

Dr. Fill: Crosswords and An Implemented Solver for Singly Weighted CSPs

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Connected Signals

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5-6pm in New England Bldg, NE 105

4:45pm snacks & conversation

ABSTRACT: We describe and demonstrate Dr.Fill, a program that solves American-style crossword puzzles. From a technical perspective, Dr.Fill works by converting crosswords to weighted CSPs, and then using a variety of novel techniques to find a solution. These techniques include generally applicable heuristics for variable and value selection, a variant of limited discrepancy search, and postprocessing ideas. Branch and bound is not used, as it is incompatible with postprocessing and was determined experimentally to be of little practical value. Dr.Fill's performance on crosswords from the American Crossword Puzzle Tournament suggests that it ranks among the top hundred or so crossword solvers in the world.

BIO: Matthew L. Ginsberg received his doctorate in mathematics from Oxford in 1980 at the age of 24. He remained on the faculty in Oxford until 1983, doing research in mathematical physics and computer science; during this period, he wrote a program that was used successfully to trade stock and stock options on Wall Street. Ginsberg's continuing interest in artificial intelligence brought him to Stanford in late 1983, where he remained for nine years. He then went on to found CIRL, the computational intelligence research laboratory at the University of Oregon, which he directed until 1996. He remained at CIRL until 1998, when CIRL spun off On Time Systems, a commercial entity focusing on scheduling and routing technology. Ginsberg was the CEO of the company from its formation until early 2014 and is currently its chairman. Ginsberg is also the chairman and CEO of Connected Signals, Inc., a company focusing the on use of real-time traffic and signal information to improve driver safety, fuel efficiency, and the driving experience generally. Ginsberg is the author of approximately 100 academic publications in the area of artificial intelligence.