

## **Return temporal anticipation on the basis of the ball trajectory estimation**

### **Abstract**

Ball-hitting in tennis involves spatio-temporal information about the ball's flight trajectory. We have focused on the temporal part of the information during returning a tennis serve that was simulated by a ball machine. The tested people had occlusion glasses placed on their head, which occluded their vision at the exact time, when the ball was being sent from the ball machine. The tested person did not know which part of the ball flight trajectory would be occluded, nor the ball speed. We examined the effect of part ball flight trajectory occlusion on the correct return timing of the ball. The analysis revealed that the greatest problems occurred while the second third of the ball flight trajectory had been occluded and reached most temporal errors at that time.

**Keywords:** tennis, anticipation, ball flight trajectory, return stroke, occlusion glasses