

BIOGRAPHICAL SKETCH

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NAME Pessoa, Luiz	POSITION TITLE Associate Professor		
eRA COMMONS USER NAME pessoa1			
EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
Federal University of Rio de Janeiro, Brazil	B.Sc.	1984-1989	Computer Science
Federal University of Rio de Janeiro, Brazil	M.Sc.	1989-1990	Computer Science
Boston University, Boston, MA	Ph.D.	1990-1996	Cognitive & Neural Systems
National Inst. Mental Health, Bethesda, MD	Post-doc	1999-2003	Neuroscience

A. POSITIONS AND HONORS**Positions**

- 1985 - 1990 *Researcher*, Federal University of Rio de Janeiro, Brazil
 1995 – 1997 *Research Associate*, Dept. of Computer and Systems Engineering, Federal University of Rio de Janeiro, Brazil
 1997 – 2001 *Assistant Professor* of Computer Science, Dept. of Computer and Systems Engineering, Federal University of Rio de Janeiro, Brazil
 1999 – 2003 *Visiting Fellow*, Laboratory of Brain & Cognition, National Institute of Mental Health, NIH, Bethesda, MD
 2003 – 2006 *Assistant Professor*, Department of Psychology, Brown University, RI
 2006 – present *Associate Professor (with tenure)*, Department of Psychological and Brain Sciences, Indiana University, Bloomington, IN
 2007 – present *Director*, Imaging Research Facility, Indiana University, Bloomington

Selected Service

- 2004 – 2005 Member of NSF review panel *Collaborative Research in Computational Neuroscience*
 2004 – 2007 Member of the Poster Committee for the *Cognitive Neuroscience Society Annual Meeting*
 2000 – present Reviewer for scientific journals (*J. Neurophysiol.*, *J. Neurosci.*, *Neuron*, *Nature*, *Nature Neurosci.*, *Science*, etc)
 2005 – present Ad hoc reviewer for NIH, NSF, Natural Sciences and Engineering Council of Canada, Israel Science Foundation, Wellcome Trust (UK)
 2006 – present Consulting Editor, *Emotion*
 2007 – present Consulting Editor, *Cognitive, Affective, and Behavioral Neuroscience*
 2007 – present Review Editor, *Frontiers in Human Neuroscience*
 2007 – 2011 Member, *Cognitive Neuroscience Study Section*, Center for Scientific Review, NIH

B. SELECTED PEER-REVIEWED PUBLICATIONS (in reverse chronological order)**Recent Articles**

- Pessoa, L. (2008). On the relationship between emotion and cognition. *Nature Reviews Neuroscience*, 9, 148-158.
 Lim, S.L., Padmala, S. & Pessoa, L. (in press). Affective learning modulates spatial competition during low-load attentional conditions. *Neuropsychologia*.
 Lim, S.L. & Pessoa, L. (in press). Affective learning increases sensitivity to graded emotional faces. *Emotion*.
 Hsu, Shen-Mou & Pessoa, L. (2007). Dissociable effects of bottom-up and top-down factors in the processing of unattended fearful faces. *Neuropsychologia*, 45, 3075-3086.
 Engelmann, J. & Pessoa, L. (2007). Motivation sharpens exogenous spatial attention. *Emotion*, 7, 668-674.
 Szczepanowski, R. & Pessoa, L. (2007). Fear perception: Can objective and subjective awareness measures be dissociated? *Journal of Vision*, 7(4):10, 1-17.

- Pessoa, L. & Padmala, S. Decoding near-threshold perception of fear from distributed single-trial brain activation (2007). *Cerebral Cortex*, 17, 691-701.
- Thielscher, A. & Pessoa, L. (2007). Neural correlates of perceptual choice and decision making during fear-disgust discrimination. *Journal of Neuroscience*, 27, 2908-2917.
- Blair, K.S. *et al.* (2007). Modulation of emotion by cognition and cognition by emotion. *NeuroImage*, 35, 430-40.
- Siman-Tov, T., Mendelsohn, A., Schonberg, T., Avidan, G., Podlipsky, I., Pessoa, L., Gadoth, N., Ungerleider, L.G., Hendler, T. Bihemispheric leftward bias in a visuospatial attention-related network. *Journal of Neuroscience*, 27, 11271-8.
- Pessoa, L., Japee, S., Sturman, D., & Ungerleider, L.G. (2006). Target visibility and visual awareness modulate amygdala responses to fearful faces. *Cerebral Cortex*, 16, 366-375.
- Pereira, M.G., Volchan, E., de Souza, G.G., Oliveira, L., Campagnoli, R., Pinheiro, W.W., & Pessoa, L. (2006 press). Sustained and transient modulation of performance induced by emotional picture viewing. *Emotion*, 6, 622-634.
- Erthal, F.S., Oliveira, L., Mocaiber, I., Pereira, M.G., Machado-Pinheiro, W., Volchan, E., & Pessoa, L. (2005). Load-dependent modulation of affective picture processing. *Cog., Affective, and Behavioral Neurosci.*, 5, 388-395.
- Pessoa, L., Padmala, S., & Morland, T. (2005). Fate of unattended fearful faces in the amygdala is determined by both attentional resources and cognitive modulation. *NeuroImage*, 28, 249-255.
- Pessoa, L., Japee, S., & Ungerleider, L.G. (2005). Visual awareness and the detection of fearful faces. *Emotion*, 5, 243-247.
- Pessoa, L. & Padmala, S. (2005). Quantitative prediction of perceptual decisions during near-threshold fear detection. *Proceedings of the National Academy of Sciences, USA*, 102, 5612-5617.
- Ishai, A., Pessoa, L., Bickle, C., & Ungerleider, L. (2004). Repetition suppression of faces is modulated by emotion. *Proceedings of the National Academy of Sciences, USA*, 99, 11458-11463.
- Pessoa, L., & Ungerleider, L.G. (2004). Neural correlates of change detection and change blindness in a visual working memory task. *Cerebral Cortex*, 14, 511-520.
- Mourão-Miranda, J., Volchan, E., Moll, J., de Oliveira-Souza, R., Oliveira, L., Bramati, I., Gattass, R., & Pessoa, L. (2003). Contributions of stimulus valence and arousal to visual activation during emotional perception. *NeuroImage*, 20, 1955-1963.
- Pessoa, L., Gutierrez, E., Bandettini, P.B., & Ungerleider, L.G. (2002). Neural correlates of visual working memory: fMRI amplitude predicts task performance. *Neuron*, 35, 975-987.
- Pessoa, L., McKenna, M., Gutierrez, E., & Ungerleider, L.G. (2002). Neural processing of emotional faces requires attention. *Proceedings of the National Academy of Sciences, USA*, 99, 11458-11463.
- Moll, J., Oliveira-Souza, R., Eslinger, P., Bramati, I., Mourao-Miranda, J., Andreiuolo P., & Pessoa, L. (2002). The neural correlates of moral sensitivity: A functional magnetic resonance imaging investigation of basic and moral emotions. *Journal of Neuroscience*, 22, 2730-2736.

Representative articles in computational and vision science

- Oliveira, L., Volchan, E., Pessoa, L., Marques, R.F., Pantoja, J.H.; Joffily, M., Souza-Neto, D., & Rocha-Miranda, C.E (2002). Contour integration in the primary visual cortex of the opossum. *NeuroReport*, 13, 2001-2004.
- Neumann, H., Pessoa, L., & Hansen, T. (2001). Visual filling-in for computing perceptual surface properties. *Biological Cybernetics*, 85, 355-369.
- Ross, W., & Pessoa, L. (2000) Lightness from contrast: A selective integration model. *Perception & Psychophysics*, 62, 1160-1181.
- Noë, A., Pessoa, L., & Thompson, E. (2000). Beyond the grand illusion: what change blindness really teaches us about vision. *Visual Cognition*, 7, 93-106.
- Pessoa, L. & Leitão, A.P. (1999). Complex cell prototype representation for face recognition. *IEEE Transactions on Neural Networks*, 10, 1528-1531.
- Neumann, H., Pessoa, L., & Hansen, T. (1999). Interaction of ON and OFF pathways for visual contrast measurement. *Biological Cybernetics*, 81, 515-32.
- Pessoa, L., Exel, S. (1999). Attentional strategies for object recognition. *Lecture Notes in Computer Science*, 1606, 850-859.

- Pessoa, L., Thompson, E., & Noë, A. (1998). Finding out about filling-in: A guide to perceptual completion for visual science and the philosophy of perception. *Behavioral and Brain Sciences*, 21, 65-144.
- Pessoa, L. & Neumann, H. (1998). Why does the brain fill-in? *Trends in Cognitive Science*, 2, 422-424.
- Neumann, H., Pessoa, L., & Mingolla, E. (1998). A neural network architecture of brightness perception: Non-linear contrast detection and geometry-driven diffusion. *Image and Vision Computing*, 16, 423-446
- Grossberg, S., & Pessoa, L. (1998). Texture segregation, surface representation, and figure-ground separation. *Vision Research*, 38, 2657-2684.
- Pessoa, L. (1996). Mach bands: How many models are possible? Recent experimental findings and modeling attempts. *Vision Research*, 36, 3205-3227.
- Pessoa, L. (1996). Mach band attenuation by adjacent stimuli: experiment and filling-in simulations. *Perception*, 25, 425-442
- Pessoa, L., Mingolla, E., & Arend, L. (1996). The perception of lightness in 3-D curved objects. *Perception & Psychophysics*, 58, 1293-1305.
- Pessoa, L., Mingolla, E., and Neumann, H. (1995). A contrast- and luminance-driven multiscale network model of brightness perception. *Vision Research*, 35, 2201-2223.

Invited papers and chapters

- Pessoa, L., Tootell, R., & Ungerleider, L.G (in press). Visual perception of objects. In Squire, L.R., Bloom, F.E., McConnel, S.K., Roberts, J.L., Spitzer, N.C., Zigmond, M.J. (Eds.), *Fundamental neuroscience* (3rd Edition). Academic Press.
- Pessoa, L. (2005). To what extent are emotional stimuli processed without attention and awareness? *Current Opinion of Neurobiology*, 15, 188-196.
- Pessoa, L., & Ungerleider, L.G. (2005). Visual attention and emotional perception. In L. Itti, G. Rees, and J.K. Tsotsos (Eds.), *Neurobiology of attention*. San Diego, CA: Elsevier
- Pessoa, L. (2004). Seeing the world in the same way. *Science*, 303, 1617-1618.
- Pessoa, L., & Ungerleider, L.G. (2004). Neuroimaging Studies of Attention and the Processing of Emotion-Laden Stimuli. *Progress in Brain Research*, 144, 171-182.
- Pessoa, L. & Ungerleider, L.G. (2004). Top-down mechanisms for working memory and attentional processes. In M. S. Gazzaniga (Ed.), *The new cognitive neurosciences*, 3rd Edition, pp. 919-930, MIT Press.
- Pessoa, L., Kastner, S., & Ungerleider, L.G. (2003). Neuroimaging studies of attention: From modulation of sensory processing to top-down control. *Journal of Neuroscience*, 23, 3990-3998.
- De Weerd, P., & Pessoa, L (2003). Filling-in: More than meets the eye. In Pessoa, L. & De Weerd, P. (Eds.), *Filling-in: From perceptual completion to cortical reorganization*. New York: Oxford University Press.
- Fiorani, M., Oliveira, L., Volchan, E., Pessoa, L., Gattass, R., & Rocha-Miranda, C.E. (2003) Completion through a permanent scotoma: Fast interpolation across the blind spot and the processing of occlusion. In Pessoa, L. & De Weerd, P. (Eds.), *Filling-in: From perceptual completion to cortical reorganization*. New York: Oxford University Press.
- Pessoa, L., Kastner, S., & Ungerleider, L.G (2002). Attentional control of the processing of neutral and emotional stimuli. *Cognitive Brain Research*, 15, 31-45.
- Rodman, H., Pessoa, L., & Ungerleider, L.G (2002). Visual perception of objects. In Squire, L.R., Bloom, F.E., McConnel, S.K., Roberts, J.L., Spitzer, N.C., Zigmond, M.J. (Eds.), *Fundamental neuroscience* (2nd Edition). Academic Press
- Thompson, E., Noë, A., & Pessoa, L. (1999). Perceptual completion: a case study in phenomenology and cognitive science. In J. Petitot, F.J. Varela, B. Pachoud & J.-M. Roy (Eds.), *Naturalizing Phenomenology: Issues in Contemporary Phenomenology and Cognitive Science*. Stanford University Press, pp. 161-195

Books

- Pessoa, L. & De Weerd, P. (Eds.) *Filling-in: From perceptual completion to cortical reorganization*. New York: Oxford University Press (2003).

C. RESEARCH SUPPORT

- NIH/NIMH R01 MH071589 05/01/2004 – 04/30/2008

“Interaction of Emotional Perception and Visual Attention”

This study involves behavioral and fMRI studies of emotional perception and how it interacts with visual attention. In particular, the role of role of visual awareness in the processing of emotional faces is investigated.

Role: PI

- Faculty Research Support Program (Indiana University, Bloomington) 01/15/2007 – 1/14/2008

“Novel methods of brain data analysis: Quantitative and multivariate techniques applied to neuroimaging”

This study investigates novel, quantitative methods of fMRI analysis to link behavior and fMRI responses. Both univariate (including logistic regression and Receiver Operating Characteristic analysis) and multivariate techniques (including machine learning) are investigated.

Role: PI