

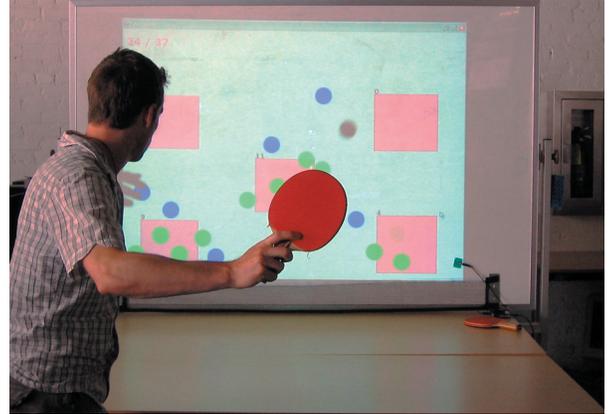
Perfect Practice Makes Perfect: The *Memory Tennis* Accuracy Feedback System

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How can a table-tennis player be sure they are hitting the right spot whilst training? How can they improve their shot-making? And how can they gauge their improvement over time? We are designing and implementing *Memory Tennis*, an enhanced table-tennis practice table that projects a lasting image of the last place the ball struck on the vertical practice wall. Visualizing past impact locations allows players to visually gauge their accuracy immediately and actively compensate. In addition, a player can get statistics on their past performance. The system can be used to project targets to hit and a coaching program to follow as the player's performance improves.

Our system involves a table-tennis practice table with one half of the table in the vertical position to return the shots of the player. We employ a digital projector calibrated with the vertical half of the table, a digital video camera, and a vibration detector mounted onto the table. When a ball strikes the wall, the vibration detector triggers the camera to take a snapshot of the wall. The photograph is processed by a computer and an image of the ball's impact location is projected onto the wall. The system can also project statistics during play. The system is designed to be low cost, minimize set up time, and maximize portability.

We envisage that the system could be used for a range of interactive games and sports such as full tennis, darts, and soccer.



A table tennis player using a prototype of *Memory Tennis*. The red squares are targets, the blue circles are misses, and the green circles are hits. Note the vibration detector in the lower right.