Contribution ID: **798** Type: **Mini-talks**

Dynamic Interplay between Visual Attention and Motor Control in FPS Gaming

Saturday, September 13, 2025 12:10 PM (10 minutes)

Eye-hand coordination is critical in many daily tasks and essential in sporting contexts, directly relating to performance outcomes. This topic has been central in research on traditional sports (i.e., tennis, basketball). This study investigates the learning patterns underlying eye-hand coordination and performance in videogames, a yet understudied but rapidly emerging discipline, focusing on the interplay of different cognitive functions. Twenty individuals with different levels of expertise played eight different first-person shooter video games (shooting fixed/moving targets, decision-making, memory tasks, etc.) drawn from the "Aimlab"platform, by tracking both eye and hand movements. Each game was repeated four times (4 repetitions x 8 games, 1 hour of gameplay).
A linear mixed-effects models with a by-subject random effect was used to predicted the duration of the final fixation before clicking on a target as a function of performance metrics (shot frequency, hit/miss rates, reaction time) across the four repetitions.
Overall, performance linearly improved across sessions in all games. Importantly, each game exhibited distinct patterns of overt attention time-locked-to-hand responses. Some showed a progressively linear increase/decrease in fixation duration over sessions. In some others, fixation duration displayed a non-linear dynamic, reaching an individual-specific maximum threshold that optimised performance.
To our knowledge, this study is the first to demonstrate that the duration of target fixation before a hand response doesn't linearly predict performance in these types of videogames. This finding contrasts with the "quiet eye" concept often described in traditional sports, where a linear relationship between overt attention and performance is typically observed.

If you're submitting a symposium talk, what's the symposium title?

If you're submitting a symposium, or a talk that is part of a symposium, is this a junior symposium?

Primary authors: SCIARRA, Dalila; Prof. COCO, Moreno Ignazio (Università La Sapienza di Roma)

Presenter: SCIARRA, Dalila

Session Classification: Attention, Perception and Consciousness

Track Classification: Attention, perception and consciousness