

Curriculum vitae

Toni P. Saarela

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Education

PhD in neuroscience, Swiss Federal Institute of Technology (EPFL), Lausanne, Switzerland	2009
MA in psychology (minor, mathematics), University of Helsinki, Finland	2004

Research interests

- Visual object recognition and segmentation
- Probabilistic modeling of human perception and decision making
- Sensory cue integration
- Contextual effects in human visual processing
- Transcranial magnetic stimulation

Research experience

Visiting scholar	2015
University of Pennsylvania, Department of Psychology	
Post-doctoral fellow	2011 – 2014
University of Pennsylvania, Department of Psychology	
Post-doctoral researcher	2009 – 2011
New York University, Department of Psychology & Center for Neural Science	
PhD student, assistant	2005 – 2009
Swiss Federal Institute of Technology Lausanne, Laboratory of Psychophysics	

Skills

Data analysis and scientific computing:

Matlab, Octave, R, Python, SQL, C

Web:

HTML, CSS, PHP, JavaScript

OS:

GNU/Linux, Mac OS X, Windows, UNIX

Publications

- Saarela, T.P., & Landy, M.S. (2015).** Integration trumps selection in object recognition. *Current Biology*, 25, 920–927. [Link to article]
- Saarela, T.P., & Landy, M.S. (2012).** Combination of texture and color cues in visual segmentation. *Vision Research*, 58, 59–67. [Link to article]

- Saarela**, T.P., Westheimer, G., & Herzog, M.H. (2010). The effect of spacing regularity on visual crowding. *Journal of Vision*, 10(10):17, 1–7. [Link to article]
- Saarela** T.P. & Herzog, M.H. (2009). Size tuning and contextual modulation of backward contrast masking. *Journal of Vision*, 9(11):21, 1–12. [Link to article]
- Saarela** T.P., Sayim, B, Westheimer, G., & Herzog, M.H. (2009). Global stimulus configuration modulates crowding. *Journal of Vision*, 9(2):5, 1–11. [Link to article]
- Saarela**, T.P. & Herzog, M.H. (2008). Time-course and surround modulation of contrast masking in human vision. *Journal of Vision*, 8(3):23, 1–10. [Link to article]
- Repokari, L., **Saarela**, T.P., & Kurki, I. (2002). Visual search on a mobile phone display. *ACM International Conference Proceeding Series*, 30, 253–253.

In review / submitted / in preparation:

- Olkkinen, K.M, **Saarela**, T.P., & Allred, S.R. (2015). Perception-memory interactions reveal a computational strategy for perceptual constancy. *In review*.
- Saarela**, T.P., Manassi, M., & Herzog, M.H.H. (2015). Effect of TMS on visual signal detection is a result of both noise and signal suppression. *In preparation*.
- Saarela**, T.P., Mattar, M. & Olkkonen, K.M. (2015). ShapeToolbox: Generating parametric 3D shapes for visual perception and cognition experiments. *In preparation*.

Selected conference abstracts

- Olkkinen, K. M., Saarela, T. P., & Allred, S. (2014). Interaction between context and memory in lightness perception: Evidence for a reflectance estimation model. *Journal of Vision*, 14, 41.
- Saarela, T. P. & Stocker, A. (2013). Perception is biased by a preceding decision. *Journal of Vision*, 13, 275.
- Saarela, T. P. & Landy, M. S. (2012). Integration of texture and color cues for visual shape recognition. *Journal of Vision*, 12, 102.
- Saarela, T. P. & Landy, M. S. (2010). Combining texture and colour cues in visual segmentation. *Perception*, 39s, 60.
- Saarela T. P. & Herzog, M. H. (2009). Crowding in multi-element arrays: Regularity of spacing. *Journal of Vision*, 9, 1017a.
- Saarela T. P., Sayim, B., Westheimer G., & Herzog M. H. (2008). Crowding is modulated by global stimulus configuration. *Perception*, 37s, 171.
- Saarela, T.P., Sayim, B., Westheimer, G., & Herzog, M. H. (2008). Crowding in human vision is modulated by global stimulus configuration. *FENS Forum Abstracts*, 4, 220.14.
- Saarela T. P., Sayim, B., Westheimer G., & Herzog M. H. (2008). Configural modulation of crowding. *Journal of Vision*, 8, 435a.
- Saarela T. P. & Herzog, M. H. (2007). Time-course and surround modulation of contrast masking. *2nd Annual EPFL Life Sciences Symposium (LSS07)*, Lausanne, Switzerland.
- Saarela T. P., Sayim, B., Westheimer G., & Herzog M. H. (2007). Modulation of crowding by stimulus configuration. *Visionarium*, Tvärrminne, Finland.

- Saarela T. P. & Herzog, M. H. (2007). Temporal characteristics and surround modulation of contrast masking. *Journal of Vision*, 7, 258a.
- Saarela T. P. & Herzog, M. H. (2006). Centre-surround interactions in backward masking. *Perception*, 35s, 45-46.
- Saarela, T.P., Olzak, L.A., & Laurinen, P.I. (2005). Spatial summation and inhibition in human visual contrast processing. *Perception*, 34s, 214-215.
- Laurinen, P. I., Olzak, L. A., & Saarela, T. P. (2004). Testing a neural model of center-surround interaction psychophysically. *Journal of Vision*, 4, 780a.
- Saarela, T. P., Olzak, L. A. & Laurinen, P. I. (2003). Orientation-dependent spatial asymmetry of surround suppression in contrast perception. *Perception*, 32s, 159.
- Saarela, T. P., Olzak, L. A., & Laurinen, P. I. (2002). Spatial pooling of contrast and luminance in contrast gain control. *Perception*, 31s, 63.
- Laurinen, P. I., Saarela T.P., & Olzak, L.. A. (2000). Contextual modulation of lateral interactions in contrast gain control. *Perception*, 29s, 41.

Software

Principal developer of **ShapeToolbox** (github.com/saarela/ShapeToolbox): A free, open-source software tool for producing 3D graphics models

Fellowships and awards

Fellowship for Prospective Researchers, Swiss National Science Foundation	2009 – 2010
Young investigator award, University of Helsinki	2004

Workshops and courses

Perception of Material Properties Giessen University, Rauischholzhausen, Germany	2011
Advanced Science Communication Workshop (Stephen Hall) New York University, New York, USA	2010
Science Communication Workshop (Stephen Hall) New York University, New York, USA	2010
European Summer School on Visual Neuroscience Rauischholzhausen, Germany	2008
Learning and Dynamics in Vision (and beyond) Glion, Switzerland	2008
Workshop on fMRI-based experiments (Dr. Robert Savoy) Helsinki University of Technology, Finland	2002
The basics of digital signal processing (Prof. Olli Simula) University of Helsinki, Finland	2002

Teaching

Laboratory course in perception (TA) Department of Psychology, New York University	2011
Co-supervisor of honors thesis Department of Psychology, New York University	2009 – 2010
Practical course on neuroscience methods (TA) Swiss Federal Institute of Technology, Lausanne	2005 – 2007
Methods in psychophysics and experimental psychology (TA) Department of Psychology, University of Helsinki	2003 – 2004

Selected presentations

<i>Visual segmentation: Integration of texture and color cues</i> EPFL, Lausanne, Switzerland	2011
<i>Combining texture and color cues in visual segmentation</i> University of Pennsylvania, USA	
<i>Combining texture and colour cues in visual segmentation</i> European Conference on Visual Perception, Lausanne, Switzerland	2010
<i>Crowding is modulated by global stimulus configuration</i> European Conference on Visual Perception, Utrecht, Netherlands	
<i>Symposium on Crowding</i>	2008
<i>Modulation of crowding by stimulus configuration</i> Visionarium, Tvärminne, Finland	2007
<i>Spatial and temporal effects in contrast masking</i> University of Giessen, Germany	2006
<i>Spatial pooling of contrast and luminance in contrast gain control</i> European Conference on Visual Perception, Glasgow, Scotland	2002