

Aaron Seitz
Assistant Professor
University of California Riverside

CURRICULUM VITAE

Contact Information

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Education

1998 - 2002 Ph.D. in Cognitive and Neural Systems, Boston University.
Topic: self organizing models of cortical development.
Advisor: Prof. Stephen Grossberg

1995-1997 Post-baccalaureate work in Cognitive Psychology,
University of Washington, Seattle, WA.
Research with: Prof. Elizabeth Loftus, Jeanette Norris

1991-1994 B.A. in Mathematics, Reed College, Portland, OR.

Current Position

2008-present	Assitant Professor	University of California - Riverside
2006-present	Faculty	CELEST

Past Positions

2005-2008	Research Assitant Professor	Boston University
2005-2008	Visiting Scientist	Martinos Center, Mass General Hospital
2002-2005	Research Fellow	Harvard Medical School
2004-2005	Research Fellow	Boston University
2004	Visiting Researcher	ATR Comp. Neurosci. Labs, Japan
1998-2002	Research Assistant	Boston University
1996-1997	Research Assistant	University of Washington
1992-1994	Software Engineer	WRQ (Seattle, WA)

Service

2007-present Co-founder perceptuallearning.org (collaborative website for perceptual learning researchers)

2000-present Co-founder and moderator, Boston Neurotalks (multi-institutional talk announcement list with over 700 members)

2000-2002 Founder and coordinator, CNS Student Seminar Series

Ad Hoc Reviewer (Journals)

Behavioral Neuroscience
Cognition
Cerebral Cortex
Journal of Neuroscience
Journal of Vision
Neural Networks
Psychological Science
Perception & Psychophysics
Springer Books
Systems, Man and Cybernetics
Topics
Vision Research

Ad Hoc Reviewer (Grants)

NIH – Central Visual Processing (CVP)
NSF - Perception, Action & Cognition (PAC)

Funded Grants

National Institute Health (2004-2007; \$847,875) -The Mechanisms of Perceptual Learning

PI: Takeo Watanabe (Boston University); Co-PI: Aaron Seitz

National Institute Health (R21 2006-2008; \$440,000) – Effects of Reward on Visual Processing and Plasticity

PI: Takeo Watanabe (Boston University); Co-PI: Aaron Seitz

Nation Science Foundation (2006-2009; \$500,000) – Neural Basis and Mechanisms of Task-Irrelevant Perceptual Learning

PI: Takeo Watanabe (Boston University); Co-PI: Aaron Seitz

Human Frontier Science group grant (2004-2007; \$480, 000) (PI – Watanabe)

Co-PIs: Wolfram Schultz (University of Cambridge), Rufin Vogels (University of Leuven), Masamichi Sakagami (Tamagawa University)

Honors and Awards

NIH Postdoctoral Training Grant (2003-2005)

Sigma Xi Award (2002)

Presidential University Graduate Fellowship, Boston University (1998-2002)

Professional Societies

American Association for Advancement of Science
American Psychological Society
International Neural Network Society
Society for Neuroscience
Sigma Xi
Vision Sciences Society

Publications

Franko, Seitz, Vogels (2009). "Dissociable neural effects of long term stimulus-reward pairing in macaque visual cortex", *Journal of Cognitive Neuroscience*, in press.

Kim, Seitz, Shams (2009). "Testing Assumptions of Statistical Learning: Is it Long-term and Implicit?", *Neuroscience Letters*, in press.

Pilly and Seitz (2009). "What a difference a parameter makes: a psychophysical comparison of random dot motion algorithms", *Vision Research*, in press.

Seitz*, Kim*, Watanabe (2009). "Rewards Evoke Learning of Unconsciously Processed Visual Stimuli in Adult Humans", *Neuron*, March, 12; 61, 700-7

Seitz and Watanabe (2008). "Is Task-Irrelevant Learning really Task-Irrelevant?", *PLoS ONE*, 3(11): e3792. doi:10.1371/journal.pone.0003792

Shams and Seitz (2008). "Benefits of multisensory learning", *Trends in Cognitive Science*, Nov (Vol 12(11)) 411-417

Seitz, Pilly, Pack (2008). "Interactions between contrast and spatial displacement in visual motion processing", *Current Biology*, Oct 14;18(19):R904-6

Tsushima¹, Seitz¹ and Watanabe (2008). "Task-irrelevant learning occurs only when the irrelevant feature is weak", *Current Biology*, Jun (Vol 18 (12)) R516-7

Kim¹, Seitz¹, and Shams (2008). "Benefits of Stimulus Congruency for Multisensory Facilitation of Visual Learning", *PLoS ONE*, 3(1): e1532. doi:10.1371/journal.pone.0001532

Nishina¹, Seitz¹, Kawato, Watanabe (2007). "Effect of spatial distance to the task stimulus on task-irrelevant perceptual learning of static Gabors", *Journal of Vision*, 7(13):2, 1-10

Seitz, Kim, Van Wassenhove, and Shams (2007). "Simultaneous and Independent Acquisition of Multisensory and Unisensory Associations" *Perception*, 36, 1445 - 1453.

Seitz and Dinse (2007), "A Common Framework for Perceptual Learning", *Current Opinion of Neurobiology*, April (17(2)) 148-153

Seitz (2007), Book review of "Visual Masking Time Slices Through Conscious and Unconscious Vision" *Neural Networks* by Bruno Breitmeyer and Haluk Ogmen, doi:10.1016/j.neunet.2007.05.002

Seitz, Nanez, Holloway, and Watanabe (2006). "Perceptual learning of motion leads to faster flicker perception", *PLoS ONE* 1(1): e28. doi:10.1371/journal.pone.0000028

Seitz, Nanez, Holloway, Tsushima, and Watanabe (2006). "Two cases requiring external reinforcement in perceptual learning", *Journal of Vision*, 6(9), 966-973

Seitz¹, A R., Kim¹, R., Shams, L. (2006). Sound Facilitates Visual Learning, *Current Biology*, Jul (Vol 16 (14)) 1422-1427

Lee¹, Seitz¹, and Assad (2006), "Activity of Tonicly Active Neurons in the Monkey Putamen during Initiation and Withholding of Movement", *J. Neurophys*, Jan (Vol 95) 2391-2403

Seitz¹, Yamagishi¹, Werner¹, Goda, Kawato, Watanabe (2005). "Task specific disruption of perceptual learning", *PNAS*, Oct 3; 10.1073/pnas.0505765102

Seitz, Lefebvre, Watanabe, and Jolicoeur (2005). "The requirement of high-level processing in subliminal learning", *Current Biology*, Sep (Vol 15(18) R753-755).

Seitz and Watanabe (2005). "A unified model of task-irrelevant and task-relevant perceptual learning", *Trends in Cognitive Science*, Jul (Vol 9(7) 329-334).

Seitz, Nanez, Holloway, Koyama, and Watanabe, "Seeing what isn't there; the costs of perceptual learning", *PNAS*, Jun 21;102(25):9080-5

Seitz, Nanez, Holloway, and Watanabe (2005). "The effects of experience on Critical Flicker Fusion Thresholds", *Hum Psychopharmacol Clin Exp*, 20: 55-60.

Seitz and Watanabe (2003). "Is subliminal learning really passive?" *Nature*, Mar 6 (Vol 422(6927): 36).

*Grossberg and Seitz (2003). "Laminar Development of Receptive Fields, Maps, and Columns in Visual Cortex: The Coordinating Role of the Subplate." *Cerebral Cortex*, Aug (Vol (8): 852-863).

Mazzoni, Loftus, Seitz, and Lynn, (1999). "Changing beliefs and memories through dream Interpretation." *Applied Cognitive Psychology*, Apr (Vol 13(2): 125-144).

¹ Co-First Authors

*Authorship is in Alphabetical order

Symposia Talks

"Overcoming the Difficulties of Perceptual Learning, VSS 2006.

"How We Can Learn to See What Isn't There", Implicit Processing in Visual Perception, Decision Making and Learning, APA 2005.

"Rethinking the roles of attention in perceptual learning", Windows into the dynamic brain *A mini-Symposium*, Department of Biomedical Engineering, Boston University, 2005.

Invited Talks

University of Birmingham, School of Psychology, 2009

Newcastle University, Institute of Neuroscience, 2009

Ecole Polytechnique Federale Lausanne, Switzerland 2009

Bochum University, International Graduate School of Neuroscience, 2009

University of Edinburgh, DTC Workshop Series, 2009

University of California, Santa Barbara, Department of Psychology 2009

University of California, Berkeley, Oxyopia Lecture 2009

University of California, Riverside, Neuroscience Seminar 2008
University of California San Diego, Department of Cognitive Sciences 2008
University of California Riverside, Department of Psychology 2008
University of Leuven, Belgium 2008
Massachusetts Institute of Technology, Department Brain and Cognitive Sciences 2007
University of Rochester, CVS Boynton Colloquium Series Presentation 2007
Ohio State University, Department of Psychology, 2007
University of California, Los Angeles, Department of Psychology, 2007
Tamagawa University, Japan 2006
University of California, Los Angeles, Department of Psychology, 2006
University of California, Los Angeles, Department of Psychology, 2005
Martinos Center, Massachusetts General Hospital, 2005
Cambridge University, England UK 2005
Advanced Telecommunications Research Institute International, Japan 2005
Denso Corporation, Japan, 2005
Boston University, Department of Psychology 2002

Conference Proceedings

Pilly, Seitz and Grossberg (2009). Contrast polarity-specific learning of motion in the absence of attention. Proceedings of the 13th International Conference on Cognitive and Neural Systems (ICCNNS), Boston MA, May.

Seitz, Pilly and Pack, C.C. (2009). Can lowering the contrast of a moving stimulus improve the perception of its motion direction? Proceedings of the 13th International Conference on Cognitive and Neural Systems (ICCNNS), Boston MA, May.

Dobres and Seitz (2009) "Perceptual Learning of Noisy Oriented Gratings as Revealed by Classification Images" VSS

Pilly, Seitz and Grossberg (2009). "Where in the motion pathway does task-irrelevant perceptual learning occur?" VSS

Seitz, Pilly and Pack (2009) "Reducing contrast improves direction estimation at low speeds", VSS

Vlahou, Seitz, Protopapas (2009), Implicit learning of non-native speech stimuli, ASA

Tsushima, Seitz, and Watanabe (2008). The role of attention in perceptual learning. NIN, Amsterdam, Netherlands

Seitz (2008). The role of reward in perceptual learning, First Annual Workshop in Perceptual Learning, Beijing China.

Wozny, Seitz, & Shams (2008) Learning associations between simple visual and auditory features, VSS

Kim, Seitz, & Watanabe (2008) Reward contingency on perceptual learning does not follow rules of classical conditioning, VSS

Tsushima, Seitz, & Watanabe (2008) Task-irrelevant perceptual learning occurs only when the irrelevant feature is weak, VSS

Kim, Seitz, & Shams (2008) Neural mechanisms of multisensory perceptual learning, VSS

Seitz, Kim, Watanabe, (2007), "Reward driven, ocular specific, learning of orientation in the absence of awareness", SFN

Franko, Seitz, Vogels, (2007), "Effect of stimulus-reinforcement pairing on the local field potentials for suprathreshold, ipsilateral stimuli in macaque visual cortex"

Kim, Seitz, Shams, (2007), "Congruent sound facilitates visual perceptual learning", SFN

Bartfield, Jourdani, Yorio, Zanutto, Seitz, (2007), "Reward driven learning of associative-rules in the absence of awareness", SFN

Kim, Seitz, Watanabe, (2007), "Effect of Reward on Perceptual Learning", VSS

Batson, Beer, Seitz, Watanabe, (2007), "Specificity of Crossmodal Links in Exogenous Covert Orienting", VSS

Kim, Seitz, Shams (2007), "Visual Perceptual Learning Enhanced with Congruent Sound", VSS

Nishina, Seitz, Kawato, Watanabe (2007), "Subliminal visual feature is learned better when spatially closer to attended task", VSS

Franko, Seitz, and Vogels (2006), "Effect of stimulus-reinforcement pairing on the local field potentials in macaque visual cortex" SFN

Seitz (2006), "Reinforcement and Blinks in Perceptual Learning" ASIC

Holloway, Tsushima, Nanez, Watanabe, Seitz (2006), "Two Cases of a Requirement of External Reinforcement in Perceptual Learning", VSS

Kim, Seitz and Shams (2006), "Multisensory perceptual learning", VSS

Náñez Sr., Holloway, Donahoe, & Seitz (2006), "Flicker Fusion as a Correlate of Word Decoding Ability", VSS

Shams, Wassenhove, Seitz (2006), "Audio-Visual Statistical Learning", VSS

Nishina, Seitz, Kawato, Watanabe (2006), "The spatio-temporal window of task-irrelevant perceptual learning", VSS

Seitz, Náñez Sr., Holloway, and Watanabe (2006), "Perception learning of motion leads to faster-flicker perception", VSS

Yotsumoto, Seitz, Sasaki, Shimojo, Yamamoto, Kogure, Sakagami and Watanabe (2006), "Greater response conflict from weaker visual signals", VSS

Nishina, Seitz, Kawato, Watanabe (2005). "The spatial spread of task-irrelevant perceptual learning", SFN.

Holloway, Nanez, Seitz and Watanabe (2005). "The Relationship between Flicker Fusion and Subliminally Induced Neural Plasticity", OSA.

Holloway, Seitz, Nanez and Watanabe (2005). "Dorsal Stream Perceptual Learning is Highly Related to Critical Flicker Fusion Thresholds", OSA.

Holloway, Seitz, Nanez, Watanabe (2005). "A Subliminal Experience can alter Critical Flicker Fusion", APS.

Seitz, Nanez, Holloway, Koyama, Watanabe (2005). "Seeing what isn't there; the costs of perceptual learning", VSS.

Lefebvre, Seitz, Watanabe, Jolicoeur (2005). "Learning Blinks During the Attentional Blink", VSS

Nanez, Seitz, Holloway, Koyama, Watanabe (2005). "Subliminal Perceptual Learning of Motion Results in Improvements of Critical Flicker Fusion Thresholds", VSS.

Yamagishi, Seitz, Werner, Kawato, Watanabe (2005). "Task specific disruption of perceptual learning", VSS.

Holloway, Seitz, Nanez, Engles, Watanabe (2004). "Critical Flicker Fusion Threshold as a Function of Subliminal Neural Plasticity", NAN.

Seitz, Nanez, Sasaki, Engles, Holloway, and Watanabe (2003). "Learning spillover to invisible dots?", ECVF.

Seitz and Watanabe (2003). How can subliminal perceptual learning be active? *Journal of Vision*, 3(9), 177a.

Seitz and Grossberg (2002). "A Neural Model of How the Cortical Subplate Coordinates the Laminar Development of Orientation and Ocular Dominance Maps." *ICCNIS*.

Seitz and Grossberg (2002). "How Do Laminar Circuits Develop? The Role of the Cortical Subplate in the Development and Laminar Coordination of Orientation and Ocular Dominance Maps in V1." *Journal of Vision*, 2(7), 100a.

Seitz and Grossberg (2001). "Coordination of Laminar Development in V1 by the Cortical Subplate." *Society for Neuroscience Abstracts*, 31, 619.12

Doctoral Dissertation

Seitz, A.R. (2002), "A Neural Model of How the Cortical Subplate Coordinates the Laminar Development of Orientation and Ocular Dominance Maps".