Danique Jeurissen, PhD — Curriculum Vitae

Columbia University, Department of Neuroscience
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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 (UC Berkeley)

Key publications (= equal contribution):*

* D. Jeurissen*, S. Shushruth*, et al. (2022). Deficits in decision-making induced by parietal cortex inactivation are compensated at two time scales. **Neuron**
* Y.H.R. Kang*, A. Löffler*, D. Jeurissen*, et al. (2021). Multiple decisions about one object involve parallel sensory acquisition but time-multiplexed evidence incorporation. **eLife**
  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*, et al. (2019). The segmentation of proto-objects in monkey primary visual cortex. **Current Biology**
  * D. Jeurissen, M.W. Self, and P.R. Roelfsema (2016). Serial grouping of 2D-image regions with object-based attention in humans. **eLife**

- **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

- **Simons Foundation Transition to Independence Award &** *09/2024 – 08/2027*
  Simons Foundation Postdoctoral Award *09/2022 – 08/2024*
  Title: Compensation for cognitive deficits induced by cortical inactivation
  Funding agency: Simons Foundation
  Program: Simons Collaboration on the Global Brain
  PI: Danique Jeurissen
  Amount Part 1: $190k, Postdoctoral support
  Amount Part 2: $600k, Activated at the start of a tenure track faculty position

- **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 & Howard Hughes Medical Institute
- *Mentor* for 4 technicians and 3 undergraduate students 2017 – present
- *Guest-lecturer* for university staff on Biomedical Research Awareness Day 2017
- *Mentor* for 1 student in the Exceptional Research Opportunity Program (EXROP) 2016
- *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

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

- Princeton Neuroscience Institute, Tigerbrain symposium, Princeton, NJ 05/2023
- Simons Foundation SCGB Annual Meeting, New York, NY 05/2023
- Netherlands Institute for Neuroscience, Amsterdam, The Netherlands, Virtual 04/2023
- Center of Excellence in the Neuroscience of Decision-Making, New York, NY 03/2023
- New York University, Center for Neural Science, New York, NY 03/2023
- Laboratory for Sensorimotor Research, National Eye Institute, Bethesda, MD 02/2023
- University of Pittsburgh, Department of Neuroscience, Pittsburgh, PA 02/2023
- Duke University, Department of Neurobiology, Durham, NC 02/2023
- Mount Sinai, Icahn School of Medicine, New York, NY 02/2023
- University of Wisconsin-Madison, Psychology Department, WI 01/2023
- Vanderbilt University, Gathering of Pharmacology and Cell Signaling Researchers, Virtual 01/2023
- Yale University, SYNAPSES seminar series, New Haven, CT 12/2022
- KU Leuven, Department of Neuroscience, Leuven, Belgium, Virtual 12/2022
- Carney Institute for Brain Science, Brown University, BrainExPo seminar series, Virtual 03/2022
- Simons Foundation East Coast Meeting, Virtual 03/2021
- Zuckerman Institute Postdoctoral Seminar, New York, NY 12/2019
- Simons Foundation SCGB Annual Meeting, New York, NY 09/2016
- 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
- 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

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. Website: www.zuckermanzigi.com
- *Member*, Zuckerman Trainee Advisory Committee (ZTAC) 2020 – 2022
- *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 Human Behavior; 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 – 2022
  Science Communication Workshop Series; 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)

Publications

- G.M. Stine, E.M. Trautmann, D. Jeurissen, and M.N. Shadlen (2023). A neural mechanism for terminating decisions. **Neuron**, 111, 1-13. (Similar to Biorxiv, DOI: https://doi.org/10.1101/2022.05.02.490327.)

- D. Jeurissen*, S. Shushruth*, Y. El-Shamayleh, G.D. Horwitz, and M.N. Shadlen (2022). Deficits in decision-making induced by parietal cortex inactivation are compensated at two time scales. **Neuron**, 110, 1-8 (Similar to 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. (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. Laganiere, 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. Roebroeck, 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. Korjoukov, 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 (Selection)

- 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). 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.
- 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*, 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 of Natural Images. Poster at the 34th European Conference on Visual Perception, August 28 - September 1, 2011, Toulouse, France.