

Columbia University, Department of Neuroscience
Zuckerman Mind, Brain, and Behavior Institute
Jerome L. Greene Science Center
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Research Interests

I study the neural basis of decision making. I combine behavioral studies in non-human primates with single-unit recordings, high-channel electrophysiology, optogenetics, chemogenetics, and pharmacology. I develop computational models that generate testable predictions for further experiments.

Current position

Columbia University & Howard Hughes Medical Institute | New York, NY 08/2015 – present
Dept. of Neuroscience; Zuckerman Institute
Postdoctoral Fellow
Advisor: Michael N. Shadlen; Co-advisor: Doris Y. Tsao (Caltech)

Key publications:

- * [D. Jeurissen](#)*, S. Shushruth*, Y. El-Shamayleh, G.D. Horwitz, and M.N. Shadlen (2021). Deficits in decision-making induced by parietal cortex inactivation are compensated at two time scales. Under review. *BioRxiv*, DOI: <https://doi.org/10.1101/2021.09.10.459856> * = co-first author
 - * Y.H.R. Kang*, A. Löffler*, [D. Jeurissen](#)*, A. Zylberberg, D.M. Wolpert, and M.N. Shadlen (2021). Multiple decisions about one object involve parallel sensory acquisition but time-multiplexed evidence incorporation. *eLife*, 10, e63721. * = **co-first author**
- See also: D. Jeurissen et al, *Cosyne talk 2021*, video: <http://ow.ly/gEOI50FGLmh>

Education & Training

- **Netherlands Institute for Neuroscience (NIN)** | Amsterdam, The Netherlands 12/2010 – 07/2015
Dept. of Vision and Cognition, Royal Netherlands Academy of Arts and Sciences
Degree: Ph.D.; March 10, 2016; VU University, Amsterdam, The Netherlands
Advisor: Pieter R. Roelfsema

Key publications:

- * M.W. Self*, [D. Jeurissen](#)*, A.F. Van Ham, B. Van Vugt, J. Poort, and P.R. Roelfsema (2019). The segmentation of proto-objects in monkey primary visual cortex. *Current Biology*, 29, 1019-1029.
* = **co-first author**
- * [D. Jeurissen](#), M.W. Self, and P.R. Roelfsema (2016). Serial grouping of 2D-image regions with object-based attention in humans. *eLife*, 5, e14320.

- **University of California San Diego (UCSD)** | San Diego, CA 08/2010 – 11/2010
Center for Brain and Cognition
Research Intern
- **Harvard Medical School (HMS)** | Boston, MA 01/2010 – 07/2010
B.-A. Center for Noninvasive Brain Stimulation
Research Intern
- **Maastricht University** | Maastricht, The Netherlands 09/2008 – 08/2010
Dept. of Psychology and Neuroscience
Degree: *Cum Laude* Master of Science
- **University of California Los Angeles (UCLA)** | Los Angeles, CA 01/2008 – 06/2008
Dept. of Psychology
Graduate and undergraduate elective courses & Research Assistant
- **Maastricht University** | Maastricht, The Netherlands 09/2005 – 08/2008
Dept. of Psychology and Neuroscience
Degree: Bachelor of Science

Research Funding

- **NIH R21** 05/2020 – 04/2022
Title: Characterizing the computational and neural basis of deficits in decision making in Alzheimer's disease
Funding agency: National Institute on Aging (NIA) of the National Institutes of Health (NIH)
Program: R21 Exploratory/Developmental Grant
PIs: Michael N. Shadlen & Scott A. Small; Investigators: Danique Jeurissen & S. Shushruth
Amount: 275k\$
- **BBRF Young Investigator Award** 01/2020 – 01/2022
Title: Neural mechanism of compensating for disrupted cognitive computations in psychiatric disorders
Funding agency: Brain & Behavior Research Foundation
Program: 2019 BBRF Young Investigator Award (former name: NARSAD Award)
PI: Danique Jeurissen
Amount: 70k\$
- **Taub Institute Pilot Research Grant** 06/2018 – 05/2019
Title: Using chemogenetics to model cognitive deficits of Alzheimer's disease in primates
Funding program: Alzheimer's Disease Research Center (ADRC), Taub Institute
PI: Michael N. Shadlen; Co-PIs: Danique Jeurissen and S. Shushruth
Amount: 50k\$
- **Simons Foundation Postdoctoral Fellowship** 07/2016 – 06/2019
Title: Flexible routing of information through specialized networks in the brain
Funding agency: Simons Foundation
Program: Simons Collaboration on the Global Brain
PI: Danique Jeurissen; Co-PIs: Michael N. Shadlen and Doris Y. Tsao
Amount: 234k\$

Prizes, Honors, & Awards

- Award for Scientific Excellence, Royal Netherlands Academy of Arts and Sciences, NIN 2016
- Best oral presentation award, 21st annual meeting ONWAR graduate school 2014
- Best short oral presentation award, 20th annual meeting ONWAR graduate school 2013
- Student travel award, Vision Science Society Conference 2012
- Student poster award, 34th European Conference on Visual Perception 2011
- *Cum Laude* Master of Science degree 2010

Scholarships

- Vision Science summer school at the Cold Spring Harbor Laboratory: Stipend 2013
- Internship at UCSD: VSBfonds 2010
- Internship at UCSD: Prins Bernhard Cultuurfonds 2010
- Internship at HMS: Stichting Dr Hendrik Muller's Vaderlandsch Fonds 2010
- Internship at HMS: Schuurman Schimmel- van Outeren Stichting 2010
- Internship at HMS: Maastricht University, Faculty of Psychology and Neuroscience 2010
- Internship at HMS: Fundatie van de Vrijvrouwe van Renswoude te Delft 2010
- Elective courses at UCLA: Maastricht University, Faculty of Psychology and Neuroscience 2008

Teaching and Mentoring

Girls Who Code

- *Teacher* for high school girls in coding workshops 2019

Columbia University

- *Mentor* for 4 technicians and 3 undergraduate students 2017 – present
- *Guest-lecturer* for university staff on Biomedical Research Awareness Day 2017
- *Teacher* for high school students in the Columbia University Neuroscience Outreach program 2016 – 2019

ChickTech New York (nonprofit dedicated to retaining women in the STEM workforce)

- *High School Program Director*, leading a team of ~10 volunteers to organize monthly STEM workshops for ~100 high school girls from underserved communities. 2016 – 2020

Howard Hughes Medical Institute

- *Mentor* for 1 student in the Exceptional Research Opportunity Program (EXROP) 2016

Royal Netherlands Academy of Arts and Sciences

- *Guest-lecturer* for researchers in the course 'Laboratory Animal Science' 2014

Amsterdam Weekendschool

- *Teacher and organizer* of the neuroscience component in the yearly medical and biological science course for elementary school students from underserved neighborhoods 2012 – 2015

VU University

- *Guest-lecturer* for Master of Science students in the course 'Clinical Neuroscience' 2011

Netherlands Institute for Neuroscience

- *Mentor* for 1 technician and 12 students 2011 – 2015
- *Teaching assistant* for laboratory trainings for visiting undergraduate students 2011 – 2015
- *Teacher* for the general public at the Amsterdam Medical Center Science Fair event 2011

University of California, Los Angeles, InterAxon Program

- *Teacher* for neuroscience classes at local Title I elementary schools around UCLA 2010

Maastricht University

- *Teaching assistant* for Bachelor of Science course 'Programming' 2008
- *Teaching assistant* for Bachelor of Science course 'Body & Behavior' 2007

Invited talks

- Simons Foundation East Coast Meeting, Virtual 03/2021
- Zuckerman Institute Postdoctoral Seminar, New York, NY 12/2019
- Simons Foundation Annual Meeting, New York, NY 09/2016
- New York University, New York, NY 05/2015
- Rutgers University, Newark, NJ 04/2015
- Salk Institute for Biological Studies, San Diego, CA 08/2014
- Stanford University, Stanford, CA 08/2014
- California Institute of Technology, Pasadena, CA 08/2014
- Columbia University, New York, NY 08/2014
- The Nathan S. Kline Institute for Psychiatric Research, Orangeburg, NY 08/2014
- New York University, New York, NY 07/2014
- Columbia University, New York, NY 07/2014
- Rockefeller University, New York, NY 07/2014
- Massachusetts Institute of Technology, Cambridge, MA 07/2014
- Harvard Medical School, Boston, MA 07/2013
- Amsterdam Vision Meeting, Amsterdam 10/2012

Community Service

- *Founder & Leadership member*, Zuckerman Institute Gender Inclusion group (ZIGI) 2021 – present
ZIGI supports and advocates for people who have been historically marginalized in STEM fields due to their gender identity and expression.
- *Member*, Zuckerman Trainee Advisory Committee (ZTAC) 2020 – present
- *Member*, Organizing and Selection Committee Zuckerman Institute Postdoc Seminars (ZIPS) 2018 – 2019
- *Writer*, website for a general audience (in Dutch) about non-human primate research 2013 – 2014
- *Organizer*, Weekly Neuroscience Symposium Social at Netherlands Institute for Neuroscience 2011 – 2015
- *Member*, Teaching Committee ONWAR graduate school 2011 – 2014
- *Member*, Student Council Faculty of Psychology and Neuroscience, Maastricht University 2008 – 2009
- *Member*, Teaching Committee Faculty of Psychology and Neuroscience, Maastricht University 2008 – 2009
- *Member*, Maastricht Research Based Learning (MARBLE) program committee 2008 – 2009

Peer Reviewing

Journals

Acta Psychologica; Attention, Perception, and Psychophysics; Cerebral Cortex; Cognitive, Affective, and Behavioral Neuroscience; Current Biology; Journal of Cognitive Neuroscience; Journal of Neurophysiology; Journal of Neuroscience; Nature Neuroscience; Psychonomic Bulletin and Review; Social Cognitive and Affective Neuroscience; Visual Cognition; Visual Neuroscience.

Workshops / Conferences

Workshop on Advanced Neural Data Analysis, Columbia University, 2019.

Funding agencies

Simons Collaboration on the Global Brain Undergraduate Research Fellowship (SURF) Program, 2021.

Professional Memberships

- Member, Society for Neuroscience (SfN) 2015 – present
- Member, Dutch Neurofederation 2015 – present
- Member, Federation of European Neuroscience Societies 2012 – present

Professional Development, Workshops, & Summer Schools

- Columbia University, New York, NY 2018 – 2021
Science Communication Workshop Series; Academic Application Boot Camp; Women in Science at Columbia (WISC) Events; Crawford Bias Reduction Theory & Training (CBRT); Mentoring Workshop Series
- Cold Spring Harbor Laboratory, Huntington, NY 2018
Summer School: Computational Neuroscience (2 weeks)
- Cold Spring Harbor Laboratory, Huntington, NY 2013
Summer School: Vision: A Platform for Linking Circuits, Behavior & Perception (2 weeks)
- University of California San Diego - ERP Laboratory, San Diego, CA 2010
Electroencephalography Graduate Course (1 semester)
- Harvard Medical School - Center for Noninvasive Brain Stimulation, Boston, MA 2010
Transcranial Magnetic Stimulation course (1 week)
- University College London, UK 2008
Summer School: Attention, Perception, and Motor Cognition (1 week)

Preprints

- D. Jeurissen*, S. Shushruth*, Y. El-Shamayleh, G.D. Horwitz, and M.N. Shadlen (2021). Deficits in decision-making induced by parietal cortex inactivation are compensated at two time scales. *Submitted to journal – under review*. BioRxiv, DOI: <https://doi.org/10.1101/2021.09.10.459856>. * = co-first author

Journals

- Y.H.R. Kang*, A. Löffler*, D. Jeurissen*, A. Zylberberg[^], D.M. Wolpert[^], and M.N. Shadlen[^] (2021). Multiple decisions about one object involve parallel sensory acquisition but time-multiplexed evidence incorporation. **eLife**, 10, e63721. (Similar to: BioRxiv, DOI <https://doi.org/10.1101/2020.10.15.341008>.)
* = co-first author, [^] = co-last author
- M.W. Self*, D. Jeurissen*, A.F. Van Ham, B. Van Vugt, J. Poort, and P.R. Roelfsema (2019). The segmentation of proto-objects in monkey primary visual cortex. **Current Biology**, 29, 1019-1029.
* = co-first author
- C.R. Fetsch, N.N. Odean, D. Jeurissen, Y. El-Shamayleh, G.D. Horwitz, and M.N. Shadlen (2018). Focal optogenetic suppression in macaque area MT biases direction discrimination and choice confidence, but only transiently. **eLife**, 7, e36523. (Similar to: BioRxiv, DOI <https://doi.org/10.1101/277251>.)
- P.C. Klink, D. Jeurissen, J. Theeuwes, D. Denys, and P.R. Roelfsema (2017). Working memory accuracy for multiple targets is driven by reward expectation and stimulus contrast with different time-courses. **Scientific Reports**, 7(9082), 1-13.
- D. Vartak, D. Jeurissen, M.W. Self, and P.R. Roelfsema (2017). The influence of attention and reward on the learning of new stimulus-response associations. **Scientific Reports**, 7(9036), 1-12.
- D. Jeurissen, M.W. Self, and P.R. Roelfsema (2016). Serial grouping of 2D-image regions with object-based attention in humans. **eLife**, 5, e14320.
- M.W. Self*, J.C. Peters*, J.K. Possel*, J. Reithler, R. Goebel, P. Ris, D. Jeurissen, L. Reddy, S. Claus, J.C. Baayen, and P.R. Roelfsema (2016). The effects of context and attention on spiking activity in human early visual cortex. **PLoS Biology**, 14(3), e1002420. * = co-first author
- B. Rubio*, A.D. Boes*, S. Laganieri, A. Rotenberg, D. Jeurissen, and A. Pascual-Leone (2016). Noninvasive brain stimulation in pediatric attention-deficit hyperactivity disorder (ADHD): A review. **Journal of Child Neurology**, 31(6), 784-796. * = co-first author
- D. Jeurissen, A.F. Van Ham, and M.W. Self (2015). The neural representation of multiple objects in the primate visual system. **Journal of Neuroscience**, 35(37), 12612-12614.
- D. Jeurissen, A.T. Sack, A. Roebroek, B.E. Russ, and A. Pascual-Leone (2014). TMS affects moral judgment, showing the role of DLPFC and TPJ in cognitive and emotional processing. **Frontiers in Neuroscience**, 8, 1-9.
- D. Jeurissen, M.W. Self, and P.R. Roelfsema (2013). Surface reconstruction, figure-ground modulation, and border-ownership. **Cognitive Neuroscience**, 4(1), 50-52.
- I. Korkoukov, D. Jeurissen, N.A. Kloosterman, J.E. Verhoeven, H.S. Scholte, and P.R. Roelfsema (2012). The time-course of perceptual grouping in natural scenes. **Psychological Science**, 23(12), 1-8.

Posters, talks, and abstracts (presenting author only)

- D. Jeurissen*, A. Löffler*, Y.H.R. Kang*, A. Zylberberg[^], D.M. Wolpert[^], and M.N. Shadlen[^] (2021). Serial time-multiplexed incorporation of evidence to make two decisions about one object. Talk at Virtual Cosyne Conference, February 23 – 25. * = co-first author, [^] = co-last author.
YouTube link to the 15-minute talk: <http://ow.ly/gEOI50FGLmh>
- D. Jeurissen*, S. Shushruth*, Y. El-Shamayleh, G.D. Horwitz, M.N. Shadlen (2019). Deficits in decision making after pharmacological and chemogenetic inactivation of Area LIP. Poster at the Howard Hughes Medical Institute Science Meeting, December 3 – 5, Chevy Chase, MD, USA. * = co-first author
- D. Jeurissen*, S. Shushruth*, Y. El-Shamayleh, G.D. Horwitz, and M.N. Shadlen (2019). Deficits in decision making after pharmacological and chemogenetic inactivation of Area LIP. Poster at the Society for Neuroscience Meeting, October 19 – 23, Chicago, IL, USA. * = co-first author
- D. Jeurissen*, S. Shushruth*, Y. El-Shamayleh, G.D. Horwitz, M.N. Shadlen (2019). Chemogenetic and pharmacological inactivation of parietal cortex during perceptual decision-making. Poster at the Columbia University Postdoctoral Symposium, October 4, New York, NY, USA. * = co-first author
- D. Jeurissen*, S. Shushruth*, Y. El-Shamayleh, G.D. Horwitz, M.N. Shadlen (2019). Deficits in decision making after Inactivation of Area LIP in the Macaque Monkey. Poster at the Simons Foundation SCGB Annual Meeting, September 8 – 10, New York, NY, USA. * = co-first author
- D. Jeurissen, Y.H.R. Kang, and M.N. Shadlen (2018). Serial integration of two sensory sources of information for a single perceptual decision. Poster at the Simons Foundation annual meeting, September 5 - 7, 2018, New York, NY, USA.
- D. Jeurissen, D.Y. Tsao, and M.N. Shadlen (2016). Flexible routing of information through specialized networks in the brain. Talk at the Simons Foundation annual meeting, September 11-13, 2016, New York, NY, USA
- D. Jeurissen, A.F. Van Ham, M.W. Self, and P.R. Roelfsema (2015). The development of figure-ground segregation across time and space in the visual cortex of the macaque monkey. Poster at the Society for Neuroscience Meeting, October 17 - 21, 2015, Chicago, IL, USA.
- M.W. Self, D. Jeurissen, A.F. Van Ham, M. Senden, and P.R. Roelfsema (2015). Border-ownership tuning predicts effective connectivity between V4 and V1 in macaque visual cortex. Poster at the Society for Neuroscience Meeting, October 17 - 21, 2015, Chicago, IL, USA.
- A.F. Van Ham, M.W. Self, D. Jeurissen, and P.R. Roelfsema (2015). Global scene interpretation affects figure-ground modulation and contrast perception. Poster at the Society for Neuroscience Meeting, October 17 - 21, 2015, Chicago, IL, USA.
- D. Jeurissen, M.W. Self, and P.R. Roelfsema (2015). Object-based attention spreads at multiple spatial scales to achieve perceptual grouping. Poster at the Federation of European Neuroscience Societies Brain Conference Meeting on Bridging Neural Mechanisms and Cognition, April 19 - 22, 2015, Rungstedgaard, Denmark.
- D. Jeurissen, M.W. Self, and P.R. Roelfsema (2014). Perceptual organization and object-based attention in the human visual system. Talk at the 21st ONWAR annual meeting, November 27 - 28, 2014, The Netherlands.
- D. Jeurissen, M.W. Self, A.F. van Ham, and P.R. Roelfsema (2014). Figure-ground modulation of Gestalt objects in the visual cortex of the macaque monkey. Poster at the Society for Neuroscience Meeting, November 15 - 19, 2014, Washington, DC, USA.
- D. Jeurissen, M.W. Self, J. Poort, B. van Vugt, and P.R. Roelfsema (2014). Figure-ground modulation for complex shapes in macaque V1. Poster at the Gordon Research Conference on the Neurobiology of Cognition, July 20 - 25, 2014, Newry, ME, USA.
- D. Jeurissen, M.W. Self, and P.R. Roelfsema (2013). Object-based attention spreads at multiple spatial scales. Poster and short talk at the 20th ONWAR annual meeting, November 28 - 29, 2013, The Netherlands.
- D. Jeurissen, M.W. Self, and P.R. Roelfsema (2013). Object based attention spreads at multiple spatial scales. Poster at the Donders Discussions Meeting, October 31 - November 1, 2013, Nijmegen, The Netherlands.

- D. Jeurissen*, M.W. Self*, J. Poort, B. van Vugt, and P.R. Roelfsema (2012). Figure-ground modulation in the primary visual cortex of the macaque monkey. Poster at the 19th ONWAR annual meeting, November 22 - 23, 2012, The Netherlands.
* = co-first author
- D. Jeurissen*, M.W. Self*, J. Poort, B. van Vugt, and P.R. Roelfsema (2012). Figure-ground modulation for complex shapes in the primary visual cortex of the macaque monkey. Poster at the Society for Neuroscience Meeting, October 13 - 17, 2012, New Orleans, LA, USA.
* = co-first author
- D. Jeurissen and P.R. Roelfsema (2012). Image Parsing, From Curves to Natural Images. Talk at the Vision Science Society Conference, May 11-16, 2012, Naples, FL, USA.
- D. Jeurissen, I. Korjoukov, N.A. Kloosterman, H.S. Scholte, and P.R. Roelfsema (2011). Object Recognition and Image Parsing. Poster at the 18th ONWAR annual meeting, November 24 - November 25, 2011, The Netherlands.
- D. Jeurissen, I. Korjoukov, N.A. Kloosterman, H.S. Scholte, and P.R. Roelfsema (2011). Object Recognition and Image Parsing of Natural Images. Poster at the 34th European Conference on Visual Perception, August 28 - September 1, 2011, Toulouse, France.
- D. Jeurissen, A.T. Sack, A. Roebroek, and A. Pascual-Leone (2010). The brain connectivity network underlying moral judgment. Poster at the Federation of European Neuroscience Societies 7th Forum of European Neuroscience, July 3 - 7, 2010, Amsterdam, The Netherlands.