Gilles de Hollander

Date of Birth:	24th November, 1986
E-mail:	gilles.de.hollander@gmail.com
Website:	http://www.gillesdehollander.nl
Researchgate:	https://www.researchgate.net/profile/Gilles_De_Hollander
Github:	https://github.com/Gilles86/

ACADEMIC POSITIONS

July 2019 - present

Postdoctoral Researcher
Zurich Center for Neuroeconomics (ZNE), Zurich, Switzerland
In Zurich, we try to understand classical microeconomic phenomena such as risk aversion through the lens of perceptual neuroscience. For example, we frame risk aversion as a perceptual bias rooted in Bayesian inference rather than a result of personal preference. I employ methods from perceptual neuroscience, such as computational models of cognition and neural encoding models, to root these theories in empirical neuroscientific data.
Advisor: prof. dr. Christian Ruff
- Computational models of numerical decision-making
- Population receptive fields
- Neural decoding through inverted encoding models
- Ultra-High Field 7 Tesla fMRI
- Pupil size tracking
- TMS

July 2017 - July 2019

Postdoctoral Researcher
Vrije Universiteit Amsterdam / Spinoza Centre For Neuroimaging, Amsterdam, the Netherlands
in collaboration with the Chinese Academy of Sciences, Beijing, China (PI: Peng Zhang)
Advisor: dr. Tomas Knapen
- Cortical depth-resolved functional imaging using Ultra-High Field 7 Tesla MRI
- Binocular Rivalry (binocular stimulus presentation)
- Pupil size tracking

EDUCATION

2012 - 2018

PhD in Cognitive Neuroscience

Defended on **10th of January, 2018**

(cum laude; corresponding to the top 5% PhD theses in the Netherlands)

Understanding the Human Subcortex using Ultra-High Field MRI and Computational Cognitive Modelling (link)

Psychology Department, Universiteit van Amsterdam, the Netherlands

Advisor: prof. dr. Birte U. Forstmann

During my PhD, I was also a visiting PhD student in the labs of:
- prof. dr. Robert Turner at the Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig, Germany (MRI studies)
- prof. dr. Richard Ivry at Psychology department, UC Berkeley, United States (tDCS study)
- prof. dr. Scott Brown and dr. Frini Karayanidis at The University of Newcastle, Australia (preparation of multimodal open dataset, review article on model-based cognitive neuroscience)

During my PhD I primarily worked on:
- Ultra-High Field 7 Tesla functional and structural MRI of subcortical nuclei, specifically the subthalamic nucleus
- Computational Cognitive Modelling, primarily sequential sampling models (DDM/LBA)
- Computational anatomy using immunohistochemical data
- Quantitative MRI on post-mortem tissue
- Transcranial Direct Current Stimulation
- Software development of Python tools for analysis of functional MRI and post-mortem MRI and microscopy data

2010 - 2012

Research Master in Artificial Intelligence

Universiteit van Amsterdam, the Netherlands

Thesis: *An application of Multivariate Pattern Analysis: does the Subthalamic Nucleus code for response caution?*

Supervisors: dr. Leendert van Maanen and prof. dr. Birte U. Forstmann

2005-2010

Bachelor of Science *Beta-Gamma*

Interdisciplinary bachelor with focus on how to answer scientific questions that cannot be answered by a single academic discipline in isolation.

Major Artificial Intelligence

Thesis: *The EU Parliament in clouds: An applied study to the usability of word clouds to summarize meetings and the methods to construct them*
Supervisor: dr. Maarten J. Marx

Major Cognitive Neuroscience

Thesis: *Teamwork in autism: Where to represent someone else's actions in a joint spatial compatibility task*
Supervisor: dr. Hans (J.A.) van Hooft

PUBLICATIONS

Number of citations: 941 (Google Scholar)
H-index: 16 (Google Scholar)

In preparation	de Hollander, G., Grueschow, M., Ruff, C.C. **Fluctuations in Risk Attitudes Arise Systematically from Varying Noise in Bayesian Magnitude Perception**
	de Hollander, G., Konovalov, A., Ruff, C.C., **Neural capacity limitations as a new bridge between neuroscience and economics.** Invited review article for *Neuron*
	de Hollander, G., Aqil, M., Renkert, M., Knapen, T.H., Ruff, C.C. **Braincoder: Rapid fitting and Bayesian inversion of complex neural encoding models for fMRI using computational graphs.**
	Renkert, M.F.*, de Hollander G.*, Ayodan, G., Bedhi, S., Ruff, C.C. **Acute stress induces risk-seeking via more realistic beliefs.**
	de Hollander, G.*, Moisa, M., Ruff, C.C. **Magnitude representations in intraparietal cortex causally drive risky choice: a TMS+fMRI study.**
	Veríssimo, I.S., de Hollander, G., Knapen, T.H., Olivers, C.N.L. **Spatial attentional modulation decoded using 7T fMRI.**
Preprints	de Hollander, G., Grueschow, M., Hennel, F., Ruff, C.C. **Rapid Changes in Risk Preferences Originate from Bayesian Inference on Parietal Magnitude Representations.** *Biorxiv* (2024) doi: 10.1101/2024.08.23.609296
	Szinte, M.*, de Hollander, G.*, Aqil, M.*, Veríssimo, I. Dumoulin, S., Knapen, T. **A retinotopic reference frame for space throughout human visual cortex.** *Biorxiv* 2024.02.05.578862 (2024) doi:10.1101/2024.02.05.578862
	Qian, C., Zhiqiang, C., de Hollander, G., Knapen, T., Zhang, Z., He, S., Zhang, P. **Hierarchical and fine-scale mechanisms of binocular rivalry for conscious perception.** *Biorxiv* 2023.02.11.528110 (2023) doi:10.1101/2023.02.11.528110.

2024

Failing, M., de Hollander, G., Pollman, S. Olivers, C.N.L. **No difference in prior representations of what to attend and what to ignore.** *Visual Cognition*. (in press) doi: 10.1080/13506285.2024.2338605

Poldrack, R.A., … de Hollander, G., …, Gorgolewski K.J. **The Past, Present, and Future of the Brain Imaging Data Structure (BIDS).** *Imaging Neuroscience 2*, 1-19. (2024) doi: 10.1162/imag_a_00103

2023

Baretto Garcia, M.[*], de Hollander, G.[*], Grueschow, M., Polania, R., Woodford, M., Ruff, C.C. **Individual risk attitudes arise from noise in neurocognitive magnitude representations.** *Nature Human Behavior 7, 1551−1567* (2023) doi:10.1038/s41562-023-01643-4

2022

Karakuzu, A., Appelhof, S., Auer, T., Boudreau, M., Feingold, F., Khan, A.R., Lazari, A., Philips, C., Stikov, N. Whitaker, K.[*], de Hollander, G.[*] (2021) **qMRI-BIDS: an extension to the brain imaging data structure for multimodal structural MR imaging data**. *Nature Scientific Data 9, 517.*

Miletic, S., van Maanen, L., Keuken, M.C., Trampel, R.M., de Hollander, G[*]., Forstmann, B.U.[*] (2022) **7T functional MRI finds no evidence for distinct functional subregions in the subthalamic nucleus during a speeded decision-making task** *Cortex* **155**, 162−188 (2022)

2021

Brascamp, J., de Hollander, G., Wertheimer, M. D., DePew, A. N. & Knapen, T. (2021) **Separable pupillary signatures of perception and action during perceptual multistability.** *Elife* 10, e66161

de Hollander, G., van der Zwaag, W. Qian, C., Zhang, P. Knapen, T. (2020) **Ultra-high resolution fMRI reveals origins of feedforward and feedback activity within laminae of human ocular dominance columns**. *Neuroimage* 228, 117683.

2019

Alkemade, A.[*], de Hollander, G.[*], Miletic, S[*], Keuken, M.C., Balesar, R., de Boer, O., Swaab, D.F., Forstmann B.U.F. (2019) **The Functional Microscopic Neuroanatomy of the Human Subthalamic Nucleus.** *Brain Structure and Function* 224, 3213−3227

Poldrack, R., Feingold, F., Frank, M., Gleeson, P., de Hollander, G., Huys, Q.J.M., Love, B.C., Markiewicz, C., Moran, R., Ritter, P., Turner, B., Yarkoni, T., Zhan, M., Cohen, J.D. (2019) **The importance of standards for sharing of computational models and data.** Computational Brain & Behavior, 2, 229−232.

Salzer, Y., de Hollander, G., van Maanen, L., & Forstmann, B. U. (2019). **A neural substrate of early response capture during conflict tasks in sensory areas.** *Neuropsychologia*, 124, 226-235.

Caan, MWA, Bazin, P-L, Marques, JP, de Hollander, G., Dumoulin, SO, Zwaag, W. (2019) **MP2RAGEME: T1, T2*, and QSM mapping in one sequence at 7 tesla.** *Hum Brain Mapping*, 40, 1786− 1798.

2017

Alkemade, A.[*], de Hollander, G.[*], Keuken, M. C., & Schäfer, A. (2017). **Comparison of T2*- weighted and QSM contrasts in Parkinson's disease to visualize the STN with MRI.** *PLoS ONE* 12(4), e0176130.

Forstmann, B. U., de Hollander, G., Maanen, L. van, Alkemade, A. & Keuken, M. C. (2017) **Towards a mechanistic understanding of the human subcortex.** *Nat Rev Neurosci* 18, 57–65.

de Hollander, G., Keuken, M. C., van der Zwaag, W., Forstmann, B. U., & Trampel, R. (2017). **Comparing functional MRI protocols for small, iron-rich basal ganglia nuclei such as the subthalamic nucleus at 7 T and 3 T.** *Human Brain Mapping*, 38(6), 3226–3248.

Salzer, Y., de Hollander, G., & Forstmann, B. U. (2017). **Sensory neural pathways revisited to unravel the temporal dynamics of the Simon effect: A model-based cognitive neuroscience approach.** *Neuroscience and Biobehavioral Reviews*, 77, 48–57.

2016

de Hollander, G., Labruna, L., Sellaro, R., Trutti, A., Colzato, L. S., Ratcliff, R., Ivry, R. B., Forstmann, B.U. (2016). **Transcranial direct current stimulation does not influence the speed-accuracy tradeoff in perceptual decision-making: Evidence from three independent studies.** *Journal of Cognitive Neuroscience*, 28(9), 1283–1294.

de Hollander, G. (2016). **Combining computational models of cognition and neural data to learn about mixed task strategies.** *Journal of Neuroscience*, 36(1), 1–3.

de Hollander, G., Forstmann, B. U., & Brown, S. D. **Different ways of linking behavioral and neural data via computational cognitive models.** *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging* 1 (2), 101-109.

Karayanidis, F., Keuken, M. C., Wong, A., Rennie, J. L., de Hollander, G., Cooper, P. S., Fulham, W.R., Lenroot, R., Parsons, M., Philips, N., Michie, P.T., Forstmann, B.U. (2016). **The Age-ility Project (Phase 1): Structural and functional imaging and electrophysiological data repository.** *NeuroImage*, 124(Pt B), 1137–1142.

2015

de Hollander, G.[*], Keuken, M. C.[*], & Forstmann, B. U. (2015). **The subcortical cocktail problem; Mixed signals from the subthalamic nucleus and substantia nigra.** *PLOS One* 10(3), e0120572.

de Hollander, G., Keuken, M. C., Bazin, P.-L., Weiss, M., Neumann, J., Reimann, K., Wähnert, M., Turner, R., Forstmann, B.U., Schäfer, A. (2014). **A gradual increase of iron toward the medial- inferior tip of the subthalamic nucleus.** *Human Brain Mapping*, 35(9), 4440–4449.

< 2015

de Hollander, G., & Marx, M. (2011). **Summarization of meetings using word clouds.** Presented at the 2011 *IEEE Second International Conference on Multimedia Big Data* (BigMM).

Zwinkels, T.[*], <u>de Hollander, G.</u>[*], & Aizenberg, T.[*] (2008). **Knowledge in connection: A cognitively grounded social research approach to understanding change in people's knowledge representations during social interaction.** *International Journal of Interdisciplinary Social Sciences*, 3(7), 71–78.

[*] Equal contribution

GRANTS/PRIZES

2021   I got awarded the **UZH Forschungskredit** (**CHF 110,384**) for a one-year research project in which I will use TMS to perturb parietal numerosity representations during risky choice.

2019   **NVP (Dutch Society for Brain and Cognition) Dissertation Award.** My PhD thesis got elected as the best dissertation in 2018 and 2019 in the field of Brain and Cognition in the Netherlands.

2019   **NWO Rubicon** grant (**158,000 euros**) to visit the **Laboratory for Social and Neural Systems research** (SNS lab) in Zurich for 2 years, to work on applying encoding models of numerosity on value-based decision-making, together with prof. dr. Christian Ruff (UZH).

OPEN SOURCE ACADEMIC SOFTWARE CONTRIBUTIONS

Maintainer

braincoder   braincoder is an easy-to-use Python package that can fit a plethora of encoding models such as population receptive field models to functional MRI data. It can also invert these models to decode stimuli from multivariate brain activation patterns in a Bayesian framework. The package is implemented using Google's Tensorflow-platform, which allows it to exploit high-performance GPUs.
https://braincoder-devs.github.io/

bauer   bauer is a Python library to simulate, estimate and describe Bayesian perceptual models of various decision-making task.
https://github.com/ruffgroup/bauer/tree/main/bauer

nideconv   nideconv is a lightweight, easy-to-use Python package that can perform deconvolution of neural signals (e.g., pupil, BOLD fMRI) using the general linear model. It can use different basis functions (e.g., canonical, FIR, Fourier) and also has a hierarchical Bayesian estimation procedure based on STAN. It is the first Python library of its kind and is specifically designed to be very easy-to-use.
https://github.com/VU-Cog-Sci/nideconv

BIDS extension proposal 1: multimodal structural data	The Brain Imaging Data Standard (BIDS) is an effort to standardize file and metadata organization for neuroimaging datasets. I was the lead on the "Structural acquisitions that include multiple contrasts"-extension. This extension aims to standardize filenames and metadata for multimodal structural images (especially relevant in the context of ultra-high field MRI). https://github.com/bids-standard/bep001
pym2rage	pymp2rage is a lightweight, easy-to-use Python package to fit quantitative models to MRI data. It is primarily designed to create unified T1-weighted images from the MP2RAGE sequence, including B1+-correction, but it can also estimate R1/T1, PD and R2*/T2* maps from GRE images (as in MP2RAGE-ME). https://github.com/Gilles86/pymp2rage
pydbm	pydbm is an implementation of the dynamic belief model by Yu (2008), that can be used to model sequential biases in forced-choice decision tasks. https://github.com/Gilles86/pydbm

Contributor

nipype	nipype is a pipelining engine in Python, tailored for preprocessing of neuroimaging data. It is the main building block of the popular *fmriprep* preprocessing pipeline project developed by the Poldrack group.
nighres	nighres is a Python package that wraps some of the CBS tools developed by Pierre-Louis Bazin et al. at the Max Planck institute into an easy-to-use Python package and provides software to analyze UHF (7 Tesla and above) structural and functional MRI (e.g., laminar analysis)
nilearn	nilearn is a Python package that facilitates the application of machine learning techniques on MRI data. It also has a rich collection of convenience and plotting tools.
pycortex	pycortex is a Python package developed in the lab of Jack gallant at the University of California, Berkeley, to visualize cortical maps on 3D renderings in a web-based environment.

INVITED TALKS

2024	*Risk Aversion as a Perceptual Bias: Behavioral and Neural Evidence.* Invited talk at the the Brain, Minds, and Markets laboratory at the University of Melbourne, Victoria, Australia.

Encoding models: How does the outside world map onto functional brain anatomy? Invited talk at the Cognitive Neuroscience Hub at the University of Melbourne, Victoria, Australia.

Encoding models: How does the outside world map onto functional brain anatomy? Invited talk at the Systems Neuroscience Group at The University of Newcastle, Newcastle, New South Wales, Australia. |

Risk Aversion as a Perceptual Bias: Behavioral and Neural Evidence. Invited talk at the Cognitive Psychology Group at The University of Newcastle, Newcastle, New South Wales, Australia.

Encoding models: How does the outside world map onto functional brain anatomy? Invited talk at the Jacob's Center Brainfood seminar series.

2023   *How economic preferences are shaped by perceptual biases rooted in Bayesian inference*. Invited talk at the Cognitive Psychology Department at the Vrije Universiteit Amsterdam

2022   *The psychophysics underlying risky decision making.* Invited talk at the Psychology Department of the University of Basel

2021   *Deconvolving neural signals using nideconv*. Invited talk at the University of Reading.

2020   *The Data Science of Neuroscience*, Dinner Keynote for DataScience Training of Schmalenbach/PwC

Understanding the Brain Using Computational Cognitive Models and functional MRI, Cognition Academy - Max Planck Graduate School, Virtual Summer School

2019   *A biphasic temporal pattern in pupil size around perceptual switches in binocular rivalry ,* Locus Coeruleus Meeting, Otto-von-Guericke Universität, Magdeburg

BIDS-Computational Models Meeting, Princeton University, Princeton, USA

2018   *A biphasic temporal pattern in pupil size around perceptual switches in binocular rivalry ,* Anne Churchland lab meeting, Cold Spring Harbor Laboratory, Cold Spring Harbor, USA

BIDS in practice for Ultra-High field structural and functional MRI: how to extend an existing standard, OpenMR Benelux, Leiden, the Netherlands

Bringing BIDS closer to quantitative MR, ISMRM virtual meeting

VU-CAS symposium, Chinese Academy of Sciences, Beijing, China

2017   *Foundations of Cognition,* Radboud University, Nijmegen, the Netherlands

CONFERENCE CONTRIBUTIONS

2024   de Hollander G., Grueschow, M., Hennel, F., Ruff, C.C. **Rapid changes in risk preferences originate from Bayesian inference on noisy neural magnitude representations.** Talk at the *Foundation of Utility and Risk* conference in Brisbane, Australia, July 2024.

2023	de Hollander G., Grueschow, M., Hennel, F., Ruff, C.C. **How brain state shapes risk preference.** Talk at the *Brain & Cognition (NVP) Winter Conference* in hotel Zuiderduin, December 2023, Egmond aan Zee, the Netherlands.
	de Hollander G., Grueschow, M., Hennel, F., Ruff, C.C. **How brain state shapes risk preference.** Talk at the *Society for Neuroeconomics Meeting*, October 2023, Vancouver, Canada.
2022	Baretto Garcia, M.*, de Hollander, G.*, Grueschow, M., Polania, R., Woodford, M., Ruff, C.C. **Predicting Risk Attitudes from the Precision of Neural Magnitude Representations.** Poster presented at the *Brain & Cognition (NVP) Winter Conference* in hotel Zuiderduin, Egmond aan Zee, the Netherlands.
2020	Baretto Garcia, M.*, de Hollander, G.*, Grueschow, M., Polania, R., Woodford, M., Ruff, C.C. **Predicting Risk Attitudes from the Precision of Neural Magnitude Representations.** Speaker for oral presentation at *Society for Neuroeconomics virtual Meeting*
2019	de Hollander, G., Knapen T.H., **Nideconv: Easy deconvolution of neural signals using the general linear model and flexible basis functions.** Software demonstration presented at *Human Brain Mapping,* Rome, Italy.
2019	de Hollander, G., van der Zwaag, W., Qiang, C., Zhang, P, Knapen, T.H. **Multi-center mapping of human ocular dominance columns with BOLD fMRI.** Poster presented at *Vision Sciences Society (VSS) 2019,* St Pete's Beach, Florida, United States.
2018	de Hollander, G., van der Zwaag, W., Knapen, T.H. **Submillimeter 7 Tesla fMRI in Primary Visual Cortex during monocular stimulation.** Poster presented at *Human Brain Mapping*, Singapore, Singapore.
2016	de Hollander, G., Trampel, R., Forstmann, B.U., van der Zwaag, W. **Submillimeter resolution fMRI in the midbrain: Measuring T2* changes to a stop-task.** Presented at *Annual Meeting of the International Society for Magnetic Resonance*.
2016	**The Simon Task modeled with a Fast-Guess process**. Talk presented at the *Annual Meeting of the Society for Mathematical Psychology*, New Brunswick, New Jersey, United States.
2015	de Hollander, G., Forstmann, B.U., Brown, S.D. **Explicit modeling of the hemodynamic response function in linking cognitive computational models to fMRI data.** Poster presented at *Society for Neuroscience*, San Diego, United States.

2015	**Connecting the dots: Linking brain and behavior in perceptual decision making.** Talk presented at the *Australian Mathematical Psychology Conference*, Newcastle, Australia.
2014	**Large cortical networks in small subcortical nuclei?** Talk presented at *Decision Making*, Bristol, United Kingdom.

WORKSHOPS AND SUMMER SCHOOLS ATTENDED

2018	Educational course on **Deep Learning** at Human Brain Mapping conference, Singapore, Singapore.
2016	Educational course on **Quantitative MRI** for characterising brain tissue microstructure, Leipzig, Germany.
2014	Summer school on **Neural Metrics: Quantitative analysis of neural organisation and function**, Nijmegen, the Netherlands.
2014	Summer school on **Computational Cognitive Modelling**, Laufen, Germany.
2013	Workshop on **MRI analysis with NiPype**, Magdeburg, Germany.

TECHNICAL SKILLS

MRI
functional/structural protocol development, functional MRI analysis, ultra-high field MRI, laminar analysis, MVPA, quantitative MRI, pipeline development (nipype),

Computer science
open source software development, Bayesian probabilistic programming, MCMC sampling (STAN/pymc), regularized general linear models, Bayesian hierarchical modeling, virtualization (Docker, Singularity), machine learning, computer vision, deep learning, GitHub;
Python (expert), R (proficient), Matlab (proficient), C/C++ (elementary)

Experimental Psychology
Experimental design, forced-choice tasks, computational cognitive modeling (sequential sampling models, reinforcement learning models), eye/pupil tracking, Psychopy, Presentation

SUPERVISION

- I am currently co-supervising four **PhD-students** with prof. Christian Ruff:
    - **Maike Renkert**, works *on numerical PRF models* in *young adolescents with dyscalculia and risky choice*.
    - **Saurabh Bedi**, works on *the role of efficient coding in risky decision-making.*
    - **Ella Casimiro**, works on *multimodal reinforcement learning.*
    - **Alina Davydova**, works on *perceptual foundations of loss aversion*
- I co-supervised the **PhD-student Steven Miletic** while he finished some of my projects on *subdivisions in the subthalamic nucleus* in the lab of prof. Birte Forstmann.

- I also supervised various Master's projects at the University of Amsterdam, Vrije Universiteit, and the University of Zurich.

TEACHING

2023	Two lectures on **Programming in Python for data analysis and experimental paradigms in neuroeconomics.** PhD graduate course, University of Zurich.
2018	Lecture on **Reinforcement Learning** in **Brain Organization and Cognition** course, University of Amsterdam
2018	Lecture in **Brain Imaging** course on **k-space and Fourier Analysis**, Vrije Universiteit, Amsterdam.
2014 - 2017	Lecture on **Model-based Neuroimaging** in Summer School on model-based neuroscience, University of Amsterdam.
2016, 2017	Lecture on **Machine Learning in Psychology** in honors course BSc Psychology, University of Amsterdam.
2012 - 2016	Lectures on **functional MRI, multivariate pattern analysis and representational similarity analysis** in **Introduction to Neuroscientific and Neuroanatomy**, University of Amsterdam.
2014	Taught workshop on **Python in Neuroscience**, University of Amsterdam.
2012	Teaching Assistant **Qualitative Reasoning** Practical Future Planet Studies, University of Amsterdam.
2009 - 2011	Teaching Assistant **Reinforcement Learning Practical** Beta-Gamma, University of Amsterdam.

ORGANIZATION

2023 - Now	**Neuroeconomics seminar**. I organize the weekly Neuroeconomics seminar at the Zurich Center for Neuroeconomics (ZNE)
2020-2021	**Representative of Rubicon laureates during the Covid crisis.** Together with 2 other Rubicon laureates, I wrote an opinion piece on the dire situation of postdocs abroad during the Covid crisis. We also lobbied with the Dutch funding agency NWO, the Dutch Ministry of Education, and various parliament members to help postdocs abroad with Covid hardship extensions. Partly thanks due to our lobbying, the minister of education has moved 20 million euros to help young scientists on short-term contracts. NWO has promised to extend eligible Rubicon projects by approximately three months
2013 - 2017	PhD-member **advisory board Amsterdam Brain and Cognition** Institute.
2016	Organizing committee **model-based neuroscience summer school,** Amsterdam.
2010 - 2014	Chairman organizing committee **Café Scientifique**, a bimonthly evening with short **popular science talks in club Bitterzoet**, Amsterdam.

LANGUAGES

Dutch (mother), English (fluent), German (intermediate, B2), Italian (Intermediate, B1)

AD-HOC REVIEWER

Cerebral Cortex | Human Brain Mapping | Journal of Cognitive Neuroscience | Journal of Mathematical Psychology | Neuropsychologica | eLife | PLOS Biology | PNAS | Neuroimage Reports | Journal of Economic Psychology | iScience