Fleur ZELDENRUST

nationality: Dutch
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Current Positions

2016	**Assistant Professor** in computational neuroscience at the Department of Neurophysiology, *Radboud University*, Donders Institute for Brain, Cognition and Behaviour. I work on models of sensorimotor computation: interactions between sensory perception and motor control form the foundation of how we perceive the world and respond to it.
2021	**Theme 4 (Neural computation and Neurotechnology)** Speaker
2020	**Radboud Young Academy** Founding member
2020	**NeurotechEU** Neurochallenges in Societal innovation
2019	**Organisation For Computational Neurosciences** Education and Training Chair
2018	**Dutch Brain Olympiad** Co-founder and board secretary

Education and experience

2014 – 2016	**Researcher** in Computational Neuroscience at SILS-CNS and lecturer at the BSc Psychobiology at the *University of Amsterdam*.
2012 - 2014	**Post-doctoral fellow** at the Group for Neural Theory, Département d'Études Cognitives, *École Normale Supérieure, Paris*. (collaboration with B.S. Gutkin and S. Denève). Study of biophysical implications of Bayesian inference and predictive coding.
2007 – 2012	**PhD in Computational Neuroscience**, at SILS-CNS, *University of Amsterdam* and ONWAR graduate school, the Netherlands (1 September 2007 - 10 January 2012, full time, fixed term). Thesis: 'Neural coding with spikes and bursts: characterizing neurons and networks with noisy input'. Promotor: W.J. Wadman
2010	**KITP program: Emerging Techniques in Neuroscience**, *Kavli Institute for Theoretical Physics*, Santa Barbara, USA (invited, funded by KITP). Coordinators: A. Fairhall, D. Kleinfeld and F. Wolf.
2008	**Methods in Computational Neuroscience**, *Marine Biological Laboratory*, Woods Hole, USA (partially funded by MBL). Directors: A. Fairhall and M. Berry.
2004 – 2006	**MSc in Neurobiology with a Minor in Physics**. *University of Amsterdam*, the Netherlands, cum laude (31 July 2006). Thesis: 'Homeostatic Scaling of Excitability in a Neuron with Spike Timing-Dependent Plasticity'. Thesis supervisors: W.J. Wadman and M.W.H. Remme.
2001 – 2004	**'Kandidaats' (BSc) Physics and Astronomy**, *University of Amsterdam*, the Netherlands, cum laude (28 June 2004). Thesis: 'Attention-gated reinforcement learning – a closer look'. Thesis supervisor: A. van Ooyen.
2000 – 2001	**'Beta-Gamma Propedeuse'** (first year's interdisciplinary degree), *University of Amsterdam*, the Netherlands (31 August 2001). Specialization in Physics and Philosophy.
2000 – 2001	**'Propedeuse' in Physics** (first year's degree), *University of Amsterdam*, the Netherlands, cum laude (31 August 2001).

Grants and Awards

2021	'Math checks out' award student organization 'BeeVee'
2020	Junior teacher award Faculty of Sicence, Radboud University
2020	Team Science Award 2020 from Radboud University for NeurotechEU
2019	Junior teacher award Biosciences, shortlisted for the faculty award
2019	Marie Curie European Training Network "SmartNets" (3.4M, project lead))
2019	Marie Curie Research and Innovation Staff Exchange "iNavigate")
2016	Christine Mohrmann Grant (60k)
2015	NWO Veni Grant (250k)
2015	Amsterdam Brain and Cognition Talent Grant (125k)
2013	Cosyne New Attendee Travel Grant
2012	Grant from Fondation Pierre-Gilles de Gennes pour la Recherche (6 months of research)
2012	UvA Award for graduating within the set time
2012	ONWA Award for graduating within the set time
2011	ICTO grant for writing the 'Signal Analysis for Neuroscientists' syllabus
2011	CNS Travel Award
2010	KITP Stipend, Program 'Emerging Techniques in Neuroscience', KITP, UCSB, Santa Barbara, USA
2008	MBL Scholarship Award for attending the Methods in Computational Neuroscience summer school at the *Marine Biological Laboratory*, Woods Hole, USA.
2001	*Physica aanmoedigingsprijs* (best graduated 'Propedeuse' in physics at the University of Amsterdam), Royal Holland Society of Sciences and Humanities.
2001	Education prize 'Beta-Gamma Propedeuse', for graduating top of my year and being actively involved in extracurricular activities such as discussion meetings.
1999	*Beste-leerlingprijs* (best-student prize), awarded by NNV and Stichting Physica

International Experience

2015	**OIST Computational Neuroscience Course** : I was invited as a tutor in this Summer School in Japan: I supervised students and gave several tutorials.
2012 - 2014	**Postdoctoral fellow** at the Group for Neural Theory, Département d'Études Cognitives, *École Normale Supérieure, Paris*. (collaboration with B.S. Gutkin and S. Denève). Study of biophysical implications of Bayesian inference and predictive coding.
2010	**KITP program: Emerging Techniques in Neuroscience**, *Kavli Institute for Theoretical Physics*, Santa Barbara, USA (invited, funded by KITP). Coordinators: A. Fairhall, D. Kleinfeld and F. Wolf.
2008	**Methods in Computational Neuroscience**, *Marine Biological Laboratory*, Woods Hole, USA (partially funded by MBL). Directors: A. Fairhall and M. Berry.

Supervision of Graduate Students

2014 – current	(Co-) Supervisor (Dissertation Committee) of 8 PhD students at Radboud University Nijmegen, the Netherlands, 3 are currently starting (SmartNets)
2014 – current	Opposition at 14 PhD defenses, of which 6 part of the manuscript committee.

Collaborations

local	In my reasearch, I combine theoretical neuroscience and experimental data. Therefore, I collaborate both with researchers at Neuroinformatics, at Neurophysiology and with people in the artificial intelligence department (M. van Gerven). I have am one of the founding members of the Radboud Young Academy.
national	Currently, I am collaborating with researchers from Amsterdam, Utrecht, Tilburg and Groningen on the Dutch Brain Olympiad. I am part of several Dutch initiatives, such as the 'EBRAINS' initiative of the Human Brain Project and the 'DBi2' consortium of Francesco Battaglia.
international	In the SmartNets consortium which I lead 7 PIs from 5 universities work together to understand information transfer in biological networks. In the NeurotechEU we are aiming to found a European University in neurotechnology, for a life long learning. In the board of the Organization for Computational Neurosciences we aim to promote computational neuroscience, amongst others by organizing a yearly conference. Finally, I am still collaborating with B. Gutkin and S. Denève on predictive coding networks.

Management skills

2021 – current	**Theme speaker for theme 4 'Neural Computation and Neurotechnology'.**
2020 – current	**Neurochallenges in Societal innovation officer for NeurotechEU.**
2019 – current	**Board member of the Organization for Computational Neurosciences.**
2018 – current	**Secretary and co-founder of Stichting Nederlandse Hersenolympiade** (Dutch Brain Olympiad). The Hersenolympiade Nederland Foundation is part of the International Brain Bee as national coordinator, and organizes the Brain Olympiad as the national preliminary round of the international Brain Bee competition.
2001 - 2018	**Developer, teacher and coordinator** of a track in computational neuroscience and several courses in the BSc-programs Psychobiology, Biomedical Sciences and the MSc-programs Neurobiology and Cogmaster (see Teaching Experience for an overview). I taught in and developed courses for up to 300 students, and organised courses with up to 40 students. Moreover, I made sure that several courses taught by different teachers were complementary and did not show knowledge gaps. This did not only involve the teaching itself, but also supervising other teachers, and making sure the courses would run smoothly.
2014 - 2016	**Co-organiser** of the yearly Radboud Summer school (see: Teaching Experience), which was limited to about 20 international students.
2010 – current	**Supervision** of BSc-, MSc- and graduate students (see: Teaching Experience for an overview).
2005 – 2006	As a **Head-teacher** at *Stichting Studiebegeleiding Leiden*, an institute at *Leiden University*, which provides exam trainings for secondary school students, I was not only responsible for teaching in classes of up to 30 students, but also for supervising groups of up to 6 assistent-teachers.

2002 – 2011	**Secretary and co-founder of Stichting Proefjes** (Little Experiments Foundation). This foundation was initially funded by R. Dijkgraaf to introduce scientific topics and methods to children age 8-12. I co-founded it with fellow students, and managed until I moved to Paris (board-member, organising workshops for teachers and children and supervising internships). By now the foundation attracts more than 600000 visitors a year.

Teaching Experience

Summary	At the Department of Neurophysiology, Donders Institute for Brain, Cognition and Behaviour,*Radboud University*, I am the coordinator of the MSc in Neurobiology and I re-designed the 'Mathematics' course to add an e-learning component. At the *University of Amsterdam* I set up a track in computational neuroscience within the BSc program 'Psychobiology'. I formulated overall learning goals and aligned existing courses (taught by teachers from different backgrounds) to these goals by making an inventory of the content and required prior knowledge and discussing this with the lecturers, so that the courses were complementary and did not show knowledge gaps. I taught in different courses, next to supervising students on projects (BSc and MSc level). At the *École Normale Supérieure* I taught a MSc level neuromodelling course, and I supervised several students on projects (BSc and MSc level). As a PhD student at the *University of Amsterdam* I worked as a TA in many courses. I assisted the students during practical assignments, graded them, and taught the students the relevant theories. Later, I was involved in training TAs, writing new syllabi and supervising students at their theses. I also worked as a teacher at an institute for exam trainings.
2019 - current	MSc in Neurobiology: I am the coordinator of this specialisation of the MSc in Medical Biology.
2017 - current	'Mathematics for Biologists': I re-designed the course to involve an e-learning component, add more biological context and fit the course in the new curriculum. I was awarded several awards for this (see grants ans awards).
2017 - current	'Confidant': I am an external mentor for up to 8 PhD students.
2017 - current	'Numerus fixus': the 'numerus fixus committe' designed the selection procedure for the Bachelour's programme in Biology
2019 - 2020	Supervisor at the Radboud Honours Academy
2018	'Systems Neuroscience' lecture and tutorial about information processing in the brain.
2014 - 2018	Supervising students at projects at BSc- and MSc-level and PhD-level at the *University of Amsterdam*, *Radboud University* and *HAN Hogeschool*.
2014 - 2018	'Neurophysiology': each year I give a lecture about basic membrane properties in this course in the BSc Psychobiology at the *University of Amsterdam*.
2014 - 2018	'Leren en Geheugen' (learning and memory): each year I give two lectures about learning in neural networks in this course in the BSc Psychobiology at the *University of Amsterdam*.
2014 - 2018	'Van Perceptie tot Bewustzijn' (from perception to consciousness): each year I give two lectures about neural networks in this course in the BSc Psychobiology at the *University of Amsterdam*.
2017	'Computational Cognitive Neuroscience 2': I designed, taught, supervised and corrected lectures and tutorials on unsupervised learning in this course in the BSc Psychobiology at the *University of Amsterdam*.
2016	Radboud Summer School in Maps in the Brain: I co-organised, gave a lecture and designed and supervised a tutorial on how to analyse spike trains.
2015	BKO (teaching qualification for Dutch universities): I received my BKO qualification May 2015. This qualification shows that I can develop courses, teach and supervise students at projects.
2015	Programming: I designed an introductory course in programming in Matlab for the BSc Psychobiology at the *University of Amsterdam*.

2015	Radboud Summer School in Neural Metrics 2.0: I co-organised, gave a lecture and designed and supervised a tutorial on how to analyse spike trains.
2015	OIST Computational Neuroscience Course : I was invited as a tutor in this Summer School in Japan: I supervised students and gave several tutorials.
2015	'Signal Analysis': I supervised this course, gave lectures and developed assignments in the BSc Psychobiology at the *University of Amsterdam*.
2014	'Computational Cognitive Neuroscience': I helped design the course, gave lectures and designed and supervised tutorials in this course in the BSc Psychobiology at the *University of Amsterdam*.
2014	Radboud Summer School in Neural Metrics: I gave a lecture and designed and supervised a tutorial on how to compare spike trains.
2013	Supervising students at projects at BSc- (1) and MSc-level (1) at the *École Normale Supérieure*.
2013	'Atelier théorique modélisation computationnelle' at the *École Normale Supérieure*. An MSc-level course in neural modelling.
2011	'Fourier analysis for neuroscientists' at the *University of Amsterdam*. I wrote the syllabus.
2010 – 2011	Supervising BSc students (3) on their their theses (four projects), in physics, neuroscience and interdisciplinary projects at the *University of Amsterdam*.
2007 – 2011	'Advanced Neuroscience' at the *University of Amsterdam* A MSc-level course, in which the students used the 'Neurons in Action' toolbox, and had to give presentations about scientific articles. The first years I was teaching this course, later I was training TAs.
2010	'Signal Analysis for Neurophysiology' at the *University of Amsterdam*, a BSc-level course based on Wallisch et al. 'MATLAB for Neuroscientists. An Introduction to Scientific Computing in MATLAB'.
2008 – 2010	'Neurophysiology' at the *University of Amsterdam* An introduction into neurophysiology. The first years I was teaching this course, later I was training TAs.
2006	'Neurons in Action' at *University of Amsterdam*, a course based on the interactive tutorial by J.W. Moore and A.E. Stuart, in which students perform patch-clamp experiments *in silico*.
2006	'Neural Networks' at the *University of Amsterdam*, a final-year BSc-level course in the modelling and interpretation of *in silico* neural networks.
2005 – 2006	Teacher (physics and mathematics) at *Stichting Studiebegeleiding Leiden*, an institute at *Leiden University*, which provides exam trainings for secondary school students.
2003 – 2004	Tutor to first-year physics students at the *University of Amsterdam*. I assisted students with their assignments, but also helped them to deal with practical problems.
2002 – 2004	'Mathematics for Economics' at the *University of Amsterdam*, a BSc-level course in basic mathematics.
2002	'Physics of Waves and Oscillations' at the *University of Amsterdam*, a BSc-level course in physics.
2001	Mentor to first-year 'Beta-Gamma' (interdisciplinary BSc) students, *University of Amsterdam*. I assisted students with their assignments, but also helped them to deal with practical problems.

Other Experience

2018 – current	**Secretary and co-founder of Stichting Nederlandse Hersenolympiade** (Dutch Brain Olympiad). The Hersenolympiade Nederland Foundation is part of the International Brain Bee as national coordinator, and organizes the Brain Olympiad as the national preliminary round of the international Brain Bee competition.

2018	**Organisor** of the Workshop on biological network analysis at the Donders Institute, Nijmegen, the Netherlands.
2016 - 2018	**Editor** for the Frontiers Research Topic 'Burst coding: from cell to cognition', including writing a review article.
2014 - current	**Reviewer** for amongst others eLife, PLoS Computational Biology, Physics Letters A and Frontiers in Computational Neuroscience
2015 - 2016	**Maternity leave** (8 months) for my twins born on 26 January 2016.
2015	**Editor** for Stichting Proefjes, Arno Verweij wrote a 'Proefjesboek. I helped editing the text and content of the book.
2013	**Volunteer** at the yearly CNS meeting in Paris (787 attendees).
2002 – 2011	**Secretary and co-founder of Stichting Proefjes** (Little Experiments Foundation). This foundation was initially funded by R. Dijkgraaf to introduce scientific topics and methods to children age 8-12. The foundation runs a website with do-it-yourself experiments for children. I was working in the board, developing materials for the website, giving workshops for teachers and children and supervising internships. By now, the website has more than 200 experiments online, published a book and made tv-show with the same name on national television.
2010	**Chair** at the 10th INCF and Neuroinformatics workshop, The Hague
2007 – 2010	**Editor at NiNa (New Physics) and co-author** of the 'Leven en Natuurkunde' (Life and physics) module. The New Physics project rewrote the standard final exam program for secondary schools. Next to writing and editing modules I gave several workshops at teacher conferences and at a school for secondary education.

Publications

For the most up-to-date version, please see my Google Scholar profile.