

# Jan Willem de Gee

## Curriculum Vitae

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born: 28-sept-1988  
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### Research Interests

I am an expert in psychophysics, vagus nerve stimulation, pupillometry, two-photon imaging (incl. neuromodulatory axons), fMRI (incl. high-res brainstem and whole-brain searchlight decoding), MEG (of cortical decision computations), and computational modeling of behavior. My interests lie in using tools from cognitive and systems neuroscience to diagnose, understand, perturb and predict various disorders of cognitive and perceptual function, and to improve people's decision-making.

### Employment

- 2022–current **Assistant Professor of Cognitive & Systems Neuroscience**, *University of Amsterdam*, Amsterdam, NLD.
- 2021–2022 **Lecturer of Brain & Cognition**, *University of Amsterdam*, Amsterdam, NLD.
- 2018–2022 **Postdoctoral Associate**, *Baylor College of Medicine*, Houston, Texas, USA.  
Advisor: Dr. Matthew McGinley

### Education

- 2014–2019 **PhD (summa cum laude)**, *University Medical Center Hamburg-Eppendorf, DEU*.  
Thesis: "*Neuromodulatory shaping of decision computations*".  
Advisor: Prof. Dr. Tobias Donner
- 2011–2013 **Research Master Psychology (cum laude)**, *University of Amsterdam, NLD*.  
Area of Study: *Brain and Cognition, Psychological Methods*.
- 2007–2011 **Bachelor Psychology (honours)**, *University of Amsterdam, NLD*.  
Area of Study: *Brain and Cognition*.

### Grants and awards

- 2021 Travel award, *Advances and Perspectives in Auditory Neuroscience (APAN)*.
- 2019 Travel award, *Association for Research in Otolaryngology MidWinter Meeting (ARO)*.
- 2018 PhD completion grant, *Hamburg University* (stipend for 12 months; declined because of postdoctoral position @ McGinley Lab, Houston, USA).
- 2017 Paper of the month award, *University Medical Center Hamburg-Eppendorf* (de Gee *et al.*, *eLife*, 2017).
- 2014 Best poster award, *Donders Discussions*.
- 2013 Travel award, *European Conference on Visual Perception (ECPV)*.
- 2012 Best poster award, *Research Master's Psychology Graduate Conference*.
- 2009 *Erasmus Mundus Scholarship*.
- 2006 *Fulbright Scholarship*.

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## Publications

- preprint **de Gee JW**, Mridha Z, Hudson S, Shi Y, Ramsaywak H, Smith S, Kareliya N, Thompson M, Jaspe K, Zhang W & McGinley MJ. Self-regulation of arousal entrains attentional effort to reward expectation. *bioRxiv*.
- 2021 Colizoli O, **de Gee JW**, van der Zwaag W & Donner TH. Functional magnetic resonance imaging responses during perceptual decision-making at 3 and 7 T in human cortex, striatum, and brainstem. *Human Brain Mapping*, 1-15.
- 2021 **de Gee JW\***, Correa MC\*, Weaver M, Donner TH & van Gaal S. Pupil dilation and P3 reflect subjective surprise about decision outcome. *Cerebral Cortex*, 31 (7), 3565-3578. (\*=Equal contribution)
- 2021 Mridha Z\*, **de Gee JW\***, Shi Y, Alkashgari R, Williams J, Suminski A, Ward MP, Zhang W & McGinley MJ. Graded recruitment of pupil-linked neuromodulation by parametric stimulation of the vagus nerve. *Nature Communications*, 12(1), 1-14. (\*=Equal contribution)
- 2020 **de Gee JW**, Tsetsos K, Schwabe L, Urai AE, McCormick DA, McGinley MJ\* & Donner TH\*. Pupil-linked phasic arousal predicts a reduction of choice bias across species and decision domains. *eLife*, 9, e54014. (\*=Equal contribution)
- 2019 Urai EA, **de Gee JW**, Tsetsos K & Donner TH. Choice history biases subsequent evidence accumulation. *eLife*, 8, e46331.
- 2019 Kloosterman NA, **de Gee JW**, Werkle-Bergner M, Garrett DD\* & Fahrenfort JJ\*. Humans strategically shift decision bias by flexibly adjusting sensory evidence accumulation. *eLife*, 8, e37321. (\*=Equal contribution)
- 2018 Colizoli O, **de Gee JW**, Urai EA & Donner TH. Task-evoked pupil responses reflect internal belief states. *Scientific Reports*, 8:13702.
- 2017 **de Gee JW**, Colizoli O, Kloosterman NA, Knapen T, Nieuwenhuis S & Donner TH. Dynamic modulation of decision biases by brainstem arousal systems. *eLife*, 6, e23232.
- 2016 Knapen T\*, **de Gee JW\***, Brascamp J, Nuiten S, Hoppenbrouwers SS & Theeuwes J. 2016. Cognitive and ocular factors jointly determine pupil responses under equiluminance. *PLoS ONE*, 11(5), e0155574. (\*=Equal contribution)
- 2014 **de Gee JW**, Knapen T & Donner TH. Decision-related pupil dilation reflects upcoming choice and individual bias. 2014. *Proceedings of the National Academy of Sciences USA*, 111(5), E618-E625.

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## Teaching and Mentorship

- 2021–2022 **Lecturer of Brain & Cognition**, *University of Amsterdam*, Amsterdam, NLD.  
Supervision of thesis projects in various programs: BSc Psychology Brain and Cognition, BSc Psychobiology and MSc Psychology Brain and Cognition in Society.
- 2018 **Lecturer** *University Medical Center Hamburg-Eppendorf, DEU*.  
Designed and lectured a three-day workshop "Python for beginners" for fellow PhD students and postdocs (25 participants).
- 2014–current **Supervision**.
- MSc thesis projects at UvA (2021-2022): Ayda Taghavi, Vasilis Katopodis, Paula Ledesma
  - BSc thesis projects at UvA (2021-2022): Gopal Dürschlag, Marit Metz, Ranil Triolo, Sarah Moerdijk, Thomas Been, Uma Garcia, Silke Drieman, Bregtje Briel, Romano de Vries
  - MSc thesis project at BCM (2019-2020): Sibao Gao
  - High School thesis project at BCM (2019): Sarim Aleem

- BSc research projects at BCM (2019): Axel Ntamatungiro, Jessie Lyle, Robert Alexander, Chelsey Wen, Daniel Ho, Priscilla Huh
- Research internship at UvA (2016): Christopher Riddell
- BSc thesis projects at UvA (2016): Daniëlle Rijkmans, Guusje Boomgaard
- BSc thesis projects at UvA (2015): Bob Oey, Fleur Duyser
- High School thesis project at UvA (2015): Fanny van der Vooren, Tijn Rozemuller
- BSc thesis project at VU (2014): Stijn Nuijten

## Talks

- 2022 Conference talk at *Dutch Neuroscience Meeting (DNM)*. Tiel, NLD
- 2022 Invited speaker at Perception Group Seminar, University of Padova, Padova, ITA.
- 2022 Invited speaker at Brain Mind Computational Seminar, Aalto University, Aalto, FIN.
- 2022 McGinley-Polley joint lab meeting, ITA.
- 2022 van Gaal lab meeting, University of Amsterdam, Amsterdam, NLD.
- 2021 Invited speaker at Cognitive Computational Neuroscience seminar, Hamburg, DEU.
- 2021 Invited speaker at webinar Alzheimer's association, Chicago, USA.
- 2021 Invited speaker at tVNS research network meeting, Leuven, BE.
- 2021 Conference talk at *Organization for Human Brain Mapping (OHBM)*.
- 2021 Conference talk at *46th joint annual meeting Psychology and the Brain (PuG)*, Tübingen, DEU.
- 2020 van Gaal lab meeting, University of Amsterdam, Amsterdam, NLD.
- 2020 Gold lab meeting, University of Pennsylvania, Philadelphia, USA.
- 2019 Invited speaker at *NRI Seminar Series*, Houston, USA.
- 2019 Conference talk at *ARO MidWinter Meeting*, Baltimore, USA.
- 2017 McGinley lab meeting, Baylor College of Medicine, Houston, USA.
- 2016 DFG-SFB retreat, University Medical Center Hamburg-Eppendorf, Hamburg, DEU.
- 2015 Amsterdam Vision Meeting, VU Free University, Amsterdam, NLD.
- 2015 Heeger lab meeting, New York University, New York City, USA.
- 2015 Donner-Forstmann-Nieuwenhuis-de Lange joint lab meeting, University of Amsterdam, Amsterdam, NLD.
- 2015 ABC Brain Day, University of Amsterdam, Amsterdam, NLD.
- 2015 ABC-BIC Neuroimaging Symposium, University of Amsterdam, Amsterdam, NLD.
- 2014 Invited speaker at *Donders Discussions*, Donders Institute, Radboud University, Nijmegen, NLD.
- 2014 Theeuwes lab meeting, VU Free University, Amsterdam, NLD.
- 2013 Donner-Forstmann-Nieuwenhuis-de Lange joint lab meeting, University of Amsterdam, Amsterdam, NLD.
- 2013 Engel lab meeting, University Medical Center Hamburg-Eppendorf, Hamburg, DEU.

## Professional service

reviewer Cell Reports, Computational Brain and Behavior, Current Biology, eLife, Journal of Experimental Psychology, Journal of Neuroscience, Nature Communications, Nature Human Behavior, Neuroimage, Neuropsychologia, PLOS Computational Biology, Proceedings of the National Academy of Sciences (PNAS), Psychophysiology, Research Methods, Science Advances, Scientific Reports, Trends in Hearing, Wellcome Trust.

member Society for Neuroscience, Federation of European Neuroscience Societies, Association for Research in Otolaryngology, Dutch Neurofederation

## Conference proceedings

Only first-author presentations listed:

- 2022 **de Gee JW**, Mridha Z, Hudson S, Shi Y, Ramsaywak H, Smith S, Karediya N, Thompson M, Jaspe K, Zhang W & McGinley MJ. Mice regulate their attentional intensity and arousal to exploit increases in task utility. *Federation of European Neuroscience Societies Forum (FENS)*.
- 2022 **de Gee JW**, Kloosterman N, Braun A & Donner TH. Catecholamines reduce the impact of previous choices on current behavior. *Dutch Neuroscience Meeting (DNM) (talk)*.
- 2021 **de Gee JW**, Mridha Z, Hudson S, Shi Y, Ramsaywak H, Smith S, Karediya N, Thompson M, Jaspe K, Zhang W & McGinley MJ. Adaptive increases in attentional effort manifest as suppressed exploratory behavior and reduced physiological arousal. *NVP Winter Conference*.
- 2021 **de Gee JW**, Mridha Z, Hudson S, Shi Y, Ramsaywak H, Smith S, Karediya N, Thompson M, Jaspe K, Zhang W & McGinley MJ. Adaptive increases in attentional effort manifest as suppressed exploratory behavior and reduced physiological arousal. *Society for Neuroscience (SfN)*.
- 2021 **de Gee JW**, Mridha Z, Hudson S, Shi Y, Ramsaywak H, Smith S, Karediya N, Thompson M, Jaspe K, Zhang W & McGinley MJ. Adaptive increases in attentional effort manifest as suppressed exploratory behavior and reduced physiological arousal. *Advances and Perspectives in Auditory Neuroscience (APAN) (travel award)*.
- 2021 **de Gee JW**, van der Brink R & Donner TH. Brainstem Modulation of Cortical Network Activity and Cognitive Behavior. *Organization for Human Brain Mapping (OHBM) (talk)* (replaced Tobias Donner).
- 2021 **de Gee JW**, McGinley MJ & Donner TH. Pupil dilation tracks neuromodulatory responses and predicts a reduction of choice bias across species and decision domains. *46th joint annual meeting Psychology and the Brain (PuG) (talk)*.
- 2020 **de Gee JW**, Mridha Z, Shi Y, Ramsaywak H, Banta A, Zhang W & McGinley MJ. Neural Circuits and Pupil Readouts of Motivated Shifts in Attentional Effort. *17th Annual Theoretical and Computational Neuroscience Conference*.
- 2020 **de Gee JW**, Tsetsos K, McCormick DA, Donner TH & McGinley MJ. Phasic arousal suppresses suboptimal auditory decision biases in mice and humans. *Association for Research in Otolaryngology MidWinter Meeting (ARO)*.
- 2019 **de Gee JW**, Tsetsos K, Schwabe L, Urai AE, Bergt A, McCormick DA, Donner TH & McGinley MJ. Phasic arousal suppresses suboptimal decision biases in mice and humans. *Society for Neuroscience (SfN)*.
- 2019 **de Gee JW**, Mridha Z, Shi Y, Ramsaywak H, Banta A, Zhang W & McGinley MJ. Neural circuits and pupil readouts of motivated shifts in attentional effort. *Symposium on the Biology of Decision-Making (SBDM)*.
- 2019 **de Gee JW**, Tsetsos K, McCormick DA, Donner TH & McGinley MJ. Phasic arousal optimizes auditory evidence accumulation. *Association for Research in Otolaryngology MidWinter Meeting (ARO) (talk; travel grant)*.
- 2018 **de Gee JW**, Tsetsos K, McCormick DA, Donner TH & McGinley MJ. Phasic arousal optimizes decision computations in mice and humans. *UTHealth Cooley Center 25th Annual Neuroscience Poster Session*.

- 2018 **de Gee JW**, Tsetsos K, McCormick DA, McGinley MJ & Donner TH. Of mice and men: phasic pupil-linked arousal reduces perceptual and cognitive decision biases by altering evidence accumulation. *Federation of European Neuroscience Societies Forum (FENS)*.
- 2017 **de Gee JW**, Tsetsos K, McCormick DA, McGinley MJ & Donner TH. Phasic pupil-linked arousal reduces decision biases in mice and men. *Society for Neuroscience (SfN)*.
- 2017 **de Gee JW**, Tsetsos K, McCormick DA, McGinley MJ & Donner TH. Phasic pupil-linked arousal reduces decision biases in mice and men. *International Conference on Auditory Cortex*.
- 2017 **de Gee JW**, Wilming N, Knapen T & Donner TH. Arousal boosts decision- and attention-related top-down signals in early visual cortex. *European Conference on Visual Perception (EVP)*.
- 2016 **de Gee JW**, Colizoli O, Kloosterman NA, Knapen T, Nieuwenhuis S & Donner TH. Dynamic modulation of cortical and behavioral decision biases by brainstem arousal systems. *EPOS Attention Workshop*.
- 2015 **de Gee JW**, Kloosterman NA, Knapen T, Nieuwenhuis S & Donner TH. Decision-related pupil dilation reflects locus coeruleus activity and altered visual evidence accumulation. *Society for Neuroscience (SfN)*.
- 2015 **de Gee JW**, Knapen T, Nuiten S, Hoppenbrouwers SS & Theeuwes J. Value in the eye of the beholder: pupil dilation reflects event value. *International Convention of Psychological Science*.
- 2014 **de Gee JW**, Knapen T, Nuiten S, Hoppenbrouwers SS & Theeuwes J. Value in the eye of the beholder: pupil dilation reflects event value. *Donders Discussions (best poster award)*.
- 2013 **de Gee JW**, Knapen T & Donner TH. Choice-related pupil dilation reflects the decision-maker's bias. *Nederlandse Vereniging voor Psychonomie (NVP)*.
- 2013 **de Gee JW**, Knapen T & Donner TH. Pupil dilation reflects the temporal evolution and content of a perceptual decision. *European Conference on Visual Perception (EVP) (travel grant)*.