

GIDO MARTIJN VAN DE VEN

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PROFESSIONAL AFFILIATIONS

Assistant Professor

University of Groningen, Oct 2025 – now

Studying continual learning from a machine learning and a cognitive science perspective.

Postdoctoral Fellow

KU Leuven (Belgium), Mar 2022 – Sep 2025

Studying the fundamental challenges of continual/incremental/sequential learning, predominantly in the context of deep learning. Supported by two prestigious personal fellowships.

Postdoctoral Associate

Baylor College of Medicine (Houston), Oct 2017 – Feb 2022

Applying insights and experimental observations from neuroscience to state-of-the-art deep neural networks to make their performance more human-like, with special focus on continual learning.

EDUCATION

PhD	University of Oxford, Neuroscience Dissertation: “Reactivation and reinstatement of hippocampal assemblies” <i>National PhD Thesis Award</i> from the British Neuroscience Association	2013-2017
MSc	University of Oxford, Neuroscience <i>Sherrington Prize in Neuroscience</i> for best performance	2011-2012
MA	UC Berkeley, Statistics <i>Elizabeth Scott Memorial Award</i> for outstanding performance	2009-2011
BSc	Erasmus University Rotterdam, Econometrics Graduated <i>cum laude</i> , top of class	2005-2008

FUNDING / GRANTS / FELLOWSHIPS

Senior fundamental research project, FWO – €565,167	2025-2028
National funding supporting two PhD students for four years. The project studies social cognition <i>in vivo</i> (humans) and <i>in silico</i> (neurosymbolic AI systems), with special focus on neuropsychiatric disorders. Collaboration with Prof Jan Van den Stock, Dr Elahe’ Yargholi and Prof Joost Vennekens.	
C1 project, KU Leuven – €353,383	2023-2027
Internal funding supporting a PhD student for four years and a postdoc for one year, awarded after international peer review. The project studies the stability gap in continual learning. My role is Co-PI (due to internal regulations I cannot be PI), I wrote the application almost fully myself.	
MSCA Postdoctoral Fellowship – €191,760	2022-2024
Two-year personal fellowship for postdoc at the KU Leuven.	

FWO Senior Postdoctoral Fellowship – €250,000 (estimate) 2022-2025
Three-year personal fellowship for postdoc at the KU Leuven [*only taken up in final year*].

DARPA’s Lifelong Learning Machines (L2M) Program – \$2,904,658 (total) 2018-2021
“Continual Learning Across Synapses, Circuits & Brain Areas” (PI: Andreas Tolias; collaboration with NYU & Columbia), I am listed as key personnel and had an important role securing this grant.

IBRO-ISN Research Fellowship – €35,000 2017-2018
One-year personal fellowship for postdoc at the Baylor College of Medicine.

OTHER AWARDS

MRC DTP Supplementary Funding Award (£19,697)	2017
FENS travel grant, to attend Annual Meeting of the Japan Neuroscience Society (€1,000)	2017
FENS, IBRO-PERC and The Brain Prize stipend (€1,000)	2017
Vice-Chancellors’ Fund Award, University of Oxford (£3,000)	2016
CSNII grant, for Computational Neuroscience Course in Okinawa (£2,500, estimate)	2015
Gotch Memorial Prize, for 1st year DPhil report (£1,000)	2014
MRC Research Studentship, to finance DPhil at University of Oxford (£102,674)	2013
RIKEN Brain Science Institute summer program grant (£3,500, estimate)	2013
Vreedefonds, to finance Master at University of Oxford (€6,000, partly loan)	2011
International House Berkeley Scholarship (\$4,100)	2010
Huygens Scholarship, to finance Master at UC Berkeley (€37,800)	2009

TEACHING

CSE3000 Research Project, TU Delft Apr-Jul 2025
Supervision of five BSc students on a 4-month research project investigating the stability gap in continual learning with deep neural networks

Keynote & Tutorial at CCN Aug 2024
Tutorial on continual learning at the top conference on cognitive computational neuroscience

INVICTA Spring School, Porto Mar 2024
Lecturer, introduction to continual learning and coding tutorial

NeurIPS tutorial Dec 2022
Online tutorial on “Lifelong Learning Machines”

NeuroMatch Academy (deep learning summer school) Aug 2021
Coding tutorial and online lecture on benchmarks for continual learning

UC Berkeley 2009-2011
Graduate Student Instructor for:
- STAT2: introductory course in Statistics
- STAT151B: advanced upper-division course in Machine Learning
- STAT248: graduate course in Time Series Analysis
Recipient of *Outstanding Graduate Student Instructor Award* (awarded to <10% of GSIs)

Erasmus University Rotterdam 2009-2011
Teaching assistant for introductory courses on Calculus and Linear Algebra

SUPERVISION OF PhD STUDENTS

Milan Van Maldegem – *KU Leuven & University of Groningen* 2024 - now
Timm Hess – *KU Leuven* 2022 - now

SUPERVISION OF MASTER & VISITING STUDENTS

Viktor Veselý – *University of Groningen* 2026 - now
Matthijs van der Lende – *University of Groningen* 2026 - now
Arturo Comín Lucio – *University of Groningen* 2026 - now
Aleksandar Todorov – *University of Groningen* 2025 - now
Dipam Goswami – visiting PhD student, *KU Leuven* 2025
Michał Zajac – visiting PhD student, *KU Leuven* 2023
Sergi Masip – visiting Master student, *KU Leuven* 2023
Roman Rothaermel – *University of Oxford* 2017

PEER-REVIEWED PUBLICATIONS

Google Scholar profile: <https://scholar.google.com/citations?user=3k0l15MAAAAJ>

van der Veldt S, **van de Ven GM**, Moorman S, Etter G (2026), "Learning continually with representational drift", *Trends Open*, in press.

Dorovatas V, Schwerin M, Bagdanov AD, Caccia L, Carta A, Charlin L, Hammer B, Hayes TL, Hess T, ..., **van de Ven GM**, ..., Choi J, Mundt M, Aljundi R (2026), "Modular memory is the key to continual learning agents", *International Conference on Machine Learning (ICML)*.

Zheng Y, Zhang Y, van de Weijer J, **van de Ven GM**, Du S, Zhang X, Tian Z (2026), "Revisiting weight regularization for low-rank continual learning", *International Conference on Learning Representations (ICLR)*.

van de Ven GM (2025), "On the computation of the Fisher Information in continual learning", *ICLR Blogposts*.

Hemati H, Pellegrini L, Duan X, Zhao Z, Xia F, Masana M, Tscheschner B, Veas E, Zheng Y, Zhao S, Li SY, Huang SJ, Lomonaco V, **van de Ven GM** (2025), "Continual learning in the presence of repetition", *Neural Networks*, **183**: 106920.

Ilievski F, Hammer B, van Harmelen F, Paassen B, Saralajew S, Schmid U, Biehl M, Bolognesi M, Dong XL, ..., **van de Ven GM**, Villmann T (2025), "Aligning generalisation between humans and machines", *Nature Machine Intelligence*, **7**(9): 1378-1389.

Vogelstein JT*, Dey J*, Helm HS, LeVine W, Mehta R, Tomita TM, Xu H, Geisa A, ..., **van de Ven GM**, ..., Priebe CE (2025), "Simple lifelong learning machines", *IEEE Transactions on Pattern Analysis and Machine Intelligence*, **47**(11): 10033-10046.

Zajac M, Tuytelaars T, **van de Ven GM** (2024), "Prediction error-based classification for class-incremental learning", *International Conference on Learning Representations (ICLR)*.

Verwimp E, Aljundi R, Ben-David S, Bethge M, Cossu A, Gepperth A, Hayes TL, Hüllermeier E, Kanan C, ..., **van de Ven GM** (2024), "Continual learning: applications and the road forward", *Transactions on Machine Learning Research (TMLR)*.

Hess T*, Verwimp E*, **van de Ven GM**, Tuytelaars T (2024), "Knowledge accumulation in continually learned representations and the issue of feature forgetting", *Transactions on Machine Learning Research (TMLR)*.

- Masip S, Rodriguez P, Tuytelaars T, **van de Ven GM** (2024), “Continual learning of diffusion models with generative distillation”, *Conference on Lifelong Learning Agents (CoLLAs)*.
- Dziadzio S, Yıldız Ç, **van de Ven GM**, Trzciński T, Tuytelaars T, Bethge M (2024), “Disentangled continual learning: separating memory edits from model updates”, *Conference on Lifelong Learning Agents (CoLLAs)*.
- Hess T, Tuytelaars T, **van de Ven GM** (2023) “Two complementary perspectives to continual learning: ask not only what to optimize, but also how”, *Proceedings of the 1st ContinualAI Unconference*, pre-registered report, PMLR **243**: 37-61.
- De Lange M, **van de Ven GM**, Tuytelaars T (2023), “Continual evaluation for lifelong learning: identifying the stability gap”, *International Conference on Learning Representations (ICLR)*, spotlight (top 25%).
- van de Ven GM**, Tuytelaars T, Tolias AS (2022), “Three types of incremental learning”, *Nature Machine Intelligence*, **4**(12): 1185-1197.
- Kudithipudi D, Aguilar-Simon M, Babb J, Bazhenov M, Blackiston D, Bongard J, Brna A, Chakravarthi Raja S, Cheney N, ..., **van de Ven GM**, ..., Siegelmann HT (2022), “Biological underpinnings for lifelong learning machines”, *Nature Machine Intelligence*, **4**(3): 196-210.
- Li S, Du Y, **van de Ven GM**, Mordatch I (2022), “Energy-based models for continual learning”, *Proceedings of the 1st Conference on Lifelong Learning Agents (CoLLAs)*, PMLR **199**: 1-22.
- van de Ven GM**, Zhe L, Tolias AS (2021), “Class-incremental learning with generative classifiers”, *Proc IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops*, p3611-3620.
- Lomonaco V, Pellegrini L, Cossu A, Carta A, Graffieti G, Hayes TL, De Lange M, Masana M, ..., **van de Ven GM**, ..., Maltoni D (2021), “Avalanche: an end-to-end library for continual learning”, *Proc IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops*, p3600-3610.
- Kao TC*, Jensen KT*, **van de Ven GM**, Bernacchia A, Hennequin G (2021), “Natural continual learning: success is a journey, not (just) a destination”, *NeurIPS*, 34.
- van de Ven GM**, Siegelmann HT, Tolias AS (2020), “Brain-inspired replay for continual learning with artificial neural networks”, *Nature Communications*, **11**: 4069.
- van de Ven GM**, Tolias AS (2019), “Three scenarios for continual learning”, *NeurIPS workshop*.
- Lopes-dos-Santos V, **van de Ven GM**, Morley A, Trouche S, Campo-Urizza N, Dupret D (2018), “Parsing hippocampal theta oscillations by nested spectral components during spatial exploration and memory-guided behavior”, *Neuron*, **100**(4): 940-952.
- van de Ven GM**, Trouche S, McNamara CG, Allen K, Dupret D (2016), “Hippocampal offline reactivation consolidates recently formed cell assembly patterns during sharp wave-ripples”, *Neuron*, **92**(5): 968-974.
- Trouche S, Perestenko PV, **van de Ven GM**, Bratley CT, McNamara CG, Campo-Urizza N, Black SL, Reijmers LG, Dupret D (2016), “Recoding a cocaine-place memory engram to a neutral engram in the hippocampus”, *Nature Neuroscience*, **19**(4): 564-567.
- Möttönen R, **van de Ven GM**, Watkins KE (2014), “Attention Fine-Tunes Auditory-Motor Processing of Speech Sounds”, *The Journal of Neuroscience*, **34**(11): 4064-4069.

BOOK CHAPTER

van de Ven GM*, Soures N*, Kudithipudi D (2025), “Continual learning and catastrophic forgetting”, In John Wixted (ed.), *Learning and Memory: A Comprehensive Reference (Third Edition)*, volume 1, pp. 153-168. Academic Press, Oxford.

PREPRINTS

Masip S, **van de Ven GM**, Ferrando J, Tuytelaars T (2026), "Putting a face to forgetting: continual learning meets mechanistic interpretability", *arXiv preprint*, arXiv:2601.22012.

Hess T, **van de Ven GM**, Tuytelaars T (2025), “Forgetting of task-specific knowledge in model merging-based continual learning”, *arXiv preprint*, arXiv:2507.23311.

Mitchell R, Alliegro A, Camoriano R, Carrión-Ojeda D, Carta A, Chalvatzaki G, Churamani N, D’Eramo C, Hamidi S, ..., **van de Ven GM**, ..., Mundt M (2025), “Continual learning should move beyond incremental classification”, *arXiv preprint*, arXiv:2502.11927.

Yoo J, He Y, Naderiparizi S, Green D, **van de Ven GM**, Pleiss G, Wood F (2024), “Lifelong learning of video diffusion models from a single video stream”, *arXiv preprint*, arXiv:2406.04814.

van de Ven GM, Tolia AS (2018), “Generative replay with feedback connections as a general strategy for continual learning”, *arXiv preprint*, arXiv:1809.10635.

OPEN SCIENCE / REPRODUCIBILITY

Continual learning library: github.com/GMvandeVen/continual-learning (>1800 stars)

Contributor to Avalanche project: avalanche.continualai.org (>2000 stars)

INVITED TALKS

YAG Pub Lecture, “Forgetting in brains and machines”, 4 March 2026

NICE Conference, “A new direction for continual learning”, 25-28 March 2025

CVC Seminar, “Two complementary perspectives to continual learning”, 23 May 2024

Dagstuhl Seminar “Generalization by People and Machines”, 5-8 May 2024

Guest lecture (UMass Amherst), “Continual learning with deep neural networks”, 7 Mar 2023

Sony & inCSL Seminar, “Three types of incremental learning: a framework”, 1 Mar 2023

Guest lecture (University of Pisa), “Using generative models for continual learning”, 20 Dec 2021

ContinualAI Seminar, “Class-Incremental Learning with Generative Classifiers”, 21 May 2021

Reading Group of Simons Institute (UC Berkeley), “Brain-inspired replay”, 11 Nov 2020

ContinualAI Meetup, “Robustness and Generalization in Continual Learning”, 30 Oct 2020

Cambridge Memory Meeting, “The role of replay in stabilizing memories”, 4 April 2019

Memory Reactivation Workshop (Cardiff), 8 May 2017

PROFESSIONAL SERVICE

Peer-reviewed for:

- Nature, Nat Mach Intell, Nat Hum Behav, Nat Commun, PLoS Comp Biol, Neural Networks, IEEE TPAMI, IEEE TNNLS, Artificial Intelligence, PNAS, TMLR
- ICLR (top reviewer 2022 and 2023), NeurIPS, CVPR, ICML, CoLLAs

Area Chair for:

- ICLR (2026), AISTATS (2025), CoLLAs (2026)

Organizer of scientific meetings:

- ICCV Workshop “Continual Learning in Computer Vision”, 20 October 2025, Honolulu
- CVPR Workshop “Continual Learning in Computer Vision”, 18 June 2024, Seattle
- Continual AI Un-Conference, Talks Chair, 19 October 2023, virtual
- CVPR Workshop “Continual Learning in Computer Vision”, 18 June 2023, Vancouver
- **Dagstuhl Seminar “Deep Continual Learning”, 19-24 March 2023, Germany**
- CVPR Workshop “Continual Learning in Computer Vision”, 20 June 2022, New Orleans

REFERENCES

Prof. Tinne Tuytelaars

Postdoctoral mentor (Mar 2022 – Sep 2025)

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E-mail: tinne.tuytelaars@esat.kuleuven.be

Prof. Andreas S. Tolias

Postdoctoral mentor (Oct 2017 – Feb 2022)

Address: Dept Ophthalmology, Stanford University, 318 Campus Drive, Stanford, CA 94305, USA

E-mail: tolias@stanford.edu