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## CURRICULUM VITAE

**Piers Howe**  
**Postdoctoral Research Fellow**  
**Visual Attention Laboratory, Brigham and Women's Hospital**  
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### EDUCATION

- 1999-2003      Ph.D. in Cognitive and Neural Systems,  
Department of Cognitive and Neural Systems  
Boston University, Boston
- 1994-1998      Combined B.A. and Masters in Physics, Oxford University, Oxford,  
UK.

### ACADEMIC APPOINTMENTS

- 2008-Present      Lecturer, Department of Cognitive and Neural Systems, Boston, MA
- 2007-Present      Postdoctoral Research Fellow, Visual Attention Laboratory, Brigham  
and Women's Hospital, Boston, MA.
- 2007-Present      Member of Harvard Center for Neurodegeneration and Repair fMRI  
center
- 2006-2007      Research Associate,  
Livingstone Lab, Harvard Medical School, Boston
- 2005-2006      Adjunct Faculty  
Department of Psychology, University of Massachusetts, Boston
- 2003-2006      Postdoctoral Research Fellow  
Livingstone Lab, Harvard Medical School, Boston
- 1998              Visiting Scholar  
Department of Cognitive and Neural Systems, Boston University

### COURSES TAUGHT

- 2008              *CN520 – Principles and Methods of Cognitive and Neural Modeling II*  
Boston University, Boston
- 2005              *Psych 475 - Experimental Methods: Learning and Perception,*  
University of Massachusetts, Boston

**OTHER TEACHING EXPERIENCE**

- 2006 Acted as a substitute Tutor for the *Human Nervous System and Behavior* course at Harvard Medical School
- 2006 Guest lecturer for Boston University's *PS222 – Perception and Behavior*
- 2005 Guest lecturer for Boston University's *CN730 – Models of Visual Perception*
- 2004-2006 Assisted Prof. David Hubel in teaching his Harvard Medical School freshman seminar course.
- 2004 Acted as a Tutor for the *Human Nervous System and Behavior* course at Harvard Medical School.
- 2003 Guest lecturer for Boston University's *CN810 – Topics in CNS: Vision in Man, Monkey, and Machine*
- 2001 Lectured and Assisted Prof. Ennio Mingolla in teaching *CN530 – Neural and Computational Models of Vision* at Boston University.

**COURSES QUALIFIED TO TEACH**

Cognitive Modeling, Cognitive Science, Experimental Methods, Introduction to Psychology, Neuroscience, Statistics, Vision and Perception.

**STUDENTS MENTORED**

Sagreiya, Cheng-Cheng Zheng, Dwight Curtis, Naveen Krishnan

**AWARDS AND GRANTS**

- 2005-2008 Co-Pi ARO 46961-LS. Misperception of speed and distance under low visibility conditions. (\$300,000)
- 2003-2006 Helen Hay Whitney Postdoctoral Research Fellowship (\$129,000)
- 1999-2003 Presidential University Graduate Fellowship, Boston University (\$66,000 and tuition waiver).
- 1997 Awarded an Exhibitioner (a type of Scholarship), Magdalen College, Oxford.

**INVITED LECTURES**

- 2007 Boston University, Tuesday Evening Lecture Series, College of Fine Arts
- 2006 The College of the Holy Cross, Department of Psychology

2006 Harvard Medical School Friday Seminar Series.

2002-2005 Harvard Vision Group seminar series (3 times).

### **AD HOC REVIEWER FOR**

Cambridge University Press, Brain Research, Cognitive Science Society (10 papers), Department of Energy (USA), Journal of Neurophysiology, Journal of Neuroscience, Journal of the Optical Society of America, Information Fusion, Neural Networks, Neuron, Perception (3 times), Perception and Psychophysics (twice), Spatial Vision, Vision Research (4 times), Wellcome Trust (UK)

### **JOURNAL ARTICLES**

Howe PD, Horowitz TS, Wolfe JM (in press). Transient signals per se do not disrupt the flash-lag effect. *Brain and Behavioral Science* (Commentary)

Howe PD, Sagreiya H\*, Curtis DL\*, Zheng CC\*, Livingstone MS. (2007) The double-anchoring theory of lightness perception: A comment on Bressan (2006). *Psychological Review*, 114(4), 1111-1114; further discussion 1111-1114. (Commentary)

Howe PD & Livingstone MS. (2007) The Use of the Cancellation Technique to Quantify the Hermann Grid Illusion. *PLoS ONE* 2(2): e265

Howe PD, Thompson PG, Anstis SM, Sagreiya H\*, Livingstone MS. (2006). Explaining the Footsteps, Bellydancer, Wenceslas and Kickback Illusions. *Journal of Vision*, 6, 12(5), 1396-1405.

Howe PD & Livingstone MS (2006). End-stopping and the stereo aperture problem in macaque V1. *Cerebral Cortex*, 16(9), 1332-1337.

Howe PD (2006). Testing the coplanar ratio hypothesis of lightness perception. *Perception*, 35(3), 291-301.

Howe PD (2005). White's effect: removing the junctions but preserving the strength of the illusion. *Perception*, 34(5), 557-564.

Grossberg S & Howe PD (2003)<sup>1</sup>. A laminar cortical model of stereopsis and three-dimensional surface perception. *Vision Research*, 43, 801-829.

Howe PD & Watanabe T (2003). Measuring the depth induced by an opposite-luminance (but not anti-correlated) stereogram. *Perception*, 32(4), 415-21.

Howe PD (2001). A comment on the Anderson (1997), the Todorovic (1997), and the Ross and Pessoa (2000) explanations of White's effect. *Perception*, 30(8), 1023-1026. (Commentary)

<sup>1</sup>This was based on my PhD dissertation; authorship order was alphabetic.

\*Indicates that this was one of my students.

## THESES

PhD Thesis: Cortical mechanisms of depth and lightness perception: neural models and psychophysical experiments Advisor: Prof. Stephen Grossberg

Masters Thesis: An investigation into the range of validity of the recollision model of intense field upconversion, Advisor: Prof. Keith Burnett .

BA thesis: Calculating polarized neutron scattering cross-sections from experimental data. Advisor: Prof. Roger Cowley

## CONFERENCE PRESENTATIONS

Howe PD, Thompson PG, Anstis SM, Sagreiya H\*, Livingstone MS. (2006). Explaining the Footsteps, Bellydancer, Wenceslas and Kickback Illusions. *Vision Sciences Society*, 1082

\*Sagreiya, H., Howe, P.D.L & Livingstone, M.S. (2006). The footsteps illusion is caused by motion capture. *Tenth International Conference on Cognitive and Neural Systems*.

Howe, P.D.L & Livingstone, M.S. (2006). A simple luminance- and contrast- driven model of lightness perception. *Tenth International Conference on Cognitive and Neural Systems*.

Howe, P.D.L & Livingstone, M.S. (2006). A simple context-dependent and luminance driven model of lightness perception. *Vision Sciences Society*, 812

Howe, P.D.L (2005). Stereoscopic depth discrimination in the visual cortex: V1 partially solves the single object correspondence problem. *48<sup>th</sup> Annual Meeting of Helen Hay Whitney Fellowship Society*.

Howe, P.D.L (2005). Lightness perception: Beyond junction accounts. *Department of Cognitive and Neural Systems, Boston University, Anniversary Conference*.

Howe, P.D.L & Livingstone, M.S. (2005). Binocular vision and the stereo correspondence problem. *Ninth International Conference on Cognitive and Neural Systems*.

Howe, P.D.L & Livingstone, M.S. (2005). Binocular vision and the correspondence problem. *Vision Sciences Society*, 803

Livingstone, M.S & Howe, P.D.L (2005). White's effect: removing the junctions but preserving the strength of the illusion. *Vision Sciences Society*, 563

Howe, P.D.L. & Grossberg, S. (2002). Laminar cortical architecture in depth perception. *6th International Conference on Cognitive and Neural Systems*, 6

Howe, P.D.L. & Grossberg, S. (2002). A laminar cortical model of monocular and binocular interactions in depth perception. *Vision Sciences Society*, B3, 34

Howe, P.D.L., Watanabe, T. & Grossberg, S. (2002). The disparity energy model versus psychophysics: an attempt to resolve the conflict. *5th Annual Mini-Conference in Attention and Perception*, 5, 3.

Howe, P.D.L. & Grossberg, S. (2001). Laminar cortical circuits for stereopsis and surface depth perception. *Society for Neuroscience Abstracts*, 27, 164.17.

Howe, P.D.L. (2001). Contextual interactions in lightness perception: a novel variation of White's illusion lends support to the FACADE model. *5th International Conference on Cognitive and Neural Systems*, 5, 34.

Howe, P.D.L. (2001). Explanations of White's effect that are based solely on T-junctions are incomplete. *Investigative Ophthalmology and Visual Science (ARVO) Abstracts*, 42, 283.

\*Indicates that this was one of my students.

## REFERENCES

Prof. Stephen Grossberg was my PhD advisor and is the chairman of the Cognitive and Neural Systems Department at Boston University. Prof. Margaret Livingstone and Prof. David Hubel are the heads of the lab I worked at in at Harvard Medical School. Prof. Celia Moore is the Chair of the Psychology Department at the University of Massachusetts (Boston) where I taught the course *Psych 475 - Experimental Methods: Learning and Perception*.

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Boston University  
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Prof. Margaret Livingstone  
Department of Neurobiology  
Harvard Medical School  
220 Longwood Ave.  
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Prof. David Hubel  
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Prof. Celia Moore  
Department of Psychology  
University of Massachusetts (Boston)  
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100 Morrissey Blvd.  
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