

# Curriculum Vitae - Linda Geerligs

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## Education and employment

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- 2019- Assistant professor at the Donders Institute, Radboud University
- 2017 -2019 Postdoctoral researcher at the Donders Institute, Radboud University  
Supported by a Veni grant from the Netherlands Organization for Scientific Research  
'Understanding cognitive function across the adult lifespan: structure-function interactions in the aging brain'  
This time period includes 4 months of maternity leave (starting Sept 2018)  
Major achievements include:
- Using naturalistic stimuli to demonstrate both preservation and reorganization in the aging brain
  - Showing how choices in data pre-processing can have profound impacts on functional connectivity estimates and providing guidelines for future work. This work was awarded the Editor's Choice Award for the best paper in Human Brain Mapping in 2017.
- 2013-2016 Postdoctoral Investigator Scientist at the MRC Cognition and Brain Sciences Unit in Cambridge, UK, affiliated with the University of Cambridge.  
Supported by a Rubicon grant from the Netherlands Organization for Scientific Research since September 2014  
Major achievements include:
- Demonstrating that effects of age on functional connectivity vary with mental state. This proves that functional connectivity is both a state and a trait of participants.
  - Pioneering a new measure of multivariate functional connectivity.
  - Evaluating methods for measuring temporal dynamics in functional connectivity.
- 2009 -2013 PhD student at the department of Psychology of the University of Groningen.  
Supported by the PhD fund of the Graduate School of Behavioural and Social Sciences, awarded based on an outstanding CV and research plan.  
PhD degree was received 09-01-2014 with highest distinction (cum laude)  
Major achievements include:
- Showing for the first time that functional networks become less segregated with advancing age.
  - Linking age-related changes in selective attention to alterations in brain activity and functional connectivity.
  - Demonstrating that functional connectivity remains flexible in older adults.
  - Mastering a large number of different neuroimaging analyses techniques.

- 2007- 2009    Research master Behavioural and Cognitive Neurosciences, University of Groningen  
Track: Cognitive neuroscience and cognitive modelling  
*Graduated cum laude (4.0 GPA)*  
Thesis title: Investigating the relation between the mirror neuron system and mentalizing, using fMRI.
- 2007 -2009    Master Psychology, University of Groningen  
Track: Brain and Behaviour  
*Graduated cum laude (4.0 GPA)*  
Thesis title: The effect of apomorphine on visual and cognitive functions of patients with Parkinson's disease and visual hallucinations.
- 2004 -  
2007            Bachelor Psychology, University of Groningen  
Tracks: Brain and Behaviour and Clinical Psychology  
*Graduated cum laude (4.0 GPA)*

## Fellowships and Grants

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- Internal Donders Centre for Cognition PhD round for Young Investigators (co-applicant) -2019 (€250.000). Titled: 'Understanding aging: an adult lifespan neurocognitive approach towards personalized treatment'
- Veni grant from the Netherlands Organisation for Scientific Research (NWO) - 2016 (€250.000). Titled : 'Understanding cognitive function across the adult lifespan: structure-function interactions in the aging brain'. Like the Rubicon grant below, this is competitive research funding for 4 years based on outstanding track-record and high-impact research plans.
- Rubicon grant from the Netherlands Organisation for Scientific Research (NWO) - 2014 (€163.000; funded two years of postdoctoral research at the MRC-CBU). Titled: 'Network dynamics in the ageing brain'.
- Stipend from the Network of European Neuroscience Schools (NENS), 2010 (€2000; for a one month stay at the Bergen fMRI Group to learn simultaneous EEG-fMRI analyses). Awarded based on a project proposal for a training visit to Bergen.
- PhD Fund of the Graduate School of Behavioural and Social Sciences - 2009 (€203.000 funded PhD project), awarded on the basis of outstanding track record and research plan, as well as an oral presentation.

## Awards

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- Human Brain Mapping Editors' Choice Award for the best paper in the journal Human Brain Mapping in 2017, as selected by the editors (\$1.000)
- Merit Abstract Award from the Human Brain Mapping Conference 2016 (\$2.000)
- BCN Dissertation award, for best PhD thesis in the school of Behavioural and Cognitive Neurosciences in 2014 (€1.000)
- Second place, NVP Dissertation award, for best PhD thesis in the Dutch Society for Psychonomics in 2014/2015
- MRC Special Award Bonus, for exceptional work at the MRC-CBU (2015; helping evaluation of scanner artefacts) (£1.616)
- Merit Abstract Award from Human Brain Mapping Conference 2015 (\$2.000)

- Cum laude qualification of PhD thesis
- Travel award for the Orienting of Attention ERNI-HSF Science Meeting in Tübingen 2012 (€300)
- Poster award at the School of Behavioural and Cognitive Neurosciences new year's meeting 2012 (2<sup>nd</sup> place, €50)
- Poster award at the School of Behavioural and Cognitive Neurosciences new year's meeting 2011 (2<sup>nd</sup> place, €50)
- Poster award at the International Conference on Cognitive Neuroscience 2011 (runner-up)

## Research supervision

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- Current PhD students
  - Selma Lugtmeijer (co-promotor), she is a PhD student in the group of prof. Roy Kessels, investigating episodic memory and working memory in stroke patients.
- Previous PhD students
  - Shankar Tumati (co-supervisor), he was a visiting PhD student from the University of Groningen to the MRC-CBU, I supervised him during a 6 month project on functional connectivity in Alzheimer's disease.
  - Brieuc Lehmann (co-supervisor), PhD student working at the MRC Biostatistics Unit. I co-supervised him during his first year, when he was working on methods to measure the temporal dynamics of functional connectivity.
- Master Students
  - Angeliki Karaïskou (co-supervisor), how attention modules the content of connectivity (RU, CNS master 2019-2020).
  - Veerle Schepers (primary supervisor), the association between event segmentation and memory in aging (RU, CNS master 2019-2020).
  - Mengqiao Chai (primary supervisor), structure-function associations in the aging brain (RU, CNS master 2019-2020).
  - Marleen Voorn (co-supervisor), using DNNs to study individual differences in brain function (RU, CNS master 2019-2020).
  - Patrik Andersson (primary supervisor), using naturalistic stimuli to study aging (RU, CNS master, 2017-2019).
  - Milou van Helvert (co-supervisor), studying the neural mechanism of hand choice using EEG (RU, CNS master 2017-2018).
  - Marleen Eidhof (primary supervisor), studying aging and selective attention using fMRI and EEG (RUG, psychology master 2010-2011).
  - Regina Vlasma (primary supervisor), studying speed of processing and working memory in aging (RUG, psychology master 2010-2011).
  - Maaïke Wouda (primary supervisor), literature review about the influence of meditation, cognitive training and physical training on cognitive functioning of elderly (RUG, psychology master 2010-2011).
- Bachelor students
  - Enja Jung (primary supervisor), she assisted me during the collection of fMRI recordings (RUG, psychology bachelor 2010-2011).
  - Christa Grosse-Schawe, she assisted me during the collection of fMRI recordings (RUG, psychology bachelor 2010-2011).

## Teaching

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- Lecture and practical session on functional connectivity in the Advanced Neurosciences Techniques course of the Master Cognitive Neuroscience (2019, Radboud University)
- Lecture and practical session on resting state networks in the Quantitative Brain Networks course of the Master Cognitive Neuroscience (2018 & 2019, Radboud University)
- Co-coordinator and workgroup teacher of Brain and Cognition 1 (first-year psychology bachelor 2018, Radboud University). I was responsible for rewriting the course manual, chairing the meetings of work group teachers, editing study materials and teaching two work groups (~15 students each).
- Lecture on brain aging and functional networks, Summer School Healthy Aging 2015 at the University of Groningen. This was a lecture for 15-20 bachelor and master students from various academic backgrounds.
- Lecture on EEG and fMRI analyses techniques to investigate age-related changes in brain function. This was a lecture for 40-50 students who were attending the NEU4EU Translational Neurosciences Summer School 'Ageing Brain' at the University of Groningen (2012).
- fMRI research demonstration, Spring School Healthy Ageing (2012) at the University of Groningen. I demonstrated the basics of fMRI research in a practical session to a group of bachelor students with different academic backgrounds.
- Teaching practical classes on advanced analysis techniques for EEG data (master level, 2011 and 2012, University of Groningen). I explained core concepts of signal processing and data analysis using Brain Vision Analyser software in practical classes with 10-15 students.
- Guest lecture in a course on Research methodology at the University of Groningen (2011). This was a lecture about neuroimaging methods for ~150 bachelor students.
- Teaching practical classes on statistics 2 and 3 in English and Dutch (bachelor level, 2009, 2010 and 2011, University of Groningen). I explained statistical principles and methods in practical classes with 20-30 students. I also graded their assignments.
- Teaching mentor groups (bachelor level, 2009/2010, University of Groningen). I taught academic reading and writing skills to a group of 12 students over the course of their first academic year. I checked and graded their written assignments.
- Student-assistant and coordinator of the methodology shop at the University of Groningen. I gave advice to students and university staff about methodology and statistical techniques. As coordinator I also chaired meetings and coordinated daily affairs at the shop (2006-2009).
- Student-assistant, teaching the course 'Interview with a psychologist' at the University of Groningen (2006-2007). I guided first year students in conducting an interview with a psychologist in their chosen work field, and checked their written reports.

## Other professional activities

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- Reviewer for numerous high-impact international journals, including Nature Communications, Biological Psychiatry, Journal of Neuroscience, Human Brain Mapping, Cerebral Cortex, Philosophical Transactions of the Royal Society B, PLOS Computational Biology, Neuroimage, Cortex, Plos One, Frontiers in Human Neuroscience, Journal of Cognitive Neuroscience, Neurobiology of Aging, Journal of Alzheimer's Disease, Brain and Cognition and Neuropsychologia.
- Received a certificate of appreciation for exceptional service as an outstanding reviewer for the Journal of Neuroscience in 2018
- Scientific peer review of research grant applications, including NWO research talent applications, NWO Rubicon grants, the Québec-Flanders Bilateral Research Cooperation Program and Radboud University internal funding.
- Co-organized a symposium for the Human Brain Mapping conference 2018, titled: "What can functional connectivity tell us about mechanisms of brain function?".
- Organized a symposium for the 13<sup>th</sup> International Conference for Cognitive Neuroscience (ICON – 2017), titled: "Functional and structural determinants of lifespan differences in cognition".
- Postdoctoral representative at the Donders Centre for Cognition (2018-2019).
- Member of the hiring committees for (1) an assistant professor position at the Radboud University Artificial Intelligence department and (2) a postdoctoral position within the Language and Interaction Consortium.
- Part of the doctoral examination board (corona) for the PhD defense of Luca Ambrogioni (2019), Ronald Janssen (2018) and Max Hinne (2017).
- Second examiner for master thesis of Patrik Ebel (2017- RU master Cognitive Neuroscience)
- Co-organizing Cambridge Connectome Consortium meetings (2015/2016). These were monthly meetings about a connectivity-related topic.
- Postdoctoral representative in Unit Management Committee of MRC-CBU (2015/2016). I represented the postdocs and raised any issues on their behalf at the committee meetings.
- Wolfson College Research Associate (September 2015 – August 2016). This is an interdisciplinary research college. I attended lectures and attend social events with other researchers from various academic backgrounds.
- Co-organizer of EEG-meetings at the University of Groningen (2010/2011). These were three weekly meetings where we discussed recent research findings and practical issues with the EEG equipment at the department. I arranged speakers, wrote the minutes and agenda, I also occasionally chaired the meetings.
- Representative of third year Psychology students at the University of Groningen (2006/2007). I wrote a report reflecting the students' evaluations of different courses and discussed these with the lecturers.

## Skills

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Programming: Matlab, R, Python

Research techniques: (f)MRI, EEG and MEG data analyses in SPM, FSL, EEGLab, Fieldtrip

Illustration: Adobe Illustrator, Adobe Photoshop and Adobe Indesign

Languages: Dutch (native), Frisian (native) and English (near native).

## Outreach activities

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- Finalist in the Radboud Talks competition (2018) – a pitch competition where scientists from all disciplines tell their story in just three minutes for a live audience and jury.  
<https://www.youtube.com/watch?v=ekE2b65wPlw>
- Jury member for the WON (Wetenschapsoriëntatie Nederland/science orientation Netherlands) manifestation (2017)
- Lecture on during the study day “Your Aging Brain: Use It or Lose It!” of the University of the Third Age in Sevenoaks (UK, 2016). I spoke about effects of physical exercise and mental training on the aging brain and on cognitive function. More than 170 older adults attended the lecture.
- Lecture during the Pint of Science Festival in Cambridge about the aging brain (2014). Pint of Science is a festival where science topics are presented in a pub to a general audience.
- I wrote an article in the Cambridge Centre for Aging and Neuroscience newsletter about networks in the aging brain (2014). This is a newsletter that is available online and is sent to all (~2600) participants of the study.
- Interview for the newsletter of the Behavioural and Cognitive Neuroscience research school of the University of Groningen and the Mindwise Psychology blog, titled: Network connectivity in the aging brain. An interview with Linda Geerligs (2014)
- Article in the University of Groningen newsletter for the media: Ouderen compenseren fysieke achteruitgang hersenen met selectieve aandacht (2014)
  - Published on the web: [www.nu.nl](http://www.nu.nl), [www.ouderenjournaal.nl](http://www.ouderenjournaal.nl)
- Press release: Oudere hersenen communiceren anders (2012)
  - Published on the web: [www.nu.nl](http://www.nu.nl), [www.gezondheidsnet.nl](http://www.gezondheidsnet.nl)
  - Interviews on the radio: Hoezo radio on radio 5 and SBS Dutch radio in Australia
- Lecture for the society of higher educated women in Groningen about changes in the brain with healthy aging (2011).

## Peer-reviewed publications

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1. Geerligs, L., Cam-CAN, Campbell, K.L. (2018) Age-related differences in information processing during movie watching. *Neurobiology of Aging*, 72, 106:120.
2. Geerligs L., Tsvetanov K.A., Henson R.N. (2017) Challenges in measuring individual differences in functional connectivity using fMRI: The case of healthy aging. *Human Brain Mapping*, 38(8), 4125–4156
3. Lehmann B.C.L., White, S.R., Henson, R.N.A., Geerligs, L. (2017) Assessing dynamic functional connectivity in heterogeneous samples. *Neuroimage*, 157, 635-647
4. Servaas M.N., Riese H., Renken R.J., Wichers M., Bastiaansen J.A., Figueroa C.A., Geugies H., Mocking R.J.T., Geerligs L., Marsman J.B.C., Aleman A., Schene A.H., Schoevers R.A., Ruhé, H.G. (2017) Associations Between Daily Affective Instability and Connectomics in Functional Subnetworks in Remitted Patients with Recurrent Major Depressive Disorder. *Neuropsychopharmacology*, 42(13), 2583-2592
5. Geerligs L., Cam-CAN, Henson R.N. (2016) Functional connectivity and structural covariance between regions of interest can be measured more accurately using multivariate distance correlation. *Neuroimage*, 135, 16-31
6. Wolpe N., Ingram J., Tsvetanov K., Geerligs L., Kievit R., Henson R., Wolpert D., Cam-CAN, Rowe J. (2016). Ageing increases the reliance on sensorimotor predictions through changes in

- structure and functional connectivity of the pre-supplementary motor area. *Nature Communications*; 13034
7. Henson R.N., Greve A., Cooper E., Gregori M., Simons, J.S., Geerligs, L., Erzinclioğlu, S., Kapur, N., Browne, G (2016). The effects of hippocampal lesions on MRI measures of structural and functional connectivity. *Hippocampus*, 26(11), 1447-1463
  8. Servaas M.N., Geerligs L., Bastiaansen J.A., Renken R.J., Marsman J.B.C. Nolte I.M., Ormel J., Aleman A., Riese, H. (2016). Associations between genetic risk, functional brain network organization and neuroticism. *Brain Imaging and Behavior*, 10.1007/s11682-016-9626-2
  9. Campbell K.L., Samu D., Davis S.W., Geerligs L., Mustafa A., Cam-CAN, Tyler L.K. (2016) Robust resilience of the frontotemporal syntax system to aging. *Journal of Neuroscience*, 36(19): 5214-5227
  10. Tsvetanov K.A., Henson R.N., Tyler L.K., Razi A., Geerligs, L., Ham T.E., Cam-CAN, Rowe J. (2016) Extrinsic and intrinsic brain network connectivity maintains cognition across the lifespan despite accelerated decay of regional brain activation with age. *Journal of Neuroscience*, 36(11): 3115-3126
  11. Geerligs L., Rubinov M., Cam-CAN, Henson R.N. (2015) State and trait components of functional connectivity: individual differences vary with mental state. *Journal of Neuroscience*, 34(41), 13949-13961
  12. Geerligs L., Renken R.J., Saliassi E., Maurits N.M., Lorist M.M. (2015) A brain wide study of age-related changes in functional connectivity. *Cerebral Cortex*, 25(7), 1987-1999
  13. Campbell K.L., Shafto M.A., Wright P., Tsvetanov K.A., Geerligs L., Cusack R., Cam-CAN, Tyler L.K. (2015) Idiosyncratic responding during movie-watching predicted by age differences in attentional control. *Neurobiology of Aging*, 36(11), 3045-3055
  14. Saliassi E., Geerligs L., Dalenberg J.R., Lorist M.M., Maurits N.M. (2015) Differences in cognitive aging: typology based on a community structure detection approach. *Frontiers in Aging Neuroscience*, 7,35
  15. Geerligs L., Saliassi E., Maurits N.M., Renken R.J., Lorist M.M. (2014) Brain mechanisms underlying the effects of aging on different aspects of selective attention. *Neuroimage*, 91,52-62
  16. Geerligs L., Saliassi E., Renken R.J., Maurits N.M., Lorist M.M. (2014) Flexible connectivity in the aging brain revealed by task modulations. *Human Brain Mapping*, 35(8),3788-3804
  17. Saliassi E., Geerligs L., Lorist M.M., Maurits N.M. (2014) Neural correlates associated with successful working memory performance in older adults as revealed by spatial ICA. *Plos One*, 9(6), e99250
  18. Servaas M.N., Geerligs L., Renken R.J., Marsman J.B.C., Ormel J., Riese H., Aleman A. (2014) Connectomics and neuroticism: an altered functional network organization *Neuropsychopharmacology*, 40(2),296:304
  19. Banis H.M., Geerligs L., Lorist M.M. (2014) Acute stress modulates feedback processing in men and women: Differential effects on the feedback-related negativity and theta and beta power. *Plos One*, 9(4), e95690.
  20. Saliassi E., Geerligs L., Lorist M.M., Maurits N.M. (2013) The Relationship between P3 Amplitude and Working Memory Performance Differs in Young and Older Adults. *Plos One*, 8(5), e63701.
  21. Geerligs L., Maurits M.M., Renken R.J., Lorist M.M. (2012). Reduced specificity of functional connectivity in the aging brain during task performance. *Human Brain Mapping*, 35(1),319-30
  22. Geerligs L., Saliassi E., Maurits N.M., Lorist M.M. (2012). Compensation through Increased Functional Connectivity: Neural Correlates of Inhibition in Old and Young. *Journal of Cognitive Neuroscience*, 24(10),2057-69

23. Geerligs L. & Akyürek E.G. (2012). Temporal integration depends on increased pre-stimulus beta band power. *Psychophysiology*, 49(11), 1464-7.
24. Geerligs L., Meppelink A.M., Brouwer W.H., van Laar T. (2009). The effects of apomorphine on visual perception in patients with Parkinson's disease and visual hallucinations; a pilot study. *Clinical Neuropharmacology*, 32(5), 266-8

## Preprints and other publications

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25. Geerligs, L., van Gerven, M. A. J., Campbell, K. L. & Güçlü, U. (2019) Timescales and functional organization of neural event segmentation in the human brain. Zenodo, doi:10.5281/zenodo.3250663
26. Lehmann B., Henson R.N., Geerligs, L., Cam-CAN, White S.R. (2019) Characterising group-level brain connectivity: a framework using Bayesian exponential random graph models. bioRxiv, doi:10.1101/665398
27. Liem F., Geerligs L. Damoiseaux J.S. Margulies D.S. (2019) Functional Connectivity in Aging. To appear in Schaie K.W.& Willis S.,(Eds.) Handbook of the Psychology of Aging, 9e San Diego: Academic Press. Psyarxiv doi:10.31234/osf.io/whsud
28. Geerligs, L., Tsvetanov K. (2016) The use of resting state data in an integrative approach to studying neurocognitive ageing –commentary on Campbell and Schacter (2016) *Language, Cognition and Neuroscience*, 32(6), 684-691
29. Geerligs L., Cam-CAN, Henson R.N. (2016) Functional connectivity is both a state-of-mind and a stable trait. *Journal of Neuroscience* – reply to Journal Club review.
30. Geerligs L. (2008). Parkinson's disease, neuropsychological functions and driving ability. *Tijdschrift voor Ergonomie*, 33, 24-28

## Publication statistics

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- 11 first author peer reviewed publications (9 Q1)
- 1 last author peer reviewed publication (Q1)
- 6 second author peer reviewed publications
- Average number of citations per paper: 26
- H-index (Web of Science): 14

## Oral presentations at conferences

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- I did it my way: Explaining age-related declines in inter-subject synchronization during naturalistic viewing. *NVP Winter Conference on Cognition, Brain, and Behaviour, Egmond aan Zee, the Netherlands (2017)*
- Functional connectivity in the aging brain: how can we best measure it and what does it tell us about cognition? *13<sup>th</sup> international conference for cognitive neuroscience (ICON)*. Amsterdam, the Netherlands (2017).
- Multivariate distance correlation is a more reliable and robust measure of functional connectivity. *Annual Meeting of the Organization for Human Brain Mapping, Geneva, USA (2016)*
- Functional interactions in the aging brain. *NVP Winter Conference on Cognition, Brain, and Behaviour, Egmond aan Zee, the Netherlands (2015)*



- Images of healthy aging: Functional brain networks and selective attention. *Thesis pitch by nominees for the dissertation award of the NVP Winter Conference on Cognition, Brain, and Behaviour, Egmond aan Zee, the Netherlands (2015)*
- Functional connectivity dynamics in the aging brain. *Annual Meeting of the Organization for Human Brain Mapping, Honolulu, USA (2015)*
- Changes in neural dynamics and functional systems in the aging brain. *International Conference on Aging & Cognition, Dortmund, Germany (2015)*
- Changes in functional networks in the aging brain. *International Conference on Aging & Cognition, Dortmund, Germany (2013)*
- Neural mechanisms underlying inhibitory control in old and young. *NVP Winter Conference on Cognition, Brain, and Behaviour, Egmond aan Zee, the Netherlands (2011)*
- When inhibition fails: Aging and individual differences. *International Conference on Aging & Cognition, Dortmund, Germany (2010)*

### Other invited presentations

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- Functional connectivity in the aging brain: how can we best measure it and what does it tell us about cognition? *Rotman Research Institute - Baycrest Health Sciences Toronto, Canada (2017)*
- Optimizing functional and structural connectivity estimates; using multivariate methods and reducing physiological confounds. *VU medisch centrum Amsterdam, the Netherlands (2017)*
- Brain networks across the healthy adult lifespan. *Umeå Center for Functional Brain Imaging (UFBI) anniversary symposium (2016)*
- Functional networks in the human aging brain. *Cambridge Neuroscience Workshop on Connectomics, Cambridge, UK (2015)*
- Images of healthy aging. *Annual meeting of the School of Behavioural and Cognitive Neuroscience. Groningen, the Netherlands (2015)*
- Dynamics of functional connectivity in the healthy aging brain. *Cambridge Connectome Consortium (2015)*
- Using graph theory in neuroscience. *German Sport University Cologne, Cologne, Germany (2013)*
- Functional connectivity in the aging brain. *Duke University, Durham, USA (2013)*
- Selective attention and functional connectivity in the aging brain. *Duke University, Durham, USA (2012)*