**Computers learn "regret"**
Feb. 21, 2008
Courtesy Science and World Science staff

Scientists in Italy have developed computer programs that mimic human decision-making by using simulated "regret" to improve performance. The models do a better job than others in predicting some aspects of human decision-making, the researchers found.

The study's basic assumption was that people modify their behavior during strategic games by looking backward to what might have been their best move, once they know what the other players' move was.
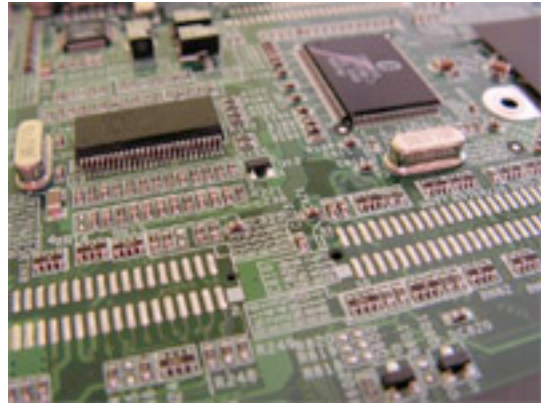
Davide Marchiori of the at University of Trento in Trento in Italy and Massimo Warglien of Ca' Foscari University in Venice built mathematical models based on biological neural networks. These use simulated networks of "brain cells" to arrive at decisions and learn by trial and error.

Introducing an approximation of regret allowed the models to predict human behavior more precisely than conventional economic learning theories, the researchers said. Their findings appear in the Feb. 22 issue of the research journal Science.

"Regret refers to the difference between outcomes attained and the best outcomes that might have been attained," wrote Michael D. Cohen of the University of Michigan, Ann Arbor, in a commentary in the journal. "This is an important step in the development of a workable new synthesis," added Cohen, who wasn't involved in the study. The work has applications in development of economic theories that predict human behavior, he added.

The model's predictions, he continued, aren't based on "conventional, forward-looking expectations of gain, the notion so long at the heart of economic theorizing." Rather, its predictions rely on "propensities that develop through a backward-looking learning process that is driven by regret."

Image; Scientists have developed computer programs that mimic human decision-making by using simulated "regret" to improve performance. (Image ©MSXO)