



Academic finally cracks the Sudoku code

From easy to evil, American's algorithm can solve any of the brainteasers – but does it spoil the fun?

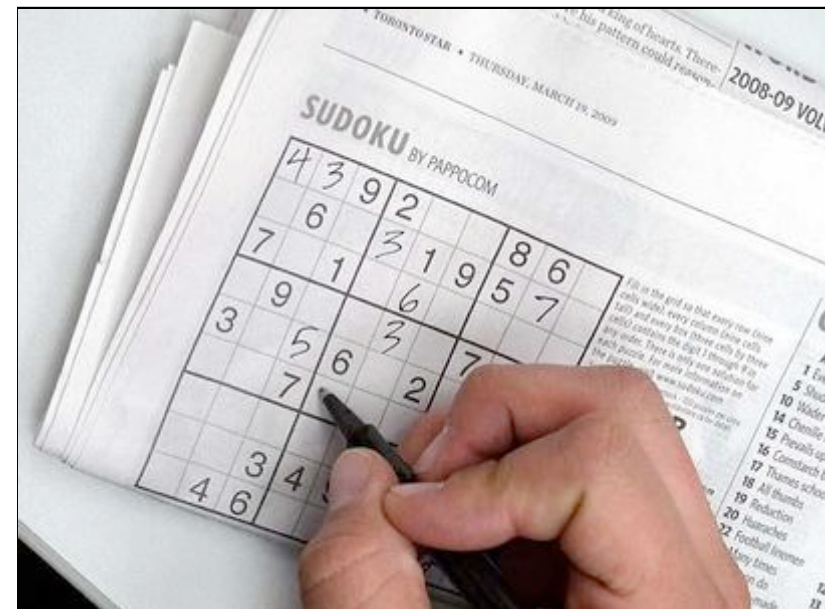
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STAFF REPORTER

An American academic has devised an algorithm capable of solving any Sudoku puzzle, no matter how fiendishly difficult, and it is available on the website of the American Mathematical Society.

Computer science professor emeritus James F. Crook, formerly of Winthrop University in South Carolina, writes that the obsessive pastime is "a trivial puzzle."

Ram Murty, a Queen's University mathematics professor who has read the paper – "Pen-and-Paper Algorithm for Solving Sudoku puzzles" – said Crook has "codified what the average mind does when it looks at a Sudoku problem."



SPECIAL TO THE STAR

Murty and fellow Queen's professor Agnes Herzberg have also published research about Sudoku for the society and are cited in Crook's paper, which describes his own algorithm as a "tree-based search algorithm based on backtracking in a tree until a solution is found."

Murty explains: "So he actually said, 'First, do this. Then, do this. After having done this, go and check for this. If this happens, go back to step one. If it doesn't happen, go to the next step.' I mean, it is like a computer flow chart."

"Most people do this by trial and error, including myself," Murty said. "What Crook has done ... is more or less systematized what the average mind does and made it into some sort of computer algorithm – which is a step-by-step procedure."

Crook's algorithm is labour-intensive and would be a lengthier, more laborious process than the average Sudoku addict's efforts.

Herzberg, a statistician, seemed unimpressed with the prospect of a guaranteed, formulaic victory. "It spoils the game," she said. "It's like playing chess on the computer."

Herzberg and Murty's 2007 paper, "Sudoku Squares and Chromatic Polynomials," applies an arcane branch of mathematics called graph colouring to Sudoku. They laid down for the first time the conditions necessary for the puzzle to have just one solution.

Of Crook Murty said, "I don't think he's spoiling the fun. From a computer science point of view he's done an important service."

Read Crook's paper at www.ams.org/notices/200904/tx090400460p.pdf.

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