

Ilona M. Bloem, PhD

Postdoctoral Associate
Department for Psychology and Center for Neural Science
New York University
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Education

- 2014 – 2020 PhD in Psychology: Brain, Behavior and Cognition, Boston University, USA
- 2012 – 2014 Research MSc in Cognitive Neuroscience, Maastricht University, Netherlands
- 2009 – 2012 BSc in Biological Psychology, Maastricht University, Netherlands

Positions

- 2020 – current Post-doctoral researcher in the groups of Dr. Michael Landy and Dr. Jonathan Winawer, New York University, USA
Focus: Visual perception, Somatosensory perception, Cross-modal perception, Multisensory integration, Normalization
Methods: Neuroimaging (fMRI & intracranial EEG), Computational modeling, Psychophysics
- 2014 – 2020 PhD candidate in the group of Dr. Sam Ling, Boston University, USA
Focus: Visual perception, Visual attention, Visual working memory, Normalization
Methods: Neuroimaging (fMRI), Computational modeling, Psychophysics
- 2013 – 2014 MSc Research internship in the groups of Dr. Peter De Weerd, Maastricht University, Netherlands; Dr. Janneke Jehee, Donders Institute, Netherlands & Dr. Sam Ling, Boston University, USA
Focus: Visual perception, Spatial frequency selectivity
Methods: Neuroimaging (fMRI), psychophysics
- 2013 – 2014 Research assistant in the group of Dr. Bert Jans & Dr. Peter De Weerd, Maastricht University, Netherlands
Focus: Visual perception, Perceptual learning
Methods: Neuroimaging (fMRI)
- 2011 – 2014 Research assistant in the group of Dr. Peter De Weerd & Dr. Alex Sack, under guidance of Dr. Rosanne Rademaker, Maastricht University, Netherlands
Focus: Visual perception, Visual working memory, Positive afterimages, Body schema
Methods: Psychophysics
- 2011 – 2011 BSc Research internship in the group of Dr. Bruno Laeng, University of Oslo, Norway
Focus: Visual perception, Visual Imagery
Methods: Pupillometry, Eye tracking

Awards and Honors

2021	Master-Mentorship Model Award, awarded to C. Sun under supervision of I.M. Bloem & M.S. Landy
2016	CompNet Travel Award from Boston University, to attend the annual Vision Sciences Society meeting
2016	Clara Mayo Award from Boston University, to fund fMRI experiment costs
2015	CompNet Travel Award from Boston University, to attend the 1-day International Research Symposium: A Sensational World – Representations of the Brain’s Visual System, Maastricht University, Netherlands
2015	CompNet Travel Award from Boston University, to attend the annual Society for Neuroscience meeting
2015	CompNet Travel Award from Boston University, to attend the annual Vision Sciences Society meeting
2014	Dean’s Fellowship, Boston University
2014	Hendrik Muller foundation grant, private Dutch foundation that supported my MSc internship at Boston University
2012	Maastricht Research-Based Learning grant for continued research, awarded to I.M. Bloem & R.L. Rademaker

Publications

* denotes equal contributions

Vinke*, L.N., **Bloem***, I.M., & Ling, S. (2022). Saturating Nonlinearities of Contrast Response in Human Visual Cortex. *Journal of Neuroscience*, 42(7), 1292-1302.

Klímová, M., **Bloem, I.M.**, & Ling, S. (2021). The specificity of orientation-tuned normalization within human early visual cortex. *Journal of Neurophysiology*, 126(5), 1536-1546.

Bloem, I.M., & Ling, S. (2019). Normalization governs attentional modulation within human visual cortex. *Nature Communications*, 10(1), 1-10.

Bloem, I.M., Watanabe, Y.L., Kibbe, M.M., & Ling, S. (2018). Visual memories bypass normalization. *Psychological Science*, 29(5), 845-856.

Bloem, I.M., & Ling, S. (2017). Attentional modulation interacts with orientation anisotropies in contrast perception. *Journal of Vision*, 17(11):6, 1-14.

Rademaker, R.L., **Bloem, I.M.**, De Weerd, P., & Sack, A.T. (2015). The impact of interference on short-term memory for visual orientation. *Journal of Experimental Psychology: Human Perception and Performance*, 41(6), 1650-1665.

Rademaker, R.L., Wu, D-A, [Bloem, I.M.](#), & Sack, A.T. (2014). Intensive tool-practice and skillfulness facilitate the extension of the human body schema beyond first order limitations. *Neuropsychologia*, 56, 196-203.

Laeng, B., [Bloem, I.M.](#), D'Ascenzo, S., & Tommasi, L. (2014). Scrutinizing visual images: The role of gaze in mental imagery and memory. *Cognition*, 131(2), 263-283.

Manuscripts in preparation:

Fang, Z., [Bloem, I.M.](#), Olsson, C., Ma, W. J., & Winawer, J. (*under review*). Normalization by orientation-tuned surround in human V1-V3.

[Bloem, I.M.](#), Pan, J., & Ling, S. (*in prep*). Attentional modulation of the population contrast response function within human visual cortex.

[Bloem, I.M.](#), Bakst, L., McGuire, J. T., & Ling, S. (*in prep*). Dynamic spotlight model recovers the mean but not the width of covert spatial attention.

Invited talks

2022	European Conference on Visual Perception
2020	Peter Bandettini group, National Institute of Health, Bethesda
2020	Michael Landy group, New York University, New York
2018	Trends in Psychology Summit, Harvard University, Boston
2018	John Serences group, UCSD, San Diego

Conference presentations

[Bloem, I.M.](#), Pan, J., & Ling, S. (2021). Attentional modulation of the population contrast response function within human visual cortex. Talk at Vision Sciences Society

Klimova, M., [Bloem, I.M.](#), & Ling, S. (2021). Tuned normalization bandwidth is unaltered by attention. Poster at Vision Sciences Society

Bakst, L., [Bloem, I.M.](#), McGuire, J. T., & Ling, S. (2020). Dynamic spotlight model recovers the mean but not the width of covert spatial attention. Talk at Vision Sciences Society

Vinke, L.N., [Bloem, I.M.](#), & Ling, S. (2019). Population contrast response functions in human visual cortex. Poster at Vision Sciences Society

Klimova, M., [Bloem, I.M.](#), & Ling, S. (2019). Estimating the bandwidth of tuned normalization within human visual cortex. Poster at Vision Sciences Society

Ramirez, L.D., Schwartz, J., [Bloem, I.M.](#), Ling, S., & Kibbe, M.M. (2019). Spatial location does not elicit normalization in visual memory. Poster at Vision Sciences Society

Bloem, I.M., Vinke, L.N., & Ling, S. (2018). Population contrast response functions in human visual cortex. Poster at Society for Neuroscience

Watanabe, Y.L., **Bloem, I.M.**, Kibbe, M.M., & Ling, S. (2018). Visual memories bypass normalization. Poster at Cognitive Neuroscience Society

Bloem, I.M., Watanabe, Y.L., Ling, S., & Kibbe, M.M. (2017). Visual working memory representations bypass divisive normalization. Poster at Vision Sciences Society

Bloem, I.M., & Ling, S. (2016). Feature-tuned normalization modulates spatial attention. Poster at Society for Neuroscience

Bloem, I.M., & Ling, S. (2016). Attentional gain modulation relies on local feature-tuned normalization. Poster at Vision Sciences Society

Bloem, I.M., & Ling, S. (2016). Attentional gain modulation relies on local feature-tuned normalization. Poster at Vision Sciences Society

Bloem, I.M., & Ling, S. (2015). Attentional gain modulation relies on local feature-tuned normalization. Talk at Society for Neuroscience

Jans, B., van de Ven, Waldorp, L., V., Been, M.M., **Bloem, I.M.**, Uludağ, K., Goebel, R., & De Weerd, P. (2015). Enhanced readout of early visual cortex after perceptual learning measured with fMRI. Poster at Society for Neuroscience

Bloem, I.M., Janati, T., & Ling, S. (2015). Attentional modulation interacts with orientation anisotropies in contrast sensitivity. Poster at Vision Sciences Society

Rademaker, R.L., **Bloem, I.M.**, De Weerd, P. & Sack, A.T. (2013). Properties of high-fidelity visual working memory representations for orientation. Poster at Vision Sciences Society

Bloem, I.M., Rademaker, R.L. & Laeng, B. (2012). Imagining triangles induces eye movements, but does not affect pupil size, an eye tracking study. Poster at Annual Student Research Conference, VSNU, Utrecht, the Netherlands

Rademaker, R.L., Wu, D.A., **Bloem, I.M.**, & Sack, A. (2011). Lifetime-built motor fluency and training enable an extended sense of the body beyond classical first-order extensions in humans. Poster at Donders Discussions, Donders Institute for Brain, Cognition and Behavior, Nijmegen, the Netherlands

Bloem, I.M., Driessen, M.H., Gerlach, A., van Heel, A., Hemmers, L., Tibud, A., Wellen, F.A.M., & Rademaker, R.L. (2011). Second-order object integration into the body schema. Poster at Annual Psychology Student Research Meeting, Maastricht University, the Netherlands

Teaching - Courses

Spring 2017	Sensation & Perception (BSc), Psychological and Brain Sciences, Boston University Role: Teaching fellow. Weekly recitations and office hours (6h per week) for 200 students
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Spring 2017	Sensation & Perception (BSc), Psychological and Brain Sciences, Boston University
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	Role: Guest lecture on “Attention”
Spring and Fall 2016	Experimental lab in Perception (BSc), Psychological and Brain Sciences, Boston University Role: Teaching fellow. Laboratory course with 25 students. Supervised student research projects, grading of research papers
Fall 2015	Sensation & Perception (BSc), Psychological and Brain Sciences, Boston University Role: Teaching fellow. Weekly recitations and office hours (6 h per week) for 200 students
Fall 2015	Sensation & Perception (BSc), Psychological and Brain Sciences, Boston University Role: Guest lecture on “Color Vision”

Teaching – Mentorship

* admitted to a PhD program | ° co-authored a peer-reviewed paper

MSc Thesis	Chenanke Sun* (2021-2022, NYU)
Internships and research assistants	Yurika Watanabe° (2015-2018, BU)
	Aviva Rosen (2018, BU)
	Alejandra Lopez (2015-2016, BU)
	Taryn Janati (2014, BU)

Professional activities and public outreach

Ad-hoc reviewer:	Neuron Human Brain Mapping Scientific Reports Journal of Experimental Psychology HPP PLOS ONE Psychonomic Bulletin and Review Vision Research Attention, Perception and Psychophysics Quarterly Journal of Experimental Psychology
2022	Center for Brain Imaging, New York University <i>Contribution:</i> Demonstration of the MRI center to high school students
2021	Vision Journal Club organizer, New York University <i>Contribution:</i> Planning and organizing a monthly journal club for the vision science community within NYU and NYU Abu Dhabi
Since 2020	MRI Certified user, Center for Brain Imaging, New York University
2018	European Summer School “Rauischholzhausen”, Germany Attended a 2-week summer school focusing on visual perception
Since 2018	MRI Certified user, Cognitive Neuroimaging Center, Boston University

- 2017 Cognitive Neuroscience Center outreach, Boston University
Contribution: Demonstration of the MRI center to college students
- 2017 Summer Pathways Program volunteer, Boston University
Contribution: Demonstrations on visual perception to high school students
- 2017 Cambridge Science Festival volunteer, Cambridge, MA
Contribution: Demonstrations on visual perception to elementary- and middle school children
- 2016 NIMH Summer Institute in Cognitive Neuroscience fellowship, UCSB
Attended a 2-week summer school focusing on brain circuits and the stressed brain
- 2016 CELEST Speaker Series organizer, Boston University
Contribution: Responsible for inviting and hosting speakers.
- Since 2015 MRI Certified user, Center for Brain Science, Harvard University
- 2015 – 2016 Neuroscience Graduate Student Organization officer, Boston University
Contribution: Involved in planning and organizing of monthly graduate student events
- 2012 – 2014 Track representative for the research Master Clinical and Cognitive Neuroscience, Maastricht University
Contribution: Attended monthly meetings regarding the curriculum of the research Master program
- 2011 – 2012 Maastricht Research-Based Learning program, Maastricht University excellence program. Supervisors: Dr. Laeng & Dr. Rademaker
Contribution: I took the opportunity to perform my own bachelor thesis research while studying abroad at the University of Oslo and write an empirical thesis
- 2012 Demonstration volunteer, Continium Science Museum, Kerkrade
Contribution: Gave a series of demonstrations on “the Positive Afterimage” for Brain Awareness month

References

Sam Ling, PhD. Boston University, Boston, USA
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Jonathan Winawer, PhD. New York University, New York, USA
jonathan.winawer@nyu.edu

Michael S. Landy, PhD. New York University, New York, USA
landy@nyu.edu