

# Jan Willem de Gee

## Curriculum Vitae

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born: 28-sept-1988

### Research Interests

I use cognitive and systems neuroscience tools to further our mechanistic understanding of perception and decision-making: psychophysics, vagus nerve stimulation, pharmacology, 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. Ultimately, my goal is to improve people's decision-making in both health and disease.

### 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

- 2025 Research Impact Award, Misophonia Research Fund (\$415K; Co-PI = Romke Rouw).
- 2025 Support Grant, Amsterdam Brain and Cognition (€5K; Co-PI = Romke Rouw).
- 2025 Quality funds to build human EEG lab, University of Amsterdam (€70K).
- 2024 Veni Grant, Dutch Research Council (NWO) (€320K).
- 2023 Starter Grant Top-up, Dutch Ministry of Education, Culture and Science (€20K).
- 2023 Starter Grant, Dutch Ministry of Education, Culture and Science (€300K).
- 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).
- 2017 Paper of the month award, University Medical Center Hamburg-Eppendorf.
- 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.

## Publications

- preprint Hebisch J, Van Puyenbroeck P, Schwabe L, **de Gee JW** & Donner TH. Task-irrelevant stimuli boost phasic pupil-linked arousal but not memory formation.
- preprint Nuiten S, **de Gee JW**, Zantvoord JB, Sterzer P, Fahrenfort J & van Gaal S. Task-evoked (phasic) and baseline (tonic) arousal distinctly shape human decision bias. *bioRxiv*.
- preprint **de Gee JW**, Schwarz-Roman K, Alonso-Marmelstein L, & Rouw R. Sound-evoked pupil dilation quantifies misophonic symptoms. *bioRxiv*.
- 2025 **de Gee JW**, Kloosterman N, Braun A, & Donner TH. Catecholamines reduce choice history biases in perceptual decision making. *PLOS Biology*, 21 (5), e3002120.
- 2025 Beerendonk L\*, Mejias J\*, Nuiten S, **de Gee JW**, Zantvoord, JB, Fahrenfort J & van Gaal S. Adaptive arousal regulation: Pharmacologically shifting the peak of the Yerkes-Dodson curve by catecholaminergic enhancement of arousal. *Proceedings of the National Academy of Sciences USA*, 122 (28), e2419733122. (\*=Equal contribution)
- 2024 Hebisch J, Ghassemieh A, Zhecheva E, Brouwer M, van Gaal S, Schwabe L, Donner TH\* & **de Gee JW\***. Task-irrelevant stimuli reliably boost phasic pupil-linked arousal but do not affect decision formation. *Scientific Reports*, 14 (1), 28380. (\*=Equal contribution)
- 2024 Mocchi M, Bartoli E, Magnotti J, **de Gee JW**, Metzger B, Pascuzzi B, Mathura R, Pulapaka S, Goodman W, Sheth S, McGinley MJ & Bijanki K. Aperiodic spectral slope tracks the effects of brain state on saliency responses in the human auditory cortex. *Scientific Reports*, 14(1), 30751.
- 2024 **de Gee JW**, Mridha Z, Hudson S, Shi Y, Ramsaywak H, Smith S, Kareliya N, Thompson M, Jaspe K, Zhang W & McGinley MJ. Strategic self-control of arousal boosts sustained attention. *Current Biology*, 34 (18), 4114-4128.e6.
- 2024 Nuiten S, **de Gee JW**, Zantvoord JB, Fahrenfort J & van Gaal S. Pharmacological elevation of catecholamine levels improves perceptual decisions, but not metacognitive insight. *eNeuro*, 11 (7), 1-20.
- 2024 Zou J, **de Gee JW**, Mridha Z, Trinh S, Erskine A, Jing M, Yao J, Walker S, Li Y, McGinley MJ & Hires SA. Goal-directed motor actions drive acetylcholine dynamics in sensory cortex. *eLife*, RP96931.
- 2024 Beerendonk L\*, Mejias J\*, Nuiten S, **de Gee JW**, Fahrenfort J & van Gaal S. A disinhibitory circuit mechanism explains a general principle of peak performance during mid-level arousal. *Proceedings of the National Academy of Sciences USA*, 121 (5), e2312898121. (\*=Equal contribution)
- 2023 Nuiten S, **de Gee JW**, Fahrenfort J & van Gaal S. Catecholaminergic neuromodulation and selective attention jointly shape perceptual decision making. *eLife*, 12, RP87022.
- 2023 Mazancieux A, Mauconduit F, Amadon A, **de Gee JW**, Donner TH & Meyniel F. Brainstem fMRI signaling of surprise across different types of deviant stimuli. *Cell reports*, 42, 113405.
- 2022 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 the slow wave ERP reflect surprise about choice outcome resulting from intrinsic variability in decision confidence. *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.

## Teaching

- 2022-current **Course coordinator of “Neurophysiology: Introduction to Electrophysiology and Imaging”** *University of Amsterdam, NLD*.  
25 participants/year; part of MSc Brain and Cognitive Sciences.
- 2022-current **Course coordinator: “Foundations of Data Science and AI for the Neurosciences”** *University of Amsterdam, NLD*.  
20 participants/year; part of BSc Psychobiology.
- 2022-current **Lecturer “Learning and Memory” (coordination, 2022-2024)** *University of Amsterdam, NLD*.  
150 participants/year; part of BSc Psychobiology.
- 2023 **Python for beginners** *University of Hamburg, DEU*.  
Designed and lectured a three-day programming workshop for PhD students and postdocs (25 participants).

## Outreach

- 2025-current **Lecturer in “Psychology for professionals”**. Lecture series on understanding human behavior and decision-making processes for effective collaboration and communication; for managers, policy makers, HR-professionals and consultants; organized by the University of Amsterdam.
- 2024 **Television interview for NTR Focus**. About using pupil responses as an objective measure of subjective sound experiences; NTR focus is the number one science public service broadcaster in the Netherlands.

## Professional training

- 2026 **Academic Leadership for Assistant Professors** *Mennen Training & Consultancy*.

- 2025 **Veni Laureate Programme** *Reflect Academy*.
- 2024 **Social safety** *University of Amsterdam*.

## ■ Doctoral/Postdoctoral Advisor

- 2026-current ... (Postdoc)
- 2026-current Julie Hoomans (PhD student)
- 2024-current Lars Kopel (PhD student)

## ■ Mentorship and supervision

- 2022-current **MSc research projects @ University of Amsterdam.**  
Jurre Tjihuis, Maryam Shafik, Yihsin Chuang, Mirthe Koerts, Kimberly Budhu Lall, Inayah Hodžić, Noé Igounenc, Emanuela Zhecheva, Paula Ledesma, Vasilis Katopodis, Ayda Taghavi
- 2015-current **BSc research projects @ University of Amsterdam.**  
Marijn de Graaf, Sophie Bakkum, Ravèl Rooijackers, Evie de Wijs, Famke de Jong, Noell Vermeer, Eline van Wamel, Jessie Kroon, Evi van Gastel, Joffrey Straub, Myrthe Brouwer, Romano de Vries, Bregtje Bruel, Silke Drieman, Uma Garcia, Thomas Been, Sarah Moerdijk, Ranil Triolo, Marit Metz, Gopal Dürschlag, Guusje Boomgaard, Daniëlle Rijkmans, Fleur Duyser, Bob Oey.
- 2020 **MSc projects @ Baylor College of Medicine.**  
Sibo Gao.
- 2020 **BSc projects @ Baylor College of Medicine.**  
Axel Ntamungiro, Jessie Lyle, Robert Alexander, Chelsey Wen, Daniel Ho, Priscilla Huh.
- 2015 **Research project @ Barlaeus Gymnasium.**  
Fanny van der Vooren, Tijn Rozemuller.
- 2014 **BSc project @ VU Free University.**  
Stijn Nuiten.

## ■ Professional service

- PhD comm. Nicolás Carvajal Sánchez (2025), Chris Jungerius (2025).
- reviewer journals Brain Stimulation, Cell, Cell Reports, Current Biology, eLife, European Journal of Neuroscience, Journal of Experimental Psychology, Journal of Cognitive Neuroscience, Journal of Neuroscience, Nature Communications, Nature Human Behavior, Neuroimage, PLOS Computational Biology, Proceedings of the National Academy of Sciences, Psychophysiology, Science Advances, Scientific Reports, and others.
- reviewer grants French National Research Agency, the Royal Society, UK Research and Innovation, Wellcome Trust.
- member Society for Neuroscience, Federation of European Neuroscience Societies, Association for Research in Otolaryngology, Dutch Neurofederation.

## ■ Talks

- 2025 Invited speaker at iBBA Workshop: "*Vision as prediction: learning, action, and biases.*". Amsterdam, NLD
- 2024 Invited speaker at Cognitive Computational Neuroscience seminar, Hamburg, DEU.
- 2023 Invited speaker at *Spinoza Center*. Amsterdam, NLD
- 2023 Invited speaker at *CNS research day*. Amsterdam, NLD
- 2023 Conference talk at *Brain Stimulation*. Lisbon, PRT
- 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 Invited speaker at Leiden Institute for Brain and Cognition Seminar, University of Leiden, Leiden, NLD.
- 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.

## Conference proceedings

Only first/last-author presentations listed:

- 2025 **de Gee JW**, Alonso-Marmelstein L, Schwarz-Roman KL & Rouw R. Sound-evoked pupil-linked arousal predicts misophonia. *Dutch Society for Brain and Cognition conference (NVP)*.
- 2025 Kopel L, van Gastel E, Murphy P, van Gaal S, Suzuki M & **de Gee JW**. Pupil-linked arousal tracks belief updating in a dynamic auditory environment. *Dutch Society for Brain and Cognition conference (NVP)*.
- 2025 Kopel L, van Gastel E, Murphy P, van Gaal S, Suzuki M & **de Gee JW**. Pupil-linked arousal tracks belief updating in a dynamic auditory environment. *International Conference on Auditory Cortex (ICAC)*.
- 2025 Kopel L, van Gastel E, Murphy P, van Gaal S, Suzuki M & **de Gee JW**. Pupil-linked arousal tracks belief updating in a dynamic auditory environment. *Cognitive Computational Neuroscience (CCN) (talk)*.

- 2025 Nuiten S, Oude Lohuis M, Schaub AC, van Gaal S, Olcese U, Pennartz CMA, Sterzer P & **de Gee JW**. Mid-level arousal facilitates optimal behavioral state in humans and mice. *Cognitive Computational Neuroscience (CCN)*.
- 2025 Nuiten S, Oude Lohuis M, Schaub AC, van Gaal S, Olcese U, Pennartz CMA, Sterzer P & **de Gee JW**. Mid-level arousal facilitates optimal behavioral state in humans and mice. *Psychologie und Gehirn (PUG)* (**talk**).
- 2025 Nuiten S, Oude Lohuis M, Schaub AC, van Gaal S, Olcese U, Pennartz CMA, Sterzer P & **de Gee JW**. Mid-level arousal facilitates optimal behavioral state in humans and mice. *Association of Scientific Studies of Consciousness (ASSC)* (**talk**).
- 2025 **de Gee JW**, Kloosterman N, Braun A & Donner TH. Catecholamines reduce choice history biases. *Association of Scientific Studies of Consciousness (ASSC)*.
- 2024 **de Gee JW**, Alonso-Marmelstein L, Schwarz-Roman KL & Rouw R. Sound-evoked pupil-linked arousal predicts misophonia. *Society for Neuroscience (SfN)*.
- 2024 Hebisch J, Ghassemieh AC, Zhecheva E, Brouwer M, van Gaal S, Schwabe L, Donner TH & **de Gee JW**. Task-irrelevant stimuli evoke reliable pupil responses, but do not affect the concomitant formation of a perceptual decision. *Society for Neuroscience (SfN)*.
- 2024 **de Gee JW**, Mridha Z, Hudson S, Shi Y, Ramsaywak H, Smith S, Kareediya N, Thompson M, Jaspe K, Zhang W & McGinley MJ. Strategic self-control of arousal boosts sustained attention. *Dutch Pupillometry Symposium*.
- 2023 McGinley MJ & **de Gee JW**. Reward history impacts performance on multiple time scales in a sustained attention-value task. *Advances and Perspectives in Auditory Neuroscience*.
- 2023 McGinley MJ & **de Gee JW**. Real-time signal detection theory reveals that reward history impacts performance on multiple time scales in a sustained attention-value task. *Society for Neuroscience (SfN)*.
- 2023 **de Gee JW**, Mridha Z & McGinley MJ. Graded recruitment of pupil-linked neuro-modulation by parametric stimulation of the vagus nerve. *Brain Stimulation*.
- 2022 **de Gee JW**, Mridha Z, Hudson S, Shi Y, Ramsaywak H, Smith S, Kareediya 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, Kareediya 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, Kareediya 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, Kareediya 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 award)*.
- 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 (ECP)*.
- 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 (ECP)* (**travel award**).