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## Winning Netflix Team Draws From AT&T, Yahoo

For the members of BellKor's Pragmatic Chaos, [winning Netflix's recommendation-improvement contest](#) fulfilled a dream — literally.



Getty Images

Netflix Chief Product Officer Neil Hunt, Michael Jahrer and Bob Bell attend Netflix's prize event in New York.

The competition "pretty much defined our lives, professional choices and activities," said team member [Yehuda Koren](#). During the first year of the contest, he dreamt about ways to achieve the 10% improvement and woke up, he said, "with ratings in mind."

BellKor's Pragmatic Chaos took the \$1 million prize in a competition that pitted 41,000 teams from 186 countries, all trying to improve Netflix's movie-recommendation system, also known as Cinematch, by 10%. It was a goal that Netflix itself hadn't been able to accomplish.

The team formed from three existing ones that entered the contest in October 2006. Mr. Koren, a senior research scientist at Yahoo, and [Chris Volinsky](#), director of the statistics research department at [AT&T Labs Research](#), were part of BellKor, a three-person team that won Netflix's first "progress prize" in 2007 for improving Cinematch by 8.43%.

The following year, BellKor merged with Team Big Chaos, a pair of computer-science students from the [Graz University of Technology](#) in Austria, to capture the second \$50,000 progress prize. "The success of that collaboration told us that that was a really powerful way to improve our scores," Mr. Volinsky said. "All of the top teams had many discussions with many of the other top teams. We realized

we needed to get in on that game in order to stay on top."

The group later added Team Pragmatic Theory, a pair of researchers who worked at Canadian telecommunications-software developer Broadsoft. Pragmatic Theory entered the competition in March 2008 and had quickly gained the leading spot on the Netflix Scoreboard.

The seven of them combined several hundred algorithms to come up with the winning formula that would improve Cinematch by 10% and narrowly beat the No. 2 team, "The Ensemble," by submitting their solution to Netflix just 24 minutes earlier. Content judges included Stanley Lanning and Jon Sanders, senior engineers at Netflix; [Charles Elkan](#), a computer-science professor at the University of California at San Diego; and [Padhraic Smyth](#), a computer-science professor at the University of California at Irvine.

The BellKor team met in person for the first time at the awards ceremony. At the Four Seasons, Netflix CEO Reed Hastings asked them, "Have you guys done an algorithm to figure out how you'll divide up that million?"

The Netflix contest saved his marriage, Mr. Hastings added, because he spent Christmas 2003 poring over Excel spreadsheets of movie recommendations, looking for ways to improve the equations.


"I realized I was out of my depth in trying to beat the data system," he said. "The big embarrassment is that it took a very short amount of time — about three weeks — for the first team to beat the internal Netflix team. They'd been working on it for five years."

Neil Hunt, Netflix's chief product officer, said the company's recommendation engine is important because it spans more than 100,000 DVDs. "If you sat down to read the synopsis of every single one of those titles, it would take you 40 days, and 40 nights, too. You would end up choosing the most heavily marketed titles," he said.

He didn't expect, however, that improving it by 10% would take three years. "Right after the second progress prize, when we extrapolated the data, it was touch-and-go whether we would ever reach 10%," he said. "We didn't know if it was going to take six months or six years to give away the prize money."

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