LIEKE HOFMANS

Current position: Postdoctoral fellow, Motivation, Brain and Behavior team, Paris Brain Institute
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Date of Birth: 09/10/1991
Nationality: Dutch

PROFESSIONAL EXPERIENCE

01/04/2025 – present	Postdoctoral fellow Motivation, Brain and Behavior team, Paris Brain Institute, Pitié-Salpêtrière Hospital, Paris, France Topic: Decomposing the variability in teenagers' decision-making Supervisor: Dr. Marion Rouault
01/02/2021 – 31/08/2024	Postdoctoral researcher Dept. Developmental Psychology, University of Amsterdam, The Netherlands Topic: Development of the neurocognitive mechanisms of social learning Supervisor: Dr. Wouter van den Bos
15/09/2020 – 15/12/2020	Postdoctoral researcher Donders Centre for Cognitive Neuroimaging, Nijmegen, The Netherlands Topic: Dopamine and motivational and cognitive control Supervisor: Prof. Dr. Roshan Cools
01/05/2016 – 30/04/2020	PhD candidate Donders Centre for Cognitive Neuroimaging, Nijmegen, The Netherlands Topic: Dopamine and motivational and cognitive control Supervisor: Prof. Dr. Roshan Cools Award date: 03/06/2021
<u>Internships</u>	
01/12/2014 – 30/06/2015	Neuro-oncology Research Group, VUmc Amsterdam, The Netherlands Topic: Effects of microglial cytokine release on brain tumor stem cells Supervisor: Prof. Dr. Thomas Würdinger
01/09/2014 – 30/09/2014	Institute of Neurology, University College London, England Topic: 3D-analysis of microglia depletion-therapy against glioblastoma Supervisor: Prof. Dr. Sebastian Brandner

EDUCATION

01/05/2016 – 30/04/2020	PhD in Cognitive Neuroscience, Radboud University Nijmegen, The Netherlands
01/09/2013 – 31/08/2015	Double international Master Neuroscience, NEURASMUS, Erasmus Mundus • MSc Cellular and Molecular Neurobiology: University of Coimbra, Portugal • MSc Clinical Neuroscience: Charité - Universitätsmedizin Berlin, Germany
01/09/2010 – 31/08/2013	Bachelor Psychology, Tilburg University, The Netherlands
01/01/2013 – 30/06/2013	Semester abroad, Chinese University of Hong Kong, Hong Kong SAR

PUBLICATIONS

de Groot, E.C.S., **Hofmans, L.** & van den Bos, W. (2024). Brain structure correlates of social information use: An exploratory machine learning approach. *Frontiers in Human Neuroscience*, 18, 1383630. https://doi.org/10.3389/fnhum.2024.1383630

Hofmans, L., van der Stappen, A. & van den Bos, W. (2024). Developmental structure of digital maturity. *Computers in Human Behavior*, 157, 108239. https://doi.org/10.1016/j.chb.2024.108239

Sayalı, C., van den Bosch, R., Määttä, J.I.M., **Hofmans, L.**, Papadopetraki, Booij, J., Verkes, R.-J., Baas, M. & Cools, R. (2023). Methylphenidate undermines or enhances divergent creativity depending on baseline dopamine synthesis capacity. *Neuropsychopharmacology*, 48, 1849-1858. https://doi.org/10.1038/s41386-023-01615-2

Chen, P., Geurts, D.E.M., Määttä, J.I.M., van den Bosch, R., **Hofmans, L.**, Papadopetraki, D., den Ouden, H.E.M. & Cools, R. (2023). Effect of striatal dopamine on Pavlovian bias. A large [18F]-DOPA PET study. *Behavioral Neuroscience*, 137, 184-195. https://doi.org/10.1037/bne0000547

van den Bosch, R., Hezemans, F.H., Määttä, J.I.M., **Hofmans, L.**, Papadopetraki, D., Verkes, R.-J., Marquand, A.F., Booij, J. & Cools, R. (2023). Evidence for absence of links between striatal dopamine synthesis capacity and working memory capacity, spontaneous eye-blink rate, and trait impulsivity. *eLife*, 12, e83161. https://doi.org/10.7554/eLife.83161

Hofmans, L. & van den Bos, W. (2022). Social learning across adolescence: A Bayesian neurocognitive perspective. *Developmental Cognitive Neuroscience*, 58, 101151. https://doi.org/10.1016/j.dcn.2022.101151

van den Bosch, R., Lambregts, B., Määttä, J.I.M., **Hofmans, L.**, Papadopetraki, D., Westbrook, A., Verkes, R.-J., Booij, J. & Cools, R. (2022). Striatal dopamine dissociates methylphenidate effects on value-based versus surprise-based reversal learning. *Nature Communications*, 13, 4962. https://doi.org/10.1038/s41467-022-32679-1

Hofmans, L., Westbrook, A., van den Bosch, R., Booij, J., Verkes, R.-J. & Cools, R. (2022). Effects of average reward rate on vigor as a function of individual variation in striatal dopamine. *Psychopharmacology*, 239, 465-478. https://doi.org/10.1007/s00213-021-06017-0

Määttä, J.I.M., van den Bosch, R., Papadopetraki, D., **Hofmans, L.**, Lambregts, B., Westbrook, A., Verkes, R.-J. & Cools, R. (2022). Predicting effects of methylphenidate and sulpiride on brain and cognition: a pharmaco-fMRI, PET study. Design and descriptives. Preprint at https://osf.io/d3h8e (2021)

Westbrook, A., Ghosh, A., van den Bosch, R., Määttä, J.I., **Hofmans, L.** & Cools, R. (2021). Striatal dopamine synthesis capacity reflects smartphone social activity. *iScience*, 24, 102497. https://doi.org/10.1016/j.isci.2021.102497

van Lieshout, L.L.F., van den Bosch, R., **Hofmans, L.**, de Lange, F.P. & Cools, R. (2020). Does dopamine synthesis capacity predict individual variation in curiosity? *bioRxiv*. https://doi.org/10.1101/2020.10.13.337477

Hofmans, L., van den Bosch, R., Määttä, J.I., Verkes, R.-J., Aarts, E. & Cools, R. (2020). The cognitive effects of a promised bonus do not depend on dopamine synthesis capacity. *Scientific Reports*, 10, 16473. https://doi.org/10.1038/s41598-020-72329-4

Hofmans, L., Papadopetraki, D., van den Bosch, R., Määttä, J.I., Froböse, M.I., Zandbelt, B.B., Westbrook, A., Verkes, R.-J. & Cools, R. (2020). Methylphenidate boosts choices of mental labor over leisure depending on baseline striatal dopamine. *Neuropsychopharmacology*, 45, 2170-79. https://doi.org/10.1038/s41386-020-00834-1

Westbrook, A., van den Bosch, R., Määttä, J.I., **Hofmans, L.**, Papadopetraki, D., Cools, R.* & Frank, M.J.* (2020). Dopamine promotes cognitive effort by biasing the benefits versus costs of cognitive work. *Science*, 367, 1362-1366. https://doi.org/10.1126/science.aaz5891

Cools, R., Froböse, M. I., Aarts, E. & **Hofmans, L**. (2019). Dopamine and the motivation of cognitive control. In M. D'Esposito & J.H. Grafman (Eds.), The Frontal Lobes (pp. 123-143). San Diego, CA: Elsevier BV. https://doi.org/10.1016/B978-0-12-804281-6.00007-0

ONGOING PROJECTS

Hofmans L. & van den Bos, W. Neural and behavioral determinants of uncertainty in social information use. **Manuscript preparation.**

- Here, I apply a Bayesian cognitive model and univariate and representational similarity fMRI analysis on adult participants to reveal how neural patterns predict social information use.

Hofmans L. & van den Bos, W. Neural and behavioral determinants of uncertainty in adolescents' social information use. **Manuscript preparation.**

- A study similar to *Neural and behavioral determinants of uncertainty in social information use* above, to investigate how these processes develop across adolescence and how they compare to those in adulthood.

van Oosten, A., **Hofmans, L.**, van den Bos, W. & Piotrowski, J.T. Identifying Networks of Digital Competence Variables and Person Characteristics using Network Analysis. **Analysis phase**.

- I was approached to conduct the network analysis to obtain a more thorough insight into which groups within the Dutch population are most in need of support and which aspects of digital competence require special attention.

Hofmans L. & van den Bos, W. Neural and behavioral determinants of uncertainty in adolescents' social information use. **Data acquisition finished.**

- I have collected data from adolescents and their classmates to study whether different levels of social proximity elicit differential neural patterns using representational similarity analysis, and whether the observed dissimilarity predicts behavioral effects on social information use in an independent task.

CONFERENCE PRESENTATIONS

01/06/2023 **Hofmans, L.** & van den Bos, W. Confidence-related effects on the behavioral and neural integration of social information.
Poster at NVP Dutch Society for Brain and Cognition Winter Conference, Egmond aan Zee, NL

01/06/2023 **Hofmans, L.** & van den Bos, W. Social learning: A Bayesian neurocognitive perspective.
Poster at Symposium on Biology of Decision-Making, Paris, FR

28/04/2022 **Hofmans, L.**, Westbrook, A., van den Bosch, R., Booij, J., Verkes, R.-J. & Cools, R. Effects of average reward rate on vigor as a function of individual variation in striatal dopamine.
Talk at NVP Dutch Society for Brain and Cognition Winter Conference, Egmond aan Zee, NL

19/12/2019 **Hofmans, L.**, Papadopetraki, D., van den Bosch, R., Määttä, J.I., Froböse, M.I., Zandbelt, B.B., Westbrook, A., Verkes, R.-J. & Cools, R. Baseline dopamine predicts individual variation in methylphenidate's effects on cognitive motivation.
Poster at NVP Dutch Society for Brain and Cognition Winter Conference, Egmond aan Zee, NL

07/11/2018 **Hofmans, L.**, Papadopetraki, D., van den Bosch, R., Määttä, J.I.M., Westbrook, A. & Cools, R. Does dopamine modulate the subjective cost of cognitive control?
Poster at Society for Neuroscience Annual Meeting, San Diego, USA

21/05/2018 **Hofmans, L.**, Papadopetraki, D., van den Bosch, R., Määttä, J.I.M., Lambregts, B.I.H.M., Westbrook, A. & Cools, R. Dopamine modulates the subjective value of cognitive control.
Poster at Symposium on Biology of Decision-Making, Paris, FR

19/06/2017 **Hofmans, L.**, Määttä, J., Van den Bosch, R., Zandbelt, B., Piray, P., Van Holst, R., Froböse, M., Westbrook, A., Collins, A., Frank, M., Boot, N., & Cools, R. Effects of methylphenidate and sulpiride on brain and cognition: a PET, pharmaco-fMRI study.
Poster at FENS-SfN Summer School, Bertinoro, IT

GRANTS AND AWARDS

14/03/2024 €196 000 – Marie Skłodowska-Curie Individual Fellowship (IF), European Commission

12/12/2019 €150 – Best poster award (out of ~100 posters), Donders Institute, Donders poster sessions

25/09/2018 €700 – Travel Grant for Society for Neuroscience meeting, International Office Radboud University Nijmegen

26/04/2017 £600 – Travel Grant for BBSRC STARS course on Reproducibility, University of Bristol

01/09/2013 €4 665 – Excellence Scholarship: on the grounds of outstanding study results obtained during the bachelor's program, to partially cover tuition fees for a master's program abroad, Tilburg University, the Netherlands

10/05/2013 €20 000 – Erasmus Mundus Scholarship: monthly allowance and tuition fees covered during the two-year NEURASMUS master's Program, European Commission

INVITED REVIEWS

BMC Psychiatry, Cerebral Cortex, Conference on Cognitive Computational Neuroscience, eLife, European Journal of Neuroscience, Personality Neuroscience

TEACHING

Supervision and examination

01/02/2024 – 30/07/2024 Ceren Bal, Research internship, Master Brain and Cognitive Sciences

01/04/2024 – 21/06/2024 Kick Greven, Research internship, thesis, Bachelor Psychobiology

01/02/2024 – 21/06/2024 Charlotte de Vries, Research internship, thesis, Bachelor Psychobiology

01/09/2023 – 02/02/2024	Lars Middag, Research internship, thesis, Bachelor Psychobiology
06/02/2023 – 23/06/2023	Asya Yildirim, Research internship, thesis, Bachelor Psychobiology
06/02/2023 – 23/06/2023	Anna Ansems, Research internship, thesis, Bachelor Psychobiology
06/02/2023 – 23/06/2023	Annemarijn van der Stappen, Research internship, thesis, Bachelor Psychobiology
02/02/2023 – 09/06/2023	Rianne Verhaegh, Research internship, Master Brain and Cognitive Sciences
31/10/2022 – 23/12/2022	Lucia Hendrikse, Literature thesis, Master Brain and Cognitive Sciences
31/01/2022 – 21/06/2022	Lucia Hendrikse, Research internship, Master Brain and Cognitive Sciences
07/02/2022 – 01/07/2022	Fleur Korzilius, Research internship, Research Master Psychology
06/09/2021 – 28/01/2022	Gaia Evers, Research internship, thesis, Bachelor Psychobiology
01/11/2021 – 28/01/2022	Sequoia Duker, Research internship, thesis, Bachelor Psychobiology
01/02/2021 – 10/07/2021	Quinty Daas, Research internship, Master Brain and Cognitive Sciences
03/09/2018 – 08/07/2019	Marije Mars, Research internship, thesis, Research Master Cognitive Neuroscience
06/02/2017 – 30/06/2017	Lola Jansen, Research internship, thesis, Bachelor Psychobiology
08/12/2016 – 27/06/2017	Michiel Schwerzel, Research project, Bachelor Medicine
08/12/2016 – 27/06/2017	Sara Busser, Research project, Bachelor Medicine
08/12/2016 – 27/06/2017	Irene Stadhouders, Research project, Bachelor Medicine

Tutoring

16/01/2017 – 24/02/2017	Tutor Brain and Cognition I, Bachelor Psychology, Radboud Unversity
01/11/2012 – 15/12/2012	Tutor Statistics, Bachelor Psychology, Tilburg University

PUBLIC ENGAGEMENT

04/07/2023	**Interview NEMO Kennislink**, Dutch science journalism website with ~42 000 newsletter subscribers. Interview about learning and development.
11/11/2021 – 11/12/2021	**Research at NEMO Science Museum**, Amsterdam Running test sessions and enthuse visitors about scientific research.
01/01/2018 – 28/02/2020	**External relations officer**, Donders Institute, Radboud University Nijmegen Organizing and giving seminars and masterclasses about neuroscience and scientific research for primary school, secondary school and university students.
01/10/2018 – 30/04/2019	**Radboud Science Team,** Donders Institute, Radboud University Nijmegen Together with a team of researchers, developing a teaching module to incorporate science-based learning into the classroom of primary schools.
05/02/2019	**Invited speaker**, The Bildung Academy, Amsterdam Giving a masterclass and guiding a discussion session on Creative Cognition for ~30 honors students from the Vrije Universiteit Amsterdam.
26/04/2018	**Interview for radio NPO 3fm**. Dutch radio station focused on a young audience (25-45 yo) with ~800 000 weekly listeners. Interview about difficulties of finding research participants.

ORGANIZATION

01/09/2016 – 31/12/2018	**PhD representative** at the Donders Institute, Radboud University Nijmegen Spokesperson for all PhDs, link between directorate and PhD candidates, quarterly organization of scientific and professional meetings for PhDs.
07/12/2017	**Donders career event** for early career researchers at the Donders Institute. ~150 participants.

SOFTWARE AND TECHNICAL SKILLS

Experimental design	Psychtoolbox (Matlab), PsychoPy (Python, JavaScript), Presentation
Data analysis	R, Matlab, JASP
MRI analysis	SPM, FSL, FreeSurfer, fMRIprep
Version control	Git