Research Statement

Pedro J. Rosa

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My research aims to examine the attentional and psychophysiological responses to valenced visual and auditory stimuli. To this end, I have been conducted research that spans the areas of eye tracking, pupillometry and central and peripheral physiological recording, in an attempt of bringing attentional processes to emotional states and to decision making processes.

In the past (2004-2008), I have taken the role of research assistant at the laboratory of computational psychology, where I improved my skills on experimental and quasi-experimental designs, as well on psychophysiological recording. In 2008, I have won a PhD FCT grant (SFRH /BD/46965/2008) that allowed me to investigate the effects of subliminal exposure to biologically relevant stimuli on attention and emotional responses. The findings from this thesis [1,2] were among the first submitted manuscripts to focus the effect of biologically subliminal stimuli on intra and extra-ocular eye movements combined with peripheral and central psychophysiological measurement. Since 2008 that I have been able to conduct a good amount of independent research related to quantitative oculometry [3, 4, 5, 6]. I have also been doing some work in marketing and usability domains providing some evidence how stimuli's physical features or a website structure can influence consumers' decision-making processes [7, 8, 9].

I have balanced my experimental research with several theoretical manuscripts. My published theoretical articles have included various aspects of technology and eye tracking and the relation between attention and emotion. [10, 11]. I have argued for the use of the eye tracking methodology in the study of attention, emotion and decision-making processes. [12, 13]. I am the mentor of the idea of organizing the International Conference on Eye Tracking, Visual Cognition and Emotion in Portugal at Universidade Lusofóna de Humanidades e Tecnologias in Lisbon. In the past few years, I have organized and collaborated on various such research efforts, which are discussed below

Thesis work:

My thesis showed that subliminal exposure to images of snakes produced an effect on overt attentional orienting processes and physiological responses (larger pupil diameter) and showed a marginal effect on N1 amplitude (early cortical component). In fact, these results have clinical implications, since helped to improve the theoretical models of fear response and led to a deeper understanding of anxiety disorders.

OngoingWork:

I am applying eye tracking techniques to analyze the effect of emotional visual content on attention] , which can be expanded to usability, consumer neurosciences , clinical psychology [14] or 3D environments [15]. Recently I showed how to use oculometrics to make inferences on emotional processing; on purchase decision process; and to assess website's structure and dynamics. I'm also organizing several advanced eye tracking training courses in Portugal and abroad.

At this moment, I am researcher at COPELABS and I am collaborating with Universidad de San Buenaventura (Colombia) and Roma Business School in projects and studies related to consumer neurosciences. I have been working as eye tracking expert and experimental design consultant in these academic institutions. The work that I have been developed has already generated interest from other Portuguese researchers and this technique is going to be implemented in September in an agro-industrial lab at Castelo Branco (INOVCLUSTER). Moreover, it was submitted an FCT exploratory project (EXPL/IVC-COM/2391/2013) entitled "Virality: Content, Sharing and Tendencies". In this project we intend to examine the effect of different social media on user's attention and its association to viral marketing.

Future work

In future I intend explore the combination of several psychophysiological measurements (peripheral and central) with eye tracking in natural contexts with clinical populations and using multimodal stimuli. I have been trying to work as closely as possible to the boundary of my abilities,

improving my research quality. In Future, I am going to continuously assess critically my research, viewing it from other perspectives, and challenging myself to improve it where possible.

References

[1] Rosa, P.J., Esteves, F. & Arriaga (submitted) . Looking for the "phylo" effect on the eye: pupillary reactivity as a measure of fear arousal to subliminally presented evolutionary fear-relevant stimuli. *International Journal of Psychophysiology*, 0, 0-00

[2] Rosa, P.J., Esteves, F. & Arriaga (submitted) . Effects of fear-relevant stimuli on attention: integrating gaze data with subliminal exposure. *Proceedings of the IEEE*, 0-00.

[3] Rosa, P.,J., Caires, C., Costa, L. , Rodelo, L., & Pinto, L. (in press) . Affective And Psychophysiological Responses To Erotic Stimuli: Does Color Matter? In P. Gamito and P.J. Rosa, *I see me, you see me: inferring cognitive and emotional processes from gazing behavior* (pp 0 – 0). Newcastle upon Tyne: Cambridge Scholars Publishing

[4] Morais, D., Rosa, P.,J., Martins, I., Barata, F., Brito, R., Oliveira, Gamito, P., J., Soares, F., & Sotto -Mayor, C. (in press). Eye of the beholder: Voting on a face: the importance of appearance-based trait inferences in a political candidate evaluation - an eye tracking approach. In P. Gamito and P.J. Rosa, *I see me, you see me: inferring cognitive and emotional processes from gazing behavior* (pp 0 – 0). Newcastle upon Tyne: Cambridge Scholars Publishing

[5] Rosa, P. J. Gamito, P..; Oliveira, J.; & Morais, D.(2011). Attentional orienting to biologically fear-relevant stimuli: data from eye tracking using the continual alternation flicker paradigm. *Journal of Eye Tracking, Visual Cognition and Emotion, 1*, 22-29

[6] Oliveira, J..; Gamito, P..;. Perea, M.; Ladera,V.; Morais D.; Rosa, P. J: & Saraiva, T (2011). Hemispheric asymmetries in recognition memory for negative and neutral words. *Journal of Eye Tracking, Visual Cognition and Emotion, 1*, 13-21.

[7] Ferreira, P.; Rita, P. Morais, D.; Rosa, P. J., Gamito P., Santos., N. Soares F. & Sottomayor, C. (2011). Grabbing attention while reading website pages: the influence of verbal emotional cues in advertising. *Journal of Eye Tracking, Visual Cognition and Emotion, 1*, 64

[8] Afonso, R., Colaço, N, Sargento, P., & Rosa, P. (2011). Processo de Tomada de Decisão no Feminino: O ciclo menstrual como mediador. In F. Rodrigues, *A influência do Neuromarketing e a tomada decisão* (pp. 117-137). Viseu: Psicosoma

[9] Banović, M., Rosa, P.,J., & Gamito, P. (in press). Eye of the beholder: Visual search, attention and product choice. In P. Gamito and P.J. Rosa, *I see me, you see me: inferring cognitive and emotional processes from gazing behavior* (pp 0 – 0). Newcastle upon Tyne: Cambridge Scholars Publishing

[10] Rosa, P. J. (in press). Gaze tracking in marketing research: bridging eye movements to consumer behavior In Ragusa A. (ed.) *Business in Europe: Trends and Perspectives* (pp 0 – 0). Frederiksberg: Ventus Publishing ApS

[11] Gamito, P. & Rosa, P.J. (in press). *I see me, you see me: inferring cognitive and emotional processes from gazing behavior* . Newcastle upon Tyne: Cambridge Scholars Publishing

[12] Rosa, P.J., Esteves, F. & Arriaga (2012). Ver ou não ver, eis a questão. A relação entre a emoção e a atenção visual selectiva. *In-Mind Português, 3*(1-4), 15-24.

[13] Rosa, P & Morais, D. (2011). O homo emocionalis e a tomada de decisão: a irracionalidade da escolha. In F. Rodrigues, *A influência do Neuromarketing e a tomada decisão* (pp. 77-95). Viseu: Psicosoma.

[14] Rosa, P. J., Esteves, F. , & Arriaga, P. (2010). Attention and Physiological Responses To Biologically Relevant Stimuli: An Eye-Tracking Study Using Subliminal Procedures. *Psychophysiology, 47*, S99

[15] Gamito P., Oliveira J, Baptista, A, Morais , D., Saraiva , T., Rosa , P., Santos, N., Soares, F., Sottomayor, C. & Barata F. (2012). Nicotine craving: ERPs correlates after VR exposure to smoking cues. *Studies in Health Technology and Informatics, 181*, 78-82.

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