



*Institute for Operations Research
and the Management Sciences*

2010

INFORMS IMPACT PRIZE

Awarded to

Fred Glover

Fred Glover helped pioneer the field of metaheuristics (which he himself named) with his introduction of Scatter Search in his 1977 *Decision Sciences* paper, "Heuristics for Integer Programming Using Surrogate Constraints." Over the next ten years he continued his work in this nascent field, ultimately formalizing his revolutionary Tabu Search algorithm in his 1987 *Computers and Operations Research* paper, "Future Paths for Integer Programming and Links to Artificial Intelligence." These two papers alone garnered over 2000 citations, paving the way for the explosive development of metaheuristic research in the following decades.

Since that time scores of other researchers have taken the original ideas of Professor Glover and used them to develop novel metaheuristic algorithms, sometimes by directly hybridizing elements of Scatter Search and Tabu Search. This academic legacy spreads across the decades and around the globe: Professor Glover delivered the keynote address at the inaugural Metaheuristics International Conference (MIC) in 1995; MIC IX will be held in Italy next year. One of the most dramatic testimonials to Professor Glover's contribution to operations research is the fact that "Scatter Search," "Tabu Search," and "Metaheuristic" have become common *keywords* in the academic literature.

Even with this vast growth in the field of metaheuristics, Scatter Search and Tabu Search have remained two of the most prominent, most successful, and most widely applied metaheuristic algorithms. Their impact can be seen in almost any field which features extremely difficult problems of a combinatorial nature, including knapsack problems, telecommunications, network design, scheduling, financial planning, DNA sequencing, logistics, and computational biology. Despite the fact that these problems typically defy standard exact solution methods, Professor Glover's work has shown that optimal solutions can often be found relatively quickly through application of intelligent search methods.

Professor Glover's contributions to the popularization of metaheuristics includes not only his original research, but also through the publication of a textbook, the founding of the *Journal of Heuristics*, and his role in development of the OptQuest software package by OptTek Systems, a company he co-founded in 1992. OptQuest continues to enjoy significant popularity worldwide, as do many other commercial optimization packages containing Tabu Search and Scatter Search algorithms, such as CPLEX.

For his seminal work on metaheuristic algorithms, specifically the development of Scatter Search and Tabu Search, and for his work popularizing these techniques as effective solution methods for previously intractable problems, INFORMS is delighted to award the 2010 Impact Prize to Professor Fred Glover

Alan Scheller-Wolf, Committee Chair

Susan Albin, INFORMS President

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