to bridge the gap between behavior and the brain. *Philosophical Psychology*, *20*, 749-772.
- Jehee, J.F.M., Rothkopf, C., Beck, J.M., & Ballard, D.H. (2006). Learning receptive fields using predictive feedback. *Journal of Physiology – Paris*, *100*, 125-132.

Invited Talks and Colloquia

- 9/2022 Invited talk, Netherlands Institute for Neuroscience & Spinoza Centre for Neuroimaging, Amsterdam, NL
- 9/2022 Invited talk (virtual), International Interdisciplinary Computational Cognitive Science Summer School (IICSSS), Tübingen, Germany
- 7/2022 Invited talk (virtual), Max Planck School of Cognition, Dresden, Germany
- 7/2022 Invited talk (keynote lecture), Perceptual Metacognition Meeting (satellite event of the ASSC), Amsterdam, NL
- 6/2022 Invited talk (virtual), International Max Planck Research School on Neuroscience of Communication, Leipzig, Germany
- 4/2022 Invited talk (virtual), University College London, London, UK
- 7/2021 Invited talk (Elman symposium, virtual), 43rd Annual Meeting of the Cognitive Science Society
- 7/2021 Invited talk (virtual), Salzburg Mind-Brain Annual Meeting (SAMBA), Salzburg, Austria
- 6/2021 Invited talk (virtual), Workshop on Perceptual Confidence and Uncertainty, Paris, France
- 1/2021 Invited talk (virtual), Bernstein Center for Computational Neuroscience, Berlin, Germany
- 11/2020 Invited talk (virtual), Zurich Center for Neuroeconomics, Zurich, Switzerland
- 11/2019 Invited talk, Workshop Generative Perception, Matera, Italy
- 5/2019 Invited talk (Boynton Colloquium), University of Rochester, Rochester, NY
- 5/2019 Invited talk (Early Career Award winner talk), Vanderbilt University, Nashville, TN
- 9/2018 Invited talk (Helmholtz lecture), Utrecht University, Utrecht, Netherlands
- 6/2018 Invited talk, NeuroSpin, CEA-Saclay, France
- 3/2018 Invited talk, Workshop Probabilistic Brain, Durham, UK
- 2/2018 Invited talk, Workshop Computational Modeling of Decision Making, Paris, France
- 12/2017 Symposium talk, 2017 winter conference of the Netherlands Society for Psychonomics (NVP), Egmond aan Zee, Netherlands
- 8/2017 Invited talk, Free University, Amsterdam, Netherlands

- 5/2017 Invited talk (Young Investigator Award winner talk), 17th Annual Meeting of the Vision Sciences Society, FL
- 10/2016 Invited talk, Central European University, Budapest, Hungary
- 9/2016 Invited talk, University of Oxford, Oxford, UK
- 8/2016 Symposium talk, 39st European Conference on Visual Perception (ECVP), Barcelona, Spain
- 6/2015 Invited talk, University of Amsterdam, Amsterdam, Netherlands
- 9/2014 Invited talk, University of Amsterdam, Amsterdam, Netherlands
- 12/2013 Symposium talk, 14th winter conference of the Netherlands Society for Psychonomics (NVP), Egmond aan Zee, Netherlands
- 9/2013 Invited talk, University of Leuven, Leuven, Belgium
- 3/2013 Invited talk, University of Barcelona, Barcelona, Spain
- 1/2013 Invited talk, University of Amsterdam, Amsterdam, Netherlands
- 12/2012 Invited talk, Radboud University, Nijmegen, Netherlands
- 3/2012 Invited talk, Radboud University, Nijmegen, Netherlands
- 2/2012 Invited talk, Utrecht University, Utrecht, Netherlands
- 12/2011 Symposium talk, 13th winter conference of the Netherlands Society for Psychonomics (NVP), Egmond aan Zee, Netherlands
- 6/2009 Invited talk, Donders Center for Cognitive Neuroimaging, Nijmegen, Netherlands
- 5/2007 Invited talk, University of Leuven, Leuven, Belgium
- 4/2007 Invited talk, Vanderbilt University, Nashville, TN
- 2/2005 Invited talk, University of Rochester, Rochester, NY

Conference Symposiums & Workshops

- 2022 Workshop organizer, European Conference on Visual Perception, Nijmegen, Netherlands
- 2022 Symposium organizer, European Conference on Visual Perception, Nijmegen, Netherlands (with Laura Geurts)
- 10/2020 Workshop organizer (virtual), Generative Adversarial Collaborations, Cognitive Computational Neuroscience Conference (with Doby Rahnev, Ned Block & Rachel Denison)

2013 Symposium organizer, 14th winter conference of the Netherlands Society for Psychonomics (NVP), Egmond aan Zee, Netherlands (with Jan Brascamp)

Ad-Hoc Reviewer

Journals

Biological Cybernetics, Brain and Cognition, Cerebral Cortex, Cognition, Cortex, Current Biology, eLife, Frontiers in Computational Neuroscience, Journal of Cognitive Neuroscience, Journal of Neurophysiology, Journal of Neuroscience, Journal of Vision, Nature Communications, Nature Human Behaviour, Nature Neuroscience, Neural Computation, Neural Networks, NeuroImage, Neurons Behavior Data analysis and Theory, PLoS Computational Biology, PLoS ONE, Psychological Science, Psychonomic Bulletin & Review

Granting Agencies

German Research Foundation (Germany)
French National Research Agency (France)
Medical Research Council (UK)
National Science Foundation (USA)
Research Foundation Flanders (Belgium)
Wellcome Trust (UK)

Teaching and Advising

Courses Taught

Communication in cognitive neuroscience (graduate-level, 2010-present, Donders Institute)
fMRI tool-kit (graduate-level, 2010, 2021, Donders Institute)
Perception (graduate-level, 2011-2015, 2021, Donders Institute)
HealthPAC winter school (graduate level, 2015, Donders Institute)
Bayesian neurocognitive modeling (graduate-level, 2013, Donders Institute)

Postdoctoral Trainees

Laura Geurts (2021-present)
James Cooke (2019-present)

Andrey Chetverikov (2017-2021/2022, next position: staff scientist at Donders Institute/ Assistant Professor at Bergen University, Norway)

Awarded a Vision Sciences Society Student Travel Fellowship (2020)

Awarded a Radboud Excellence postdoctoral fellowship (2017-2019)

Rosanne Rademaker (2020, next position: Max Planck group leader at ESI Frankfurt, Germany)

Awarded a Marie Skłodowska-Curie postdoctoral fellowship (2018-2020)

Ruben van Bergen (2016-2018, next position: postdoc at Columbia University, NY)

Awarded a Vision Sciences Society Student Travel Fellowship (2017)

Awarded prize for best poster at NVP Conference on Brain and Cognition (2017)

PhD Students

Yin Joey Zhou (co-advised with Saskia Haegens and Floris de Lange; 2017-2021, next position: postdoc at Oxford University, UK)

Awarded travel fellowship for visiting the European Summer School of Vision, Rauschholzhausen, Germany (2021)

Laura Geurts (2016-2021, next position: postdoc at Donders Institute)

Awarded a Vision Sciences Society Student Travel Fellowship (2021)

Awarded travel fellowship for visiting the European Summer School of Vision, Rauschholzhausen, Germany (2021)

Awarded prize for best poster at NVP Conference on Brain and Cognition (2019)

Andrea Bertana (2014-2021; next position: data analyst)

Tim van Mourik (co-advised with David Norris, 2014-2018; next position: postdoc at Donders Institute)

Ruben van Bergen (2012-2016, next position: postdoc at Donders Institute)

Awarded the Radboud UMC Sensory Disorders Talent Award (2016)

Awarded prize for best poster at Donders Institute end-of-year poster session (2014)

Awarded prize for best abstract at Donders Discussions conference (2014)

Awarded travel fellowship for visiting the European Summer School of Vision, Rauschholzhausen, Germany (2014)

Juraj Mesik (visiting graduate student from University of Minnesota, 2015-2016, next position: postdoc at University of Minnesota, MN)

Rosanne Rademaker (visiting PhD student from Maastricht University, 2013-2015, next position: postdoc at University of California, San Diego, CA)

Awarded travel fellowship for visiting the European Summer School of Vision, Rauschholzhausen, Germany (2014)

Sander Bosch (co-advised with Christian Doeller, 2011-2015, next position: postdoc at Donders Institute)

MSc Students

Marc Pabst (2022-present)

Gwennyth Spruijtenburg (2017-2018, next position: trainee at Nijmegen city government)

Laura Geurts (2016, next position: PhD student at Donders Institute)

Joachim de Ronde (2014-2015, next position: graduate student at Concordia University, Canada)

Denise Moerel (2013-2014, next position: research assistant at Macquarie University, Australia)

Ilona Bloem (2013-2014, next position: graduate student at Boston University, MA)

Sridhar Jagannathan (2012-2013, next position: graduate student at Oxford University, UK)

Jasper Fabius (2012, next position: PhD student at Utrecht University, Netherlands)

Research Assistants

Klaudia Ambroziak (2013-2015, next position: graduate student at University of London, UK)

Ruben van Bergen (2011-2012, next position: PhD student at Donders Institute)

Professional Memberships

Netherlands Society for Brain and Cognition (NVP)

Society for Neuroscience

Vision Sciences Society

University Service

2012-present Member of examination board of the cognitive neuroscience master's program, Donders Institute

2010-present Departmental PI meetings, Center for Cognitive Neuroimaging, Donders Institute

2014-2018 Work package leader for FP7-PEOPLE-2013-ITN grant, Donders Institute

- 2017 Member of search committee for principal investigator position in cognitive neuroscience, Donders Institute
- 2013-2015 Member of research infrastructure committee (RIC), Center for Cognitive Neuroimaging, Donders Institute
- 2014 Member of search committee for senior researcher position in MR Physics, Donders Institute
- 2013 Member of search committee for ICT system manager position, Donders Institute
- 2010 Member of search committee for principal investigator position in cognitive neuroscience, Donders Institute

PhD Thesis Committees

- Matthias Fritsche (Donders Institute, 2020)
- Pim Mostert (Donders Institute, 2019)
- Morgan Spence (University of Queensland Australia, 2018)
- Barrie Klein (University Utrecht, 2018)
- Katharine Shapcott (Donders Institute, 2017)
- Jim Herring (Donders Institute, 2017)
- Jeroen Atsma (Donders Institute, 2017)
- Eelke Spaak (Donders Institute, 2015)
- Frank Leoné (Donders Institute, 2014)
- Iris Groen (University of Amsterdam, 2014)
- Joke Kalisvaart (Donders Institute, 2013)
- Marijke Brants (University of Leuven, 2013)
- Tessa van Leeuwen (Donders Institute, 2011)
- Ingrid Nieuwenhuis (Donders Institute, 2010)

Public Outreach

Interviews about my lab's work for both local and national (web) magazines and newspapers (2010-present)

Many lectures and demos by both myself and members of my lab at local high schools, science fairs, science museums, etc. (2010-present)

Keynote presentation for Brain Awareness Week event, Donders Institute (2012)

Several presentations at the Adventure Science Center, Nashville TN (2008-2009)