

**Personal information**

Name Ronald van den Berg, Associate Professor (Docent)  
 Date of birth 26-01-1979  
 Website [www.ronaldvandenber.org](http://www.ronaldvandenber.org)  
 Google scholar <http://scholar.google.co.uk/citations?user=QUDXhooAAAAJ>

**Education**

2004-2009 Ph.D., Visual Perception and Computer Science, University of Groningen, Netherlands  
 1998-2003 M.Sc., Computer Science, University of Groningen, Netherlands

**Research positions**

2015-present Forskare, Department of Psychology, University of Uppsala, Sweden  
 2013-2015 Postdoc, Sensorimotor Learning Laboratory, University of Cambridge, UK  
 2009-2012 Postdoc, Theoretical and Systems Neuroscience lab, BCM, Houston, USA

**Internships**

2008 (May-Aug) Internship, Perceptual Science Group at MIT, Cambridge, USA  
 2003-2004 Research assistant, School of Behavioral and Cognitive Neuroscience, University of Groningen, Netherlands  
 2002-2003 Research internship, Det Norske Veritas, Oslo, Norway (M.Sc. thesis)

**Grants and stipends**

2019-2020 Riksbanken Jubileumsfond 1-year Research Grant (1.0 MSEK)  
 2016-2019 Marie Skłodowska Curie International Career Grant (5.8 MSEK)  
 2009-2011 Rubicon fellowship, Netherlands Organisation for Scientific Research (NWO) (45k EUR)  
 2008 Travel stipend from School of Behavioral and Cognitive Neuroscience (BCN) (2k EUR)  
 2008 Travel stipend from Vereniging voor Biofysica en Biomed.Techn. (VvBBMT) (1k EUR)  
 2003-2004 Research stipend from School of Behavioral and Cognitive Neuroscience (BCN) (2k EUR)

**Peer-reviewed articles**

^ = equal contributions

1. [Van den Berg R](#), Ma WJ (2017). *Fechner's law in metacognition: a quantitative model of working memory confidence*. **Psychological Review**.
2. [Van den Berg R](#), Lindskog M, Poom L, Winman A (2017), *Recent is more: a negative time-order effect in non-symbolic numerical judgment*. **JEP:HPP**.
3. [Van den Berg R](#)<sup>^</sup>, Zylberberg A<sup>^</sup>, Kiani R, Shadlen MN, Wolpert DM (2016). *Confidence is the bridge between multi-stage decisions*. **Current Biology**.
4. [Van den Berg R](#), Anandalingam K, Zylberberg A, Kiani R, Shadlen MN, Wolpert DM (2016). *A common mechanism underlies changes of mind about decisions and confidence*. **Elife**.
5. Bhardwaj M, [Van den Berg R](#), Ma WJ, Josić K (2016). *Do People Take Stimulus Correlations into Account in Visual Search?* **PloS one**.
6. Thibault L, [Van den Berg R](#), Cavanagh P, Sergent C. (2016), *Retrospective Attention Gates Discrete Conscious Access to Past Sensory Stimuli*. **PloS one**.
7. Ma WJ, Shen S, Dziugaite G, [Van den Berg R](#) (2015), *Requiem for the max rule*. **Vision Research**.
8. [Van den Berg R](#), Awh ES, Ma WJ (2014), *Factorial comparison of working memory models*. **Psychological Review**.
9. [Van den Berg R](#), Ma WJ (2014), *Plateau-related summary statistics are uninformative for comparing*

*working memory models.* **Attention, Perception, and Psychophysics.**

10. Keshvari S<sup>^</sup>, Van den Berg R<sup>^</sup>, Ma WJ (2013), *No evidence for an item limit in change detection.* **PLoS Computational Biology.**
11. Mazyar H<sup>^</sup>, Van den Berg R<sup>^</sup>, Seilheimer R, Ma WJ (2013), *Independence is elusive: Set size effects on encoding precision in visual search.* **Journal of Vision.**
12. Keshvari S, Van den Berg R, Ma WJ (2012), *Probabilistic computation in perception under variability in encoding precision.* **PLoS One.**
13. Van den Berg R, Johnson A, Martinez A, Schepers AL, Cornelissen FW (2012), *Comparing crowding in human and ideal observers.* **Journal of Vision.**
14. Van den Berg R<sup>^</sup>, Shin H<sup>^</sup>, Chou WC, George R, Ma WJ (2012), *Variability in encoding precision accounts for visual short-term memory limitations.* **PNAS.**
15. Mazyar H<sup>^</sup>, Van den Berg R<sup>^</sup>, Ma WJ (2012), *Does precision decrease with set size?* **Journal of Vision.**
16. Van den Berg R, Vogel M, Josic K, Ma WJ (2012), *Optimal inference of sameness.* **PNAS.**
17. Ma WJ<sup>^</sup>, Navalpakkam V<sup>^</sup>, Beck JM<sup>^</sup>, Van den Berg R<sup>^</sup>, Pouget A (2011), *Near-optimal visual search: behavior and neural basis.* **Nature Neuroscience.**
18. Van den Berg R, Roerdink JBTM, Cornelissen FW (2010), *A neurophysiologically plausible population code model for feature integration explains visual crowding.* **PLoS Computational Biology.**
19. Van den Berg R, Cornelissen FW, Roerdink JBTM (2009), *A crowding model of visual clutter.* **Journal of Vision.**
20. Van den Berg R, Cornelissen FW, Roerdink JBTM (2008), *Perceptual dependencies in information visualization assessed by complex visual search.* **ACM Transactions on Applied Perception.**
21. Van den Berg R, Roerdink JBTM, Cornelissen FW (2007). *On the generality of crowding: Visual crowding in size, saturation, and hue compared to orientation.* **Journal of Vision.**
22. Hannus A<sup>^</sup>, Van den Berg R<sup>^</sup>, Bekkering H, Roerdink JBTM, Cornelissen FW (2006), *Visual search near threshold: Some features are more equal than others.* **Journal of Vision.**

*Under review*

23. Van den Berg R, Ma WJ, *A rational theory of set size effects in working memory and attention.*

*Peer-reviewed letters and comments*

24. Van den Berg R, Ma WJ (2012), *Robust averaging during perceptual judgment is not optimal.* Letter in Response to "Robust averaging during perceptual judgment" by De Gardelle and Summerfield. **PNAS.**

**Peer-reviewed conference contributions (2012-present)**

1. Van den Berg R, Ma WJ (2017), *An ecologically rational theory of set size effects in visual working memory and attention.* NVP 2017, Zuiderduin, Netherlands. (Talk)
2. Van den Berg R (2017), *An ecologically rational explanation for set size effects in human cognition.* SweCog 2017, Uppsala, Sweden. (Talk)
3. Ma WJ, Van den Berg R, *An Ecologically Rational Explanation for Set Size Effects*, CCN 2017, New York, USA. (Poster)
4. Van den Berg R, Ma WJ (2017). *An ecologically rational explanation of set size effects in human cognition.* SweCog 2017, Uppsala, Sweden. (Talk)
5. Van den Berg R, Ma WJ (2016). *A normative theory of visual working memory limitations.* CogSci 2016, Philadelphia, USA. (Poster)
6. Van den Berg R, Ma WJ (2016). *A Fechnerian model of working memory confidence.* MathPsych 2016,

New Brunswick, USA. (Talk)

7. Van den Berg R, Anandalingam K, Zylberberg A, Woloszyn L, Kiani R, Shadlen M, Wolpert D (2015). *A common mechanism underlies changes of mind about decisions and confidence*. Computational and Systems Neuroscience, Salt Lake City, USA. (Talk)
8. Woloszyn L, Anandalingam K, Van den Berg R, Wolpert DM, Shadlen MN (2014). *Neural responses in parietal area MIP support a link between decision confidence and movement variability*. Society for Neuroscience, Washington DC, USA. (Poster)
9. Shin H, Van den Berg R, Ma WJ (2013). *Independent pools of visual short-term memory resource for different features*. Computational and Systems Neuroscience, Salt Lake City, USA. (Poster)
10. Shen S, Van den Berg R, Ma WJ (2013). *When is sensory precision variable?* Computational and Systems Neuroscience, Salt Lake City, USA. (Poster)
11. Bhardwaj M, Van den Berg R, Ma WJ, Josic K (2013). *Do humans account for stimulus correlations in visual perception?* Computational and Systems Neuroscience, Salt Lake City, USA. (Poster)
12. Van den Berg R, Beck JM, Ma WJ (2012). *Scientists are suboptimal in judging scientific data*. Computational and Systems Neuroscience, Salt Lake City, USA. (Poster)
13. Shin H, Van den Berg R, Ma WJ (2012). *Change localization: a new paradigm for visual short-term memory*. Computational and Systems Neuroscience, Salt Lake City, USA. (Poster)
14. Mazyar H, Van den Berg R, Ma WJ (2012). *On the precision of sensory encoding in visual search*. Computational and Systems Neuroscience, Salt Lake City, USA. (Poster)
15. Keshvari S, Van den Berg R, Ma WJ (2012). *Change detection as probabilistic inference under variable resources*. Computational and Systems Neuroscience, Salt Lake City, USA. (Poster)

#### Invited talks (2012-present)

1. *Confidence in our own decisions: how does the brain do it and why do we need it anyway?* Umeå University, Sweden, Mar 2017.
2. *An ecologically rational theory of limitations in working memory and attention*. Munich Symposium on Visual Working Memory, Munich, Germany, Oct 2017.
3. *Confidence in decision making: mechanism and role*. University of Groningen, Netherlands, Oct 2017.
4. *Descriptive and normative models of visual working memory limitations*, University of Leiden, Netherlands, Sep 2017.
5. *Bayesian models of perception*. University of Stockholm, Sweden, Jan 2017.
6. *Models of working memory limitations and confidence*. University of Groningen, Netherlands, Oct 2016.
7. *Probabilistic inference in perception*. Seminar at L'Université Paris Descartes, Paris, France, May 2016.
8. *Introduction to Bayesian Statistics: what is it and why should I use it?* University of Uppsala, Sweden, May 2016.
9. *Models of working memory precision and confidence*. Bernstein Sparks Workshop: Active Perceptual Memory, Berlin, Oct 2015.
10. *The probabilistic brain: unconscious inference in perception and cognition*. Uppsala, Sweden, Sep 2015.
11. *Bayesian inference in perceptual decision-making*. University of Leicester, UK, 2014.
12. *When and why does encoding precision in visual search decrease with set size?* 31st BPS Cognitive Psychology Section Conference, Nottingham, UK, 2014.
13. *Descriptive and normative models of working memory*, MRC, Cambridge, UK, Feb, 2014.
14. *Probabilistic and heuristic models of decision making*, University of Uppsala, Sweden, Dec 2013.
15. *Descriptive and normative models of working memory*, Neural mechanisms of working memory limits workshop at CNS 2013, Paris, France, Jul 2013.
16. *Optimal decision making beyond cue combination*, University of Cambridge, UK, Jul 2012.
17. *Visual decision making in multi-object tasks*, University of Leuven, Belgium, Jun 2012.
18. *Change detection as probabilistic inference under variable resources*, GCC/TCN Annual Conference, Houston, USA, Feb 2012.

**My research in the media**

1. *Iets oplossen in drie tot zeven stappen: dat kunnen we behappen*, Financieel Dagblad (Dutch newspaper), 16-8-2016.
2. *Geheugen zonder Grenzen*, Intermediair (Dutch career magazine), 22-6-2012.
3. *Brein als detective*, Leeuwarder Courant (Dutch newspaper), 25-6-2011.
4. *Het brein: een snelle en goede detective*, Het Parool (Dutch newspaper), 21-5-2011.
5. *Ons brein vindt een schaar als een detective*, Dagblad De Pers (Dutch newspaper), 20-5-2011.
6. *Bekenden zien is een kwestie van hersenstrategie*, website of Volkskrant (Dutch newspaper), 15-5-2011.
7. Interview at BNR Nieuwsradio (Dutch radio station) about my PhD thesis work, Oct 2009.
8. Interview at Omrop Fryslan (Dutch radio station) about my PhD thesis work, Oct 2009.

**Reviews for scientific journals**

British Journal of Psychology, Cognition, Cognitive Psychology, Current Biology, eLife, Emotion, Frontiers Psychology, JEP:General, JEP:HPP, JEP:LMC, JEP:XLM, Journal of Vision, Journal of Neurophysiology, Memory & Cognition, Nature Scientific Reports, Perception, PLoS One, PLoS Comp Bio, PNAS, Psychological Research, Psychological Review, Trends in Cognitive Sciences, Vision research, Visual Cognition.

**Reviews for funding agencies**

National Science Foundation (NSF, USA), National Fund for Scientific Research (FWO, Belgium), Swiss National Science Foundation (SNF, Switzerland).

**Evaluations of PhD thesis work**

Marta Bakker, *Title to be announced*, Uppsala University, August 2018 (my role: opponent at final seminar).

Moa Lidén, *Confirmation Bias in Legal Decision Making, especially in Criminal Cases*, Uppsala University, April 2018 (my role: opponent at final seminar).

Benjamin Koch, *Socio-cognitive influences on gaze behavior in infants*, Uppsala University, June 2016 (my role: examiner).

**Conference organization**

Oct 2017            Organizer of one-day *Symposium on Rationality in Perception and Cognition (RiPaC)*, Uppsala, Sweden. Role: organizer.

**Teaching and mentoring***Workshops and tutorials*

- Modeling delayed-estimation data, tutorial at Munich Symposium on Visual Working Memory, Munich, Germany, Oct 2017.
- Introduction to Bayesian statistics with JASP, tutorial seminar at Stockholm University, Sweden, Apr 2017.
- Modeling delayed-estimation data, tutorial at 7th Bernstein Sparks Workshop: Active Perceptual Memory, Berlin, Oct 2015.
- Introduction to probabilistic models of perception, 2-day workshop at BCN, University of Groningen, Netherlands, Oct 2011.

*Course leader*

- A Practical Introduction to Bayesian Statistics – Spring 2017 – Uppsala University (7.5 ECTS)
- Introduction to Cognitive Modeling – Spring 2016 – Uppsala University (7.5 ECTS)

*Lecturing as co-teacher*

- Introduction to Perception – Fall 2017 – Uppsala University (2 lectures)

- Auditory and Visual Perception – Fall 2017 – University of Groningen (1 lecture)
- Introduction to Perception – Spring 2017 – Uppsala University (2 lectures)
- Introduction to Perception – Fall 2016 – Uppsala University (2 lectures)
- Auditory and Visual Perception – Fall 2016 – University of Groningen (1 lecture)
- Introduction to Perception – Spring 2016 – Uppsala University (2 lectures)
- Auditory and Visual Perception – Fall 2015 – University of Groningen (1 lecture)

#### *Teaching Assistance*

- 3G3 Introduction to Neuroscience - 2015 – Cambridge University
- 3G3 Introduction to Neuroscience - 2014 – Cambridge University
- Computer Vision - 2007/2008 – University of Groningen
- Imperative Programming - 2007/2008 – University of Groningen
- Imperative Programming - 2006/2007 – University of Groningen
- Object Oriented Programming - 2006/2007 – University of Groningen
- Student Colloquium - 2006/2007 – University of Groningen
- Object Oriented Programming - 2005/2006 – University of Groningen
- Introduction Informatics - 2005/2006 – University of Groningen
- Student Colloquium - 2005/2006 – University of Groningen

#### **Supervision**

##### *Primary supervisor*

E. Stengård	(Ph.D. thesis, 2016-present, Uppsala University)
N. Baht	(M.Sc. thesis, 2017, Uppsala University)
J. Tronestam	(M.Sc. thesis, 2016, Uppsala University)
C. Bådenlid	(M.Sc. thesis, 2016, Uppsala University)
J. Lund	(M.Sc. thesis, 2016, Uppsala University)

##### *Co-supervisor*

A. Olsson	(Ph.D. thesis, 2017-present, Uppsala University)
M. Forsgren	(M.Sc. thesis, 2018-present, Uppsala University)
M. Forsgren	(B.Sc. thesis, 2017, Uppsala University)
K. Anandalingam	(M.Sc. thesis, 2014, University of Cambridge)
R. Seilheimer	(rotation project, 2011, Baylor College of Medicine)
J. Park	(rotation project, 2010, Baylor College of Medicine)
T. Kinney	(rotation project, 2010, Baylor College of Medicine)
S. Keshvari	(research internship, 2009-2010, Baylor College of Medicine)
H. Mazyar	(research internship, 2009-2010, Baylor College of Medicine)
A. Martinez	(M.Sc. thesis 2008; PhD student, 2008-2009, University of Groningen)
L. Harting	(M.Sc. thesis, 2007, University of Groningen)
A. Schepers	(M.Sc. thesis, 2007, University of Groningen)
R. Dam	(M.Sc. thesis, 2005, University of Groningen)

#### **Committee work**

2018-present	Chair of Junior Faculty Uppsala University (JF-UU)
2016	Prefekt valberedningsgrupp, University of Uppsala
2013-2015	Engineering Postdoc Committee, University of Cambridge
2006-2008	Computer infrastructure committee, University of Groningen
2007	Annual Programming Contest Committee, University of Groningen

#### **Memberships of scientific societies**

2016-2019	Society for Mathematical Psychology
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2016-2017 Cognitive Science Society  
2013-2015 Cambridge Neuroscience  
2011-2012 Society for Neuroscience  
2010-2011 Vision Science Society