

Computers learn 'regret'

by Bend_Weekly_News_Sources

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 report.

The study's basic assumption was that people modify their behavior during strategic games by looking back to what might have been their best move, once they know what the other player's move was. Davide Marichiori of the University of Trento and Massimo Wangli 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 outcome 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 was not involved in the study. The work has applications in development of economic theories that predict human behavior, he added. The models' predictions, he continued, aren't based on conventional, forward-looking expectations of gain, the notion so long at the heart of economic theory. "Rather, its predictions rely on "propensities" that develop through a backward-looking learning process that is driven by regret."

Courtesy Science and World Science staff

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