Iris van Rooij

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Donders Institute for Brain, Cognition, and Behaviour, Centre for Cognition
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Personal

Born 17 May 1973, The Netherlands. Dutch citizenship. Dutch father, Hungarian mother.

Education

2003	Ph.D. degree in Cognitive Psychology University of Victoria, BC, Canada
1998	Masters degree in Experimental Psychology Radboud University Nijmegen, The Netherlands

Employment

2015-present	Associate professor, Dept. of Artificial Intelligence, Radboud University Nijmegen.
2015-present	Adjunct professor, Dept. of Computer Science, Memorial University of Newfoundland, St. John's, Canada.
2007-2015	Assistant professor, Dept. of Artificial Intelligence, Radboud University Nijmegen. (tenured position since 2010)
2007-present	Researcher at Donders Centre for Cognition, Donders Institute for Brain, Cognition & Behaviour, Radboud University Nijmegen.
2006-2007	Assistant professor, HTI, Eindhoven University of Technology.
2003-2006	Post-doctoral researcher, HTI, Eindhoven University of Technology.
1999-2003	PhD student at University of Victoria, BC, Canada.
1998-1999	Lab instructor & Teaching assistant, Depts. of Cognitive / Social / Developmental / Cultural Psychology, Radboud University Nijmegen.
1998-1999	Research assistant, Dept. of Developmental Psychology, RU Nijmegen.

Research grants

- Language in Interaction 'Big Question' grant (2 PhDs and 2 postdocs), 'Creating a shared cognitive space: The use of language in interaction'. Main applicant: Ivan Toni; co-applicants: Iris van Rooij, Harold Bekkering, Asli Ozyurek, Mark Dingemanse, Mirjam Ernestus, Herbert Schriefers, Christian Doeller. ±€1.000.000.
- Language in Interaction grant for 4 year PhD project (2014), 'The Game of Language: Complex Communication and Mental States'. Main applicants: Ivan Toni, Johan van Benthem; co-applicants: Iris van Rooij, Jakub Szymanik, Nina Gierasimczuk. €290.000
- Donders Centre for Cognition grant for 4 year PhD project (2014), 'The emergence of the sense of agency in infancy: A combined empirical and computational account'. Main applicant: Sabine Hunnius; co-applicant: Iris van Rooij. €200.000
- Language in Interaction grant for 4 year PhD project (2013), 'Neurocomputational mechanisms of communicative pointing'. Main applicants: Ivan Toni, Pieter Medendorp; co-applicants: Iris van Rooij, Luc Selen, Lennart Verhagen. €290.000
- Donders Centre for Cognition grant for 4 year PhD project (2013), 'Computationally realistic architectures for a Bayesian brain'. Main applicant: Iris van Rooij; co-applicant: Johan Kwisthout. €205.000

- NWO MaGW TOP grant (2012), 'How the integration of sensorimotor simulation and mentalizing allows for human action understanding'. Main applicant: Harold Bekkering; Co-applicants: Iris van Rooij, Ivan Toni, Floris de Lange, Jan van Buitelaar. €750.000
- Donders Centre for Cognition grant for 4 year PhD project (2010), 'How movements mean: A computational model of nonverbal communication'. Main applicant: Iris van Rooij; Co-applicants: Ivan Toni, Pim Haselager. €200.000

Other grants / subsidies

- Utilisation grant (Apps, Language in Interaction): 'Communicative innovation'. Applicants: Ivan Toni, Iris van Rooij.
- Lorentz Center grant (€13.000) for organizing workshop 'Perspectives on Human Probabilistic Inferences'. Main applicant: Johan Kwisthout; Co-applicants: Bill Phillips, Anil Seth, Iris van Rooij, Andy Clark.
- Subsidized interdisciplinary seminar (45 participants), on 'Resource-bounded problem solving' at the Leibniz Center for Informatics, Germany, August 2014. Applicants: Iris van Rooij, Sashank Varma, Todd Wareham, Yll Haxhimusa.
- Tutorial grant (USD1.200) for organizing a one-day tutorial at the Annual meeting of the Cognitive Science Society (CogSci2013), Humboldt University, Berlin, Germany, July 31, 2013. Applicants: Iris van Rooij, Mark Blokpoel, Johan Kwisthout, Todd Wareham.
- Subsidized interdisciplinary seminar (35 participants), on 'Computer Science & Problem Solving: New Foundations' at the Leibniz Center for Informatics, Germany, August 2011, Germany. Applicants: Iris van Rooij, Georg Gottlob, Yll Haxhimusa, Zygmunt Pizlo.

Awards

- Award for Best Teacher 2005/2006, MSc Human-Technology Interaction, TU Eindhoven.
- Certificate of Academic Excellence for PhD thesis 2004, Canadian Psychological Association.
- Graduate Student Award for Excellence in Teaching, 2001, Fac. of Graduate Studies, UVic.

Supervision

Postdoc
Mark Blokpoel (current)
Johan Kwisthout (2012-2016)

PhD students

Iris van de Pol (current)	(with J. Szymanik, I. Toni)
Tobias Winner (current)	(with I. Toni, P. Medendorp, L. Selen)
Maria Otworowska (current)	(with J. Kwisthout)
Katja Abramova (current)	(with M. Slors)
Lieke Heil (current)	(with H. Bekkering)
André Klapper (defense 2017)	(with R. Dotsch, D. Wigboldus)
Miriam de Boer (2017)	(with I. Toni)
Mark Blokpoel (2015)	(with I. Toni, P. Haselager, T. Wareham)
Sebo Uithol (2012)	(with P. Haselager, H. Bekkering)

MSc students

Stefano Gentili (current)	(with M. Blokpoel)
Myrthe Dijkman (2017)	(with S. Frank)
Colby Tibbets (2015)	(with I. Toni, T. Winner)
Marieke Sweers (2015)	(with M. Otworowska, T. Wareham)
Iris van de Pol (2015)	(with J. Szymanik)
Arne Wijnia (2014)	(with T. Wareham)
Tijl Grootswagers (2013)	(with T. Wareham)
Alex Bijsterveld (2013)	(with J. Kwisthout)

Steven Rekké (2012)	(with M. Velikova)
Marlieke van Kesteren (2012)	(with M. Blokpoel)
Jered Vroon (2011)	(with P. Haselager)
Saskia Koldijk (2011)	(with W. Kraaij)
Floran Stuijt (2011)	(with P. Haselager)
Mark Blokpoel (2010)	(with T. van der Weide)
Vincent van Megen (2010)	(with T. Heskes)
Iris Hanique (2009)	(with R. Rajae-Joordens)
Janny Stapel (2007)	(with M. Willemsen)
Susanne Tak (2007)	(with P. Westendorp)

Journal publications

1. Klapper, A., Dotsch, R., van Rooij, I. J. E. I., & Wigboldus, D. H. J. (in press). Social categorization in connectionist models: A conceptual integration. *Social cognition*.
2. Otworowska, M., Blokpoel, M., Sweers, N.,Wareham, T., & van Rooij, I. (in press). Demons of ecological rationality. *Cognitive Science*.
3. van Rooij, I., Wright, C., Kwisthout, J., & Wareham, T. (2018). Rational analysis, intractability, and the prospects of 'as if'-explanations. *Synthese, 195*, 491–510.
4. Klapper, A., Dotsch, R., van Rooij, I., Wigboldus, D. (2017). Four meanings of "categorization": A conceptual analysis of research on person perception. *Social and Personality Psychology Compass*, 11(8), 1-16.
5. Kwisthout, J., Phillips, B., Seth, A., van Rooij, I., & Clark, A. (2017). Editorial to the special issue on perspectives on human probabilistic inference and the 'Bayesian brain'. *Brain and Cognition, 112*, 1-2.
6. Kwisthout, J., Bekkering, H., & van Rooij, I. (2017). To be precise, the details don't matter: On predictive processing, precision, and level of detail of predictions. *Brain and Cognition*, 112, 84-91.
7. de Boer, M., Kokal, I., Stolk, A., Blokpoel, M., Liu, R., Roelofs, K, van Rooij, I., & Toni, I. (2017). Oxytocin modulates human communication by enhancing cognitive exploration. *Psychoneuroendocrinology, 86*, 64-72.
8. Klapper, A., Dotsch, R., van Rooij, I., Wigboldus, D. (2016). Do we spontaneously form stable trustworthiness impressions from facial appearance? *Journal of Personality and Social Psychology, 111*(5), 655-664.
9. Kwisthout, J., & van Rooij, I. (2016). Free energy minimization and information gain: The devil is in the details. Commentary on Friston, K., Rigoli, F., Ognibene, D., Mathys, C., FitzGerald, T., and Pezzulo, G. (2015). Active Inference and epistemic value. *Cognitive Neuroscience, 6(*4), 216–218.
10. Van Pelt, S., Heil, L., Kwisthout, J., Ondobaka, S., van Rooij, I., & Bekkering, H. (2016). Beta- and gamma activity reflect predictive coding in the processing of causal events. *Social Cognitive and Affective Neuroscience, 11*(6), 973-80.
11. van Rooij, T., Roederer, M., Wareham, T., van Rooij, I., McLeod, H.L., Marsh, S. (2015) Fast and frugal trees: Translating population-based pharmacogenomics to medication prioritization. *Personalized Medicine*, 12(2), 117–128.
12. Otworowska, M., Kwisthout, J. & van Rooij, I. (2014). Counter-factual mathematics for counterfactual predictive models. *Frontiers in Consciousness Research, 5*(808). (commentary)
13. Heil, L., van Pelt, S., Kwisthout, J., van Rooij, I. & Bekkering, H. (2014). Higher-level processes in the formation and application of associations during action understanding. *Behavioral and Brain Sciences, 37*(2), 202 - 203. (commentary)
14. Stolk, A., Verhagen, L., Schoffelen, J., Oostenveld, R., Blokpoel, M., Hagoort, P., van Rooij, I., and Toni, I. (2013). *Neural mechanisms of communicative innovation. PNAS, 110*(36), 14574-14579.
15. Blokpoel, M, Kwisthout, J., van der Weide, Theo P., Wareham, T. & van Rooij, I. (2013). A computational-level explanation of the speed of goal inference. *Journal of Mathematical Psychology, 570*(3-4), 117-133.
16. Kwisthout, J. & van Rooij, I. (2013). Bridging the gap between theory and practice of approximate Bayesian inference. *Cognitive Systems Research, 24*, 2-8.

17. Tak, S., P. Westendorp, P., & van Rooij (2013). Being good enough is enough? The use of keyboard shortcuts. *Interacting with computers*. doi: 10.1093/iwc/iwt016
18. van Rooij, I. & Wareham, T. (2012). Intractability and approximation of optimization theories of cognition. *Journal of Mathematical Psychology, 56*,232-247.
19. van Rooij, I., Wright, C. & Wareham, H.T. (2012). Intractability and the use of heuristics in psychological explanations. *Synthese. 187*,471-487.
20. Uithol, S., van Rooij, I., Bekkering, H., & Haselager, P. (2012). Hierarchies in action and motor control. *Journal of Cognitive Neuroscience, 24*(5), 1077-1086.
21. Blokpoel, M. Kwisthout, J., & van Rooij, I. (2012). When can predictive brains be truly Bayesian? *Frontiers in Theoretical and Philosophical Psychology, 3(460), 1-3*.
22. Blokpoel, M., van Kesteren, M., Stolk, A., Haselager, P., Toni, I., & van Rooij, I. (2012). Recipient design in human communication: Simple heuristics or perspective taking? *Frontiers in Human Neuroscience, 6*,1-13.
23. van Rooij, I. (2012). Self-organization takes time too. *Topics in Cognitive Science, 4*, 63-71.
24. Scott, A., Stege, U. & van Rooij, I. (2011). Minesweeper may not be NP-complete but is hard nonetheless. *The Mathematical Intelligencer, 33*(4), 5-17.
25. van Rooij, I., Kwisthout, J., Blokpoel, M., Szymanik, J., Wareham, T. & Toni, I. (2011). Intentional communication: Computationally easy or difficult? *Frontiers in Human Neuroscience, 5*(52), 1-18.
26. Kwisthout, J., Wareham, T., & van Rooij, I. (2011). Bayesian intractability is not an ailment that approximation can cure. *Cognitive Science, 35*(5), 779-784.
27. Wareham, H.T., Evans, P. & van Rooij, I. (2011). What does (and doesn't) make analogical problem solving easy? *Journal of Problem Solving, 3*(2), 30-71.
28. Wareham, H.T. & van Rooij, I. (2011). On the computational challenges of analogy-based generalization. *Cognitive Systems Research, 12*(3-4), 266-280.
29. Uithol, S., van Rooij, I., Bekkering, H., & Haselager, P. (2011). What do mirror neurons mirror? *Philosophical Psychology, iFirst*, 1-17.
30. Uithol, S., van Rooij, I., Bekkering, H., & Haselager, P. (2011). Understanding motor resonance. *Social Neuroscience, 4*,1-10.
31. Paulus, M., Hunnius, S., van Wijngaarden, C., Vrins, S., van Rooij, I. & Bekkering, H. (2011). The role of frequency information and teleological reasoning in infants' and adults' action prediction. *Developmental Psychology, 47*(4), 976-983.
32. Frank, S.L., Haselager, W.F.G., & van Rooij, I. (2009). Connectionist semantic systematicity. *Cognition, 110*, 358–379.
33. van Rooij, I. (2008). The Tractable Cognition thesis. *Cognitive Science, 32*, 939-984.
34. van Dijk, J., Kerkhofs, R., van Rooij, I., & Haselager, P. (2008). Can there be such a thing as embodied embedded cognitive neuroscience? *Theory & Psychology, 13*(8), 297-316.
35. van Rooij, I. & Wareham, T. (2008). Parameterized complexity in cognitive modeling: Foundations, applications and opportunities. *Computer Journal, 51*(3), 385-404.
36. Tak, S., Plaisier, M., & van Rooij, I. (2008). Some tours are more equal than others: The convex-hull model revisited with lessons for testing models of the Traveling Salesperson Problem. *Journal of Problem Solving, 2*, 4-28.
37. Wareham, T., van Rooij, I., & Müller, M. (2008). Computational complexity analysis can help, but first we need a theory. *Behavioral and Brain Sciences, 51*(4), 399-400. (commentary)
38. van Rooij, I., Haselager, W.F.G., & Bekkering, H. (2008). Goals are not implied by actions, but inferred from actions and contexts. *Behavioral and Brain Sciences, 31*, 38-39. (commentary)
39. Keren, G., van Rooij, I., & Schul, Y. (2007). One wrong does not justify another: Accepting dual processes by fallacy of false alternatives. *Behavioral and Brain Sciences, 30*, 269-270. (commentary)
40. van Rooij, I., Schactman, A., Kadlec, H., & Stege, U. (2006). Perceptual or analytical processing? Evidence from children's and adult's performance on the Euclidean Traveling Salesperson problem. *Journal of Problem Solving, 1*(1), 44-73.
41. van Rooij, I., Stege, U., & Kadlec, H. (2005). Sources of complexity in subset choice. *Journal of Mathematical Psychology, 49*(2), 160-187.

42. van Rooij, I., Stege, U., & Schactman, A. (2003). Convex hull and tour crossings in the Euclidean Traveling Salesperson problem: Implications for human performance studies. *Memory & Cognition, 31*(2), 215-220.
43. Kadlec, H. & van Rooij, I. (2003). Beyond existence: Inferences about mental processes from reversed associations. *Cortex, 39*(1), 183-187.
44. van Rooij, I., Bongers, R. M., & Haselager, W. F. G. (2002). A non-representational approach to imagined action. *Cognitive Science, 26*(3), 345-375.

Refereed conference papers

1. Abramova, E., Slors, M., & van Rooij, I. (2017). Enactive Mechanistic Explanation of Social Cognition. *Proceedings of the 39th Annual Meeting of the Cognitive Science Society* (CogSci'17), July 26-29, London, UK.
2. Hashkes-Pink, S., van Rooij, I., & Kwisthout, J. (2017). Perception is in the details: A predictive coding account of the psychedelic phenomenon. *Proceedings of the 39th Annual Meeting of the Cognitive Science Society* (CogSci'17), July 26-29, London, UK.
3. van Rooij, I. (2015). How the curse of intractability can be cognitive science's blessing. In *Noelle, D. C., Dale, R., Warlaumont, A. S., Yoshimi, J., Matlock, T., Jennings, C. D., & Maglio, P. P. (Eds.) (2015). Proceedings of the 37th Annual Meeting of the Cognitive Science Society. Austin, TX: Cognitive Science Society.*
4. Otworowska, M., Sweers, M., Wellner, R., Uhlmann, M., Wareham, T., & van Rooij, I. (2015). How did *Homo Heuristicus* become ecologically rational? In *Proceedings of the EuroAsianPacific Joint Conference on Cognitive Science* (EAP-COGSCI 2015).
5. van de Pol, I., van Rooij, I., & Szymanik, J. (2015). Parameterized complexity results for a model of theory of mind based on dynamic epistemic logic. In *Proceedings of the Fifteenth Conference on Theoretical Aspects of Rationality and Knowledge* (TARK).
6. Kwisthout, J. & van Rooij, I. (2012). Bridging the gap between theory and practice of approximate Bayesian inference. In N. Rußwinkel, U. Drewitz, and H. van Rijn (Eds.), *Proceedings of the 11th International Conference on Cognitive Modeling* (pp. 199-204), April 16-19, 2012, Berlin.
7. Wareham, T., Robere, R., & van Rooij, I. (2012). A change for the better? Assessing the computational cost of re-representation. In N. Rußwinkel, U. Drewitz, and H. van Rijn (Eds.), *Proceedings of the 11th International Conference on Cognitive Modeling*, April 16-19, 2012, Berlin.
8. Blokpoel, M., Kwisthout, J., Wareham, T., Haselager, P., Toni, I., & van Rooij, I. (2011). The computational costs of recipient design and intention recognition in communication. In L. Carlson, C. Holscher, & T. Shipley (Eds.), *Proceedings of the 33rd Annual Conference of the Cognitive Science Society* (pp. 465-470). Austin, TX: Cognitive Science Society.
9. Wareham, T., Kwisthout, J., Haselager, W., & van Rooij, I. (2011). Ignorance is bliss: A complexity perspective on adapting reactive architectures. *Proceedings of the First Joint IEEE International Conference on Development and Learning and on Epigenetic Robotics.*
10. Blokpoel, M., Kwisthout, J., van der Weide, T. & van Rooij, I. (2010). How action understanding can be rational, Bayesian and tractable. In S. Ohlsson & R. Catrambone (Eds.), *Proceedings of the 32nd Annual Conference of the Cognitive Science Society* (pp. 1643-1648). Austin, TX: Cognitive Science Society.
11. Müller, M., van Rooij, I., & Wareham, T. (2009). Similarity as tractable transformation. In N. A. Taatgen & H. van Rijn (Eds.), *Proceedings of the 31st Annual Conference of the Cognitive Science Society* (pp. 50-55). Austin, TX: Cognitive Science Society.
12. Bieger, J., Sprinkhuizen-Kuyper, I., & van Rooij, I. (2009). Meaningful representations prevent catastrophic interference. *Proceedings of the 21st Benelux Conference on Artificial Intelligence* (BNAIC 2009)
13. Vroon, J., van Rooij, I. , & Sprinkhuizen-Kuyper, I. (2009). Matching and Maximizing? A neurally plausible model of stochastic reinforcement learning. *Proceedings of the 21st Benelux Conference on Artificial Intelligence* (BNAIC 2009)
14. van der Meer, S. A., van Rooij, I., & Sprinkhuizen-Kuyper, I. (2008). Evolving fixed-parameter tractable algorithms. In A. Nijholt, M. Pantic, M. Poel, and H. Hondorp (Eds.), *Proceedings of BNAIC 2008, the twentieth Belgian-Dutch Artificial Intelligence Conference* (pp. 153-160).

15. van Rooij, I., Evans, P., Müller, M., Gedge, J. & Wareham, T. (2008). Identifying sources of intractability in cognitive models: An illustration using analogical structure mapping. In B. C Love, K. McRae, and V. M. Sloutsky (Eds.), *Proceedings of the 30th Annual Conference of the Cognitive Science Society*, Austin, TX: Cognitive Science Society (pp. 915-920).
16. Stege, U., van Rooij, I., Hertel. A, & Hertel P. (2002). An $O(pn + 1.151^p)$ algorithm for p-Profit Cover and its practical implications for Vertex Cover. In P. Bose and P. Morin (Eds.), *13th International Symposium on Algorithms and Computation*, LNCS 2518 (pp. 249-261). Berlin: Springer-Verlag.
17. van Rooij, I., Bongers, R. M., & Haselager, W. F. G. (2000). The dynamics of simple prediction: Judging reachability. In L. R. Gleitman & A. K. Joshi (Eds.), *Proceedings of the 22nd Annual Conference of the Cognitive Science Society* (pp. 535-540). Mahwah, New Jersey: Lawrence Erlbaum Associates.

Book

van Rooij, I., Kwisthout, J., Wareham, T. (in prep.) Intractability and Cognition: A guide to classical and parameterized complexity analysis.' Book under contract with *Cambridge University Press* (expected date: 2017).

Book chapters

1. Stolk, A., Blokpoel, M., van Rooij, I., & Toni, I. (2015). On the generation of shared symbols. In R. Willems (Ed.), *Cognitive Neuroscience of Natural Language Use*. Cambridge University Press.
2. Haselager, W.F.G., van Dijk, J., & van Rooij, I. (2008). A lazy brain? Embodied embedded cognition and cognitive neuroscience. In P. Calvo and T. Gomila (Eds.), *Handbook of Cognitive Science: An Embodied Approach* (pp. 273-290). Oxford: Elsevier.
3. Haselager, W. F. G., Bongers, R. M., & van Rooij, I. (2003). Cognitive science, representations and dynamical systems theory. In W. Tschacher and J-P. Dauwalder (Eds.), *The dynamical systems approach to cognition* (pp. 229- 242). Singapore: World Scientific.

Book reviews

1. van Rooij, I. (2007). Review of Paul Thagard (2006) "Hot Thought: Mechanisms and Applications of Emotional Coherence". *Philosophical Psychology, 20*(5), 659-665.
2. van Rooij, I. (2005). Review of Cognition and Technology: Co-existence, convergence and co-evolution, Barbara Gorayska and Jacob L. Mey (Eds.). *Pragmatics & Cognition, 13*(3), 647–655.

Miscellaneous

1. van Rooij, I. (2010). Wat maakt een probleem moeilijk of makkelijk? (What makes a problem hard or easy?) *AI student magazine De Connectie*.
2. Hamilton, M., Müller, M., van Rooij, I., & Wareham, T. (2007). Approximating solution structure. In E. Demaine, G. Z. Gutin, D. Marx, and U. Stege (Eds.), *Structure Theory and FPT Algorithmics for Graphs, Digraphs and Hypergraphs. Dagstuhl Seminar Proceedings* (Nr. 07281). Schloss Dagstuhl, Germany.
3. van Rooij, I. & Wright, C. (2006). The incoherence of heuristically explaining coherence. In R. Sun & N. Miyake (Eds.), *Proceedings of 28th Annual Conference of the Cognitive Science Society* (p. 2622).

Ph.D. thesis

van Rooij, I. (2003). Tractable cognition: Complexity theory in cognitive psychology. PhD thesis, University of Victoria, Canada.

Teaching

I have both my basic (BKO) and advanced qualification (UKO) for teaching.

2009-present MSc course Cognition & Complexity. Dept. of AI, RU.

2008-present	BSc course Computational and Formal Modeling. Dept. of AI, RU.
2009-2014	MSc course Trends in AI. Dept. of AI, RU. (co-coordinator)
2012	Invited block course Cognition & Complexity (open to BSc, MSc and PhD students), Cognitive Science Institute, Osnabrück University, Germany
2008-2009	BSc course Introduction to Cognitive Psychology. Dept. of AI, RU.
2005-2007	Masters course Advanced Cognition. Dept. of Technology Management, TU/e.
2003-2007	BSc course Cognition. Dept. of Technology Management, TU/e.
2006	Introduction to Cognitive Psychology, course for engineers in the post-graduate program for User-system Interaction, TU/e.
2002	Lab course Research Methods, Dept. of Psychology, UVic.
1999	Several lab courses at the RU, in the following domains: Social Psychology, Perception, Developmental Psychology, Cultural Psychology, RU.
1999-…	Guest lectures in a variety of courses, such as Validity of Cognitive Models (RU), Computational Modeling (Universit of Amsterdam), Advanced Cognition (TU/e), Conceptual and Historical Foundations of Psychology (UVic), Algorithms and Data Structures (UVic), Algorithms and Heuristics for NP-hard problems (UVic), Minds and Machines (UVic), Human Perception (UVic), Sensation and Psychophysics (UVic).

Organizational and professional service

Since 2011	Member of the Board of Advice for the Donders Centre for Cognition, Radboud University Nijmegen.
2015-2016	Interim Head of the BSc and MSc Degree Programmes Artificial Intelligence
2008-2015	Chair of the degree program committee (DPC) for MSc Artificial Intelligence, Radboud University Nijmegen.
2015	Member of the TOPtalent committee of the Donders Graduate School for Cognitive Neuroscience, Radboud University Nijmegen.
2011-2014	Member of the steering committee for the Perception, Action and Control Theme of the Donders Institute for Brain, Cognition and Behaviour.
2013	Member of the job committee for two Tenure Track positions, Donders Centre for Cognition, Radboud University Nijmegen.
2013	Member of two committees for the appointment of two full professors, Radboud University Nijmegen.
2012	Member of the TOPtalent committee of the Donders Graduate School for Cognitive Neuroscience, Radboud University Nijmegen.
2008	Designed a new curriculum for the MSc Artificial Intelligence, Radboud University Nijmegen. (international master)
2008-2012	Co-coordinator of BSc and MSc thesis research projects in Artificial Intelligence, Radboud University Nijmegen.
2008-2012	Representative in the KION (Kunstmatige Intelligentie Overleg Nederland).
2007-2009	Coordinator of the Good AIfternoon!, AI colloquium for students and staff, Radboud University Nijmegen.
2007-2008	Member of the Exam committee for the Master program Artificial Intelligence, Radboud University Nijmegen.
2007	Member of the Exam committee for the Master program Human-Technology Interaction, Eindhoven University of Technology.
2006-2007	Faculty coach for four 3rd year BA students doing an Internship in Industrial Design, Eindhoven University of Technology.
2005-2007	Coordinator of the Departmental Lecture Series in Human-Technology Interaction, Eindhoven University of Technology.
2002-2003	Departmental Representative for the Cognitive and Individualized Programs, University of Victoria.

Outreach & public activities

2016	TicTacTeam – an iPad game illustrating principles of innovative communication.

2016 A book chapter on 'Communication' for use in elementary schools, in collaboration with Wetenschapsknooppunt, Radboud University.
2015 Robot workshop 'How to make a robot understand us?' for schoolchildren visiting the Donders Centre for Neuroimaging.
2015 Winterschool workshop on the topic 'Elkaar begrijpen' for elementary school teachers.
2014 Interview for Discovery festival: 'Eigenlijk zijn we breinen die constant op zoek zijn naar een lichaam'.
2013 Newspaper article in Volkskrant (10-8-2013) in rubric *Omdenken*.
2013 Interviews for De Opzij on 'Gender & Neuroscience'
2013 Referent for lecture by Rebecca Jordan-Young on 'Gender & Neuroscience'
2013 Moderator of talks at 'Breinfest', public event for the BrainGain consortium, De Lindenberg, Nijmegen.
2012 Public debate on 'Brain & Gender stereotypes', Science café, Nijmegen.
2012 Public debate on 'Women in science: The testosterone ceiling", NEMO Science centre, Amsterdam.
2004 Participated in the NWO-British Council symposium on Practical Ethics in Research, 28-29 October, The Hague.
2004 Science theatre on Human Memory, Co-production with Pandemonia Science Theatre for the TU/e Publieksdag 2004, Eindhoven.
2003 High-school information session for Women in Computer Science, Victoria.
2000 Public debate on Consciousness (representing David Chalmers versus Daniel Dennett), UVic.

Ad-hoc Refereeing

Cognitive Processes, Cognitive Systems Research, European Psychology, Frontiers in Human Neuroscience, Journal of Experimental Psychology: General, Journal of Logic, Language and Information, Journal of Problem Solving, Memory & Cognition, Philosophical Psychology, Psychological Science, Thinking & Reasoning, Frontiers in Cognitive Science, Topics in Cognitive Science

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International Conference for Cognitive Modeling (2013, 2015)
Cognitive Science Conference (2013)
European Summer School in Logic, Language and Information (2012)
European Conference for Cognitive Science (2007)
Persuasive Technology (2007)
Cognitive Science Conference (2007, 2013)
Conference Proceedings: Brazilian Symposium on Neural Networks (2004)

Editorial service

Member of the Editorial Board of *Journal of Problem Solving*
Special issue *Brain and Cognition*, with J. Kwisthout, A. Seth, B. Phillips, and A. Clark.

Keynotes and plenary talks

- Keynote at the Posnań Reasoning week on 'Fallacies, errors and shortcuts', Department of Logic and Cognitive Science, Institute of Psychology, Adam Mickiewicz University, Poznań, Poland, 16-17 July 2017.
- Plenary talk at 2nd Conference on Games, Interactive Rationality, and Learning, Department of Philosophy and Cognitive Science, Lund, Sweden, April 23-26, 2013.
- Keynote lecture at the Models & Mechanisms workshop at The Tilburg Center for Logic and Philosophy of Science (TiLPS), 6-7 December, 2012, Tilburg, The Netherlands. Title: Are rational models free from mechanistic constraints?
- Keynote lecture at the European Mathematical Psychology Group 2008, Graz, Austria, September, 2008. Title: Dealing with intractability in cognitive modeling: The good, the bad, the impossible and the ugly.

Invited talks

- Invited talk at Max Planck Institute for Human Development, 27 March, 2014, Berlin, Germany. Title: Rational analysis, intractability and the prospects of "as if" explanations.
- Invited talk at Groningen University, Institute for Artificial Intelligence, January, 2014. Title: The Tractable Cognition Thesis (revisited).
- Invited talk at the workshop Logic & Cognition at the European Summer School in Logic, Language and Information, 6-17 August, 2012, Opole, Poland. Title: Rationality, intractability and the prospects of as-if explanations.
- Invited talk at Osnabrück University, Institute of Cognitive Science (IKW). May, 2012. Title: Identifying sources of intractability in models of cognition: Conceptual foundations and applications.
- Invited talk at University of Amsterdam, Dept. of Psychological Methods, June, 2012. Title: How cognitive scientists are not dealing with intractability (but could be).
- Invited talk at Groningen University, Institute for Artificial Intelligence, March, 2012. Title: How cognitive scientists are not dealing with intractability (but could be).
- Invited talk in Gießener Abendgespräche Kognition und Gehirn, University of Giessen, Germany, October, 2009. Title: Intractability and the use of heuristics in psychological explanations.
- Invited talk at Tilburg University, Philosophy of Mind seminar, Tilburg, November, 2009. Title: Intractability and the use of heuristics in psychological explanations.
- Invited talk at Institute for Logical, Language and Computation, University of Amsterdam, Amsterdam, December 2008. Title: What makes a problem hard? A computational perspective.
- Invited talk at in the Workshop on Human Problem Solving: New Perspectives, Purdue University, Indiana, USA, November 2008. Title: What makes a problem hard? A computational perspective.
- Invited talk at Dagstuhl seminar on Structure theory and FPT algorithmics for graphs, digraphs and hypergraphs, Wadern, Germany, July 2005. Title: Approximating solution structure.
- Invited talk at Nijmegen Institute for Cognition & Information, Radboud University, Nijmegen, May 2007. Title: When the brain's computational resources are exhausted: The case for a tractable-design cycle.
- Invited talk in Department of Psychology at McGill University, Montreal, Canada, March 2006. Title: When the brain's computational resources are exhausted: The case for a tractable-design cycle.
- Invited talk in Department of Computer Science. Memorial University of Newfoundland, St. John's, Canada, December 2006. Title: The Tractable Cognition thesis.
- Invited talk in Department of Computer Science at University of Utrecht, December 2006. Title: The Tractable Cognition thesis.
- Invited talk at Dagstuhl seminar on Exact algorithms and fixed-parameter tractability, Wadern, Germany, July 2005. Title: Parameterized complexity as the psychologist's guide to computational realism: A call for collaboration.
- Invited talk at Workshop on Problem Solving: Difficult Optimization Problems, Purdue University, Indiana, USA, June 2005. Title: Understanding human optimization: The case for a tractable-design cycle.
- Invited talk in Artificial Intelligence at Radboud University, Nijmegen, May 2005. Title: Wanted: A tractable theory of rationality! Embodiment and embeddedness welcome, but no free lunch included.

Organization of workshops, symposia, etc.

- Organized a workshop "Modeling Minds", bringing together philosophers and cognitive modelers, De Lindenberg, Nijmegen 23-24 April, 2015 (with Katja Abramova, Marc Slors).

- Organized an interdisciplinary seminar "Resource-bounded Problem solving" at the Leibniz Center for Informatics, Germany, August 2014. (with Sashank Varma, Todd Wareham, and Yll Haxhimusa)
- Organized an interdisciplinary workshop "Perspectives on human probabilistic inference" at the Lorentz Centre, Leiden, The Netherlands, May 2014. (with Johan Kwisthout, Anil Seth, Bill Phillips, and Andy Clark)
- Organizing a workshop "Scaling models of cognition to the real world" at Eindhoven University of Technology, Eindhoven, The Netherlands, October, 2013.
- Organized a symposium "Constraints on Bayesian explanations", CogSci2013, July 2013, Berlin. (with Matteo Colombo, Carlos Zednik, Johan Kwisthout, and David Reichert)
- Organized a tutorial "Computational complexity analysis for cognitive scientists", CogSci2013, July 2013, Berlin (with Johan Kwisthout, Mark Blokpoel, Todd Wareham)
- Organized Tutorial / symposium "Scaling models of cognition to the real world", ICCM2012, April 2012, Berlin, Germany. (with Johan Kwisthout; contributors: Mark Blokpoel, Todd Wareham, Jakub Szymanik, and Daniel Rechman)
- Organized an interdisciplinary seminar "Computer Science & Problem Solving: New Foundations" at the Leibniz Center for Informatics, Germany, August 2011, Germany. (with Georg Gottlob, Yll Haxhimusa, Zygmunt Pizlo)
- Organized Symposium on "Computational complexity analyses of cognitive models", 30 July-1 August, 2006, Annual Meeting of the Society for Mathematical Psychology (SMP2006), Vancouver, Canada. (with Itiel Dror; contributors: Christopher Cherniak, John Tsotsos, Todd Wareham, Ulrike Stege)
- Organized a demo session on computational complexity analysis (with U. Stege) in the Workshop on Human problem solving: Difficult optimization problems, 11-14 June 2005, Purdue University, Indiana.

Conference presentations

- Van Pelt, S., Heil, L., Kwisthout, J., van Rooij, I., & Bekkering, H. (2016). Oscillatory correlates of the use of world knowledge in predictive models for the perception of causal events. Accepted (poster presentation) to BioMAG 2016.
- Otworowska, M., Zaadnoordijk, L., De Wolff, E., Kwisthout, J., & van Rooij, I. (2016). Causal learning in the crib: a predictive processing formalisation and babybot simulation. Poster presentation at the 6th Joint IEEE International Conference on Developmental Learning and Epigenetic Robotics. *Shared best poster award with* [*]
- Zaadnoordijk, L., Otworowska, M., Kwisthout, J., Hunnius, S., & van Rooij, I. (2016). The mobile-paradigm as measure of infants' sense of agency? Insights from babybot simulations. Poster presentation at the 6th Joint IEEE International Conference on Developmental Learning and Epigenetic Robotics. *Shared best poster award with* [*].
- Otworowska, M., Zaadnoordijk, L., De Wolff, E., Kwisthout, J., & van Rooij, I. (2016). Causal learning in the crib: a predictive processing formalisation and babybot simulation. Oral presentation at the Meeting of the European Mathematical Psychology Group (EMPG'16).
- Zaadnoordijk, L., Hunnius, S., Meyer, M., Kwisthout, J., and van Rooij, I. (2015). What senses of agency can infants have? Poster presentation at the 37th Annual Conference of the Cognitive Science Society 2015 (CogSci'15).
- Zaadnoordijk, L., Hunnius, S., Meyer, M., Kwisthout, J., and van Rooij, I. (2015). The developing sense of agency: An interdisciplinary challenge. Poster presentation at the Fifth International Conference on Development and Learning and on Epigenetic Robotics (ICDL-EpiRob'15).
- Kayhan, E., Heil, L., Kwisthout, J., van Rooij, I., Hunnius, S., and Bekkering, H. (2015). What's Next?: Young Children Integrate Prior Probability Information With New Observations to Predict Others' Actions. Poster presentation at the Society for Research in Child Development 2015 (SRCD'15).

- Kwisthout, J., Bekkering, H., and van Rooij, I. (2015). To be precise, the details don't matter: On predictive processing, precision, and level of detail of predictions. Poster presentation at the Cognitive Neuroscience Society 2015 (CNS'15).
- van Pelt, S., Heil, L., Ondobaka, S., Kwisthout, J., van Rooij, I., and Bekkering, H. (2014). Neuromagnetic Correlates of Action Probabilities at Different Hierarchical Levels. Poster presentation at the International Conference on Biomagnetism 2014 (BioMag'14).
- Kwisthout, J., Otworowska, M., Bekkering, H., and van Rooij, I. (2014). Leaving Andy Clark's safe shores: Scaling Predictive Processing to higher cognition. Poster presentation at the 36th Annual Conference of the Cognitive Science Society 2014 (CogSci'14).
- Kwisthout, J. (2013). Most Frugal Explanations: Occam's razor applied to Bayesian abduction. In K. Hindriks, M. de Weerdt, B. van Riemsdijk, and M. Warnier (Eds.): Proceedings of the 25th Benelux Conference on AI (BNAIC'13), pp. 96–103.
- Kwisthout, J., and van Rooij, I. (2013). Predictive coding: Intractability hurdles are yet to overcome [abstract]. In M. Knauff, M. Pauen, N. Sebanz, & I. Wachsmuth (Eds.), Proceedings of the 35th Annual Conference of the Cognitive Science Society (CogSci'13).
- 15. Kwisthout, J., and van Rooij, I. (2012). Bridging the gap between theory and practice of approximate Bayesian inference. In N. Rußwinkel, U. Drewitz, and H. van Rijn (Eds.): Proceedings of the 11th International Conference on Cognitive Modeling (ICCM'12), pp. 199–204.
- Kwisthout, J. & van Rooij (2012). Intractable Bayesian models and approximation: Neither placebo nor panacea. Paper presented at Models and Mechanisms Workshop, Tilburg University, December 7, 2012.
- Blokpoel, M., Kwisthout, J., Haselager, P., Toni, I., & van Rooij, I. (2012). Bayesian models and mechanisms of communication. Paper presented at Models and Mechanisms Workshop, Tilburg University, December 7, 2012.
- Wareham, H.T., Kwisthout, J., Haselager, W.F.G., and van Rooij, I. (2011). Ignorance is bliss: A complexity perspective on adapting reactive architectures. In Proceedings of the First IEEE Conference on Development and Learning and on Epigenetic Robotics (ICDL-EpiRob'11), pp. 465–470.
- Blokpoel, M., Kwisthout, J., Wareham, H.T., Haselager, W.F.G., Toni, I., and van Rooij, I. (2011). The computational costs of recipient design and intention recognition in communication. In L. Carlson, C. Hoelscher, and T.F. Shipley (Eds.): Proceedings of the 33rd Annual Meeting of the Cognitive Science Society (CogSci'11), pp. 465–470.
- Müller, M., van Rooij, I. & Wareham, T. (2009, July/August). Similarity as tractable transformation. Paper presented at the 31st Annual Meeting of the Cognitive Science Society, Amsterdam, The Netherlands.
- van Rooij, I., Evans, P., Müller, M., Gedge, J. & Wareham, T. (2008, July). Identifying sources of intractability in cognitive models: An illustration using analogical structure mapping. Paper presented at the 30th Annual Meeting of the Cognitive Science Society, Washington DC, USA.
- Haselager, W.F.G., van Rooij, I., & Uithol, S. (2008, March). Simulation embodied? Levels of analysis, hard data, and soft concepts. Paper presented at the Simulating Brain symposium, Nijmegen.
- van Rooij, I. & Wareham, T. (2007, July). Approximating solution structure. Paper presented at the Dagstuhl seminar on Structure theory and FPT algorithmics for graphs, digraphs and hypergraphs, Wadern, Germany.
- van Rooij, I., Tak, S., & Plaisier, M. (2006, August). The convex-hull algorithm revisited, with lessons for testing models of the Traveling Salesperson problem. Paper presented in the Problem Solving symposium at the 39th Annual Meeting of the Society for Mathematical Psychology, Vancouver.
- Stege, U. & van Rooij, I. (2006, August). Modeling the theory contraction problem: A parameterized complexity approach. Paper presented in the Problem Solving symposium at the 39th Annual Meeting of the Society for Mathematical Psychology, Vancouver.

- van Rooij, I. & Itiel, I. (2006, July). Computational complexity analyses of cognitive models. Introduction to the Computational Complexity symposium at the 39th Annual Meeting of the Society for Mathematical Psychology, Vancouver.
- Stege, U. & van Rooij, I. (2006, July). Computing maximum coherence: A hard nut to crack? Paper presented at the 39th Annual Meeting of the Society for Mathematical Psychology, Vancouver.
- van Rooij, I. & Wright, C. (2006, July). The incoherence of heuristically explaining coherence. Poster presented at the 28th Annual Conference of the Cognitive Science Society, Sheraton Centre, Vancouver.
- Tak, S., Plaisier, M., & van Rooij, I. (2005, November). Models of human performance on the Traveling Salesperson problem: The shortest route to falsification. Poster presented at the 46th Annual Meeting of the Psychonomic society, Sheraton Centre, Toronto.
- van Dijk, J., Kerkhofs, R., van Rooij, I., Haselager, W.F.G. (2005, October). Can there be such a thing as embodied embedded cognitive neuroscience? Invited talk at the Workshop on Philosophical aspects of embodied cognition and neurophenomenology, University of Tilburg, The Netherlands.
- van Rooij, I. (2004, September). Fixed-parameter tractable cognition. Paper presented at the 35th meeting of the European Mathematical Psychology Group, Ghent, Belgium.
- Stege, U., van Rooij, I., Hertel. A., & Hertel P. (2002, Nov.). An $O(pn + 1.151^p)$ algorithm for p-Profit Cover and its practical implications for Vertex Cover. Paper presented at 13th International Symposium on Algorithms and Computation, Vancouver, BC.
- van Rooij, I., Stege, U., & Kadlec, H. (2002, August). Computational complexity of subset choice problems. Paper presented at the 1st Annual Summer Interdisciplinary Conference, Squamish, BC.
- Stege, U., & van Rooij, I. (2002, August). Solving Minimum Vertex Cover: A fast fixed-parameter-tractable algorithm for Profit Cover. Paper presented at SIAM conference on Discrete Mathematics, San Diego, CA.
- Schactman, A., Kadlec, H., van Rooij, I., & Stege, U. (2002, May). Children's performance on the Traveling Salesperson problem. Poster presented at the 4th annual meeting of the Northwest Cognition and Memory Society, Vancouver, BC.
- van Rooij, I. & Kadlec, H. (2001, July). Where to go and when to stop when meandering through an attractor landscape. Paper presented at the 34th annual meeting of the Society for Mathematical Psychology, Providence, RI.
- van Rooij, I. & Kadlec, H. (2001, May). Time, chance, and stability: Categorical perception as stochastic process. Paper presented at the 3rd annual meeting of the Northwest Cognition and Memory Society, Vancouver, BC.
- Kadlec, H., van Rooij, I., &, Gonzales, V. (2000, November). When rows look like columns: Dynamic stability in grouping by proximity. Poster presented at the 41st annual meeting of the Psychonomic Society, New Orleans, LA.
- van Rooij, I., Bongers, R. M., & Haselager, W. F. G. (2000, August). The dynamics of simple prediction: Judging reachability. Paper presented at the 22nd Annual Conference of the Cognitive Science Society. Philadelphia, PA.
- van Rooij, I., & Kadlec, H. (2000, August). Modeling dynamic stability of perceptual grouping by proximity. Poster presented at 33rd annual meeting of Society of Mathematical Psychology. Kingston, ON.