Selected Topics in Perception and Action

Course teacher: Dr. Gal Ziv, galziv@yahoo.com, office hours by appointment.

Objectives:

1. The student will understand several theories dealing with the relationships between perception and action.
2. The student will understand how human perception affects motor performance.
3. The student will improve his/her ability to critically read scientific literature.

Short Course Description:

Human perception and action is of great interest to researchers in motor learning and human performance. How do individuals perceive their environment? How is perception related to action? Is it possible that it is actually action that promotes perception? In this course we will try to examine several topics in perception and action through discussions of seminal papers. Some of the topics that will be discussed are: gaze behavior and visual perception, attention and performance, situation awareness, biological motion, and the ecological approach to perception and action.

Course Program:

#	Topic	Required Reading	Recommended Reading
1	Introduction to the course	Creem-Regeher & Kunz, 2010	
2-3	Gaze behavior and Quiet Eye	{2} Vickers, 2016 {3} Rienhoff et al., 2016	Gonzalez et al., 2017
4-5	Visual scanning in aviation	{4} no reading {5}Ziv, 2017	
6-7	The ecological approach to perception and action	Barrett, 2015 From beginning to p.104	
8	Virtual Reality	{7} no reading {8} Craig, 2013	
9-10	Situation awareness	{9}Endsley, 1995a, **p. 32-49** {10}no reading	Endsley, 1995b Endsley, 2015
11-12	Anxiety, perception, and action	Nieuwenhuys & Oudejans, 2012	
13	Biological motion research – sports and military	Steel et al., 2015	Neri et al., 1998
14	When one "cannot" act – Perceptual-cognitive skill training	Broadbent et al., 2015	Broadbent et al., 2017

Student's Obligations:

1. Complete all the reading assignments.
2. Participate in class discussions.

Assessment Criteria:

1. 100% - final examination.

References:

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Broadbent, D. P., Ford, P. R., O'Hara, D. A., Williams, A. M., & Causer, J. (2017). The effect of a sequential structure of practice for the training of perceptual-cognitive skills in tennis. *PloS one*, *12*(3), e0174311.
Creem-Regehr, S. H., & Kunz, B. R. (2010). Perception and action. *Wiley Interdisciplinary Reviews: Cognitive Science*, *1*, 800-810.
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Endsley, M. R. (1995a). Toward a theory of situation awareness in dynamic systems. *Human Factors*, *37*, 32-64.
Endsley, M. R. (1995b). Measurement of situation awareness in dynamic systems. *Human factors*, *37*, 65-84.
Endsley, M. R. (2015). Situation awareness misconceptions and misunderstandings. *Journal of Cognitive Engineering and Decision Making*, *9*, 4-32.
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Neri, P., Morrone, M. C., & Burr, D. C. (1998). Seeing biological motion. *Nature*, *395*, 894-896.
Nieuwenhuys, A., & Oudejans, R. R. (2012). Anxiety and perceptual-motor performance: toward an integrated model of concepts, mechanisms, and processes. *Psychological research*, *76*, 747-759.
Rienhoff, R., Tirp, J., Strauß, B., Baker, J., & Schorer, J. (2016). The 'quiet eye' and motor performance: a systematic review based on Newell's constraints-led model. *Sports Medicine*, *46*, 589-603.
Steel, K., Ellem, E., & Baxter, D. (2015). The application of biological motion research: biometrics, sport, and the military. *Psychonomic Bulletin & Review*, *22*, 78-87.
Vickers, J. N. (2016). Origins and current issues in Quiet Eye research. *Current Issues in Sport Science (CISS)*.
Ziv, G. (2017). Gaze behavior and visual attention: A review of eye tracking studies in aviation. *International Journal of Aviation Psychology*, *26*, 75-104.