



Works in Progress

Editor: Anthony D. Joseph ■ UC Berkeley ■ adja@cs.berkeley.edu

Pervasive Computing in Sports Training

PERFECT PRACTICE MAKES PERFECT: THE MEMORY TENNIS ACCURACY FEEDBACK SYSTEM

Jonathan Hey and Scott Carter,
University of California, Berkeley

How can table tennis players be sure they're hitting the right spot during training? How can they improve their shot making? And how can they gauge their improvement over time? We are designing and implementing Memory

EDITOR'S INTRODUCTION

This month's Works-In-Progress department presents an interesting project that combines inexpensive sensing and computing components to provide real-time feedback to table tennis players. The system collects statistical information, and the approach used should be extensible to other games and sports.

—Anthony D. Joseph

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 lets players visually

gauge their accuracy immediately and actively compensate for poor shots. Additionally, players can get statistics on past performance. The system can project targets for players to hit and act as a coaching program as players' performance improves.

Our system involves a table tennis practice table where one-half of the table in the vertical position returns the player's shots. We use a digital projector calibrated with the table's vertical half, a digital video camera, and a vibration detector mounted on the table. When a ball strikes the wall, the vibration detector triggers the camera to photograph the wall. Our system processes the photograph and projects an image of the ball's impact location onto the wall. The system can also project statistics during play. We designed it to be low cost, to minimize setup time, and to maximize portability.

We envisage that the system could work for many interactive games and sports, such as regular tennis, darts, and soccer.

For more information, contact Jonathan Hey at jono@berkeley.edu or Scott Carter at sacarter@cs.berkeley.edu. ■

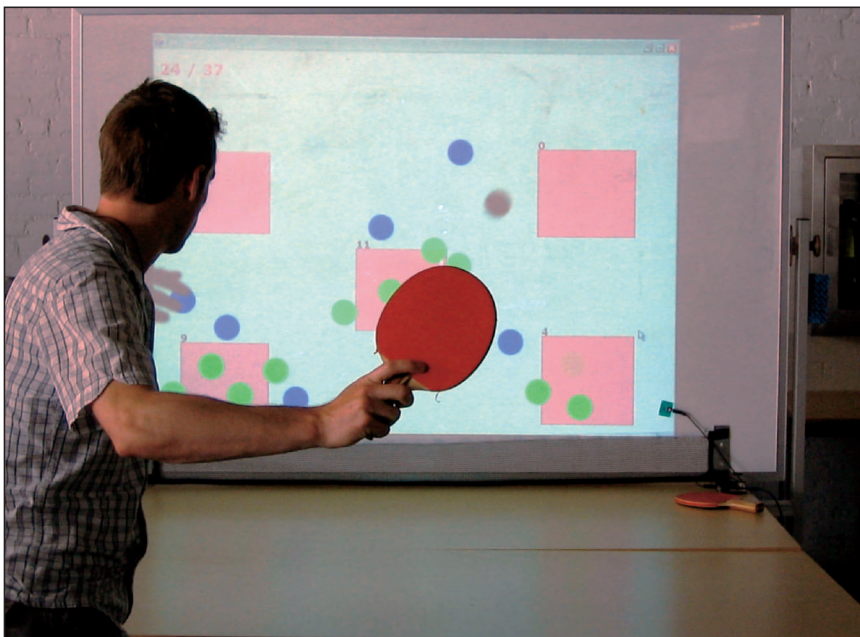


Figure 1. A table tennis player using a Memory Tennis prototype. The red squares are targets, the blue circles are misses, and the green circles are hits. A vibration detector is in the lower right.