



# Kent Academic Repository

Deep, Kusum and Jain, Madhu and Salhi, Said, eds. (2019) *Decision Science in Action: Theory and Applications of Modern Decision Analytic Optimisation*. Asset Analytics . Springer, Singapore, 280 pp. ISBN 978-981-1308-59-8.

## Downloaded from

<https://kar.kent.ac.uk/67629/> The University of Kent's Academic Repository KAR

## The version of record is available from

<https://doi.org/10.1007/978-981-13-0860-4>

## This document version

Cover Image

## DOI for this version

## Licence for this version

UNSPECIFIED

## Additional information

## Versions of research works

### Versions of Record

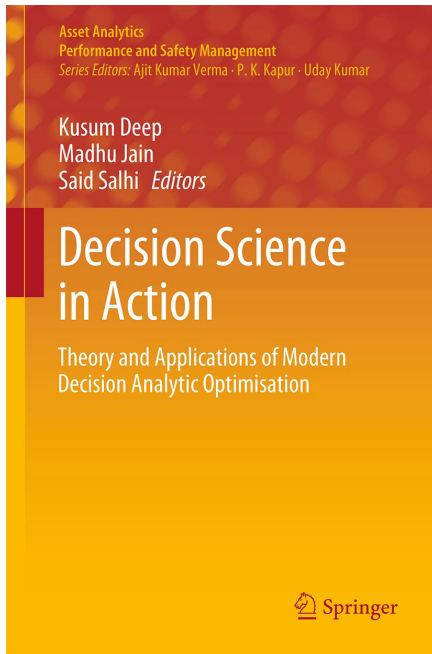
If this version is the version of record, it is the same as the published version available on the publisher's web site. Cite as the published version.

### Author Accepted Manuscripts

If this document is identified as the Author Accepted Manuscript it is the version after peer review but before type setting, copy editing or publisher branding. Cite as Surname, Initial. (Year) 'Title of article'. To be published in *Title of Journal* , Volume and issue numbers [peer-reviewed accepted version]. Available at: DOI or URL (Accessed: date).

## Enquiries

If you have questions about this document contact [ResearchSupport@kent.ac.uk](mailto:ResearchSupport@kent.ac.uk). Please include the URL of the record in KAR. If you believe that your, or a third party's rights have been compromised through this document please see our [Take Down policy](https://www.kent.ac.uk/guides/kar-the-kent-academic-repository#policies) (available from <https://www.kent.ac.uk/guides/kar-the-kent-academic-repository#policies>).



1st ed. 2019, Approx. 280 p.

### Printed book

Hardcover

129,99 € | £109.99 | \$159.99

<sup>[1]</sup>139,09 € (D) | 142,99 € (A) | CHF 143,00

### eBook

107,09 € | £87.50 | \$119.00

<sup>[2]</sup>107,09 € (D) | 107,09 € (A) | CHF 114,00

Available from your library or  
[springer.com/shop](https://www.springer.com/shop)

### MyCopy <sup>[3]</sup>

Printed eBook for just

€ | \$ 24.99

[springer.com/mycopy](https://www.springer.com/mycopy)

Kusum Deep, Madhu Jain, Said Salhi (Eds.)

# Decision Science in Action

Theory and Applications of Modern Decision Analytic Optimisation

Series: Asset Analytics

- Provides practical and novel optimization techniques that can be adapted to a broad spectrum of applications ranging from Engineering to Finance
- Discusses theoretical studies that underpin some of the optimality conditions in nonlinear optimization
- Explores evolutionary methods such as Genetic Algorithm and Ant Colony and shows how they can be adapted for both discrete and continuous decision problems

This book provides essential insights into a range of newly developed numerical optimization techniques with a view to solving real-world problems. Many of these problems can be modeled as nonlinear optimization problems, but due to their complex nature, it is not always possible to solve them using conventional optimization theory. Accordingly, the book discusses the design and applications of non-conventional numerical optimization techniques, including the design of benchmark functions and the implementation of these techniques to solve real-world optimization problems. The book's twenty chapters examine various interesting research topics in this area, including: Pi fraction-based optimization of the Pantoja–Bretones–Martin (PBM) antenna benchmarks; benchmark function generators for single-objective robust optimization algorithms; convergence of gravitational search algorithms on linear and quadratic functions; and an algorithm for the multi-variant evolutionary synthesis of nonlinear models with real-valued chromosomes. Delivering on its promise to explore real-world scenarios, the book also addresses the seismic analysis of a multi-story building with optimized damper properties; the application of constrained spider monkey optimization to solve portfolio optimization problems; the effect of upper body motion on a bipedal robot's stability; an ant colony algorithm for routing alternate-fuel vehicles in multi-depot vehicle routing problems; enhanced fractal dimension-based feature extraction for thermal face recognition; and an artificial bee colony-based hyper-heuristic for the single machine order acceptance and scheduling problem.

Lifelong 40% discount for authors



Order online at [springer.com](https://www.springer.com) / or for the Americas call (toll free) 1-800-SPRINGER / or email us at: [customerservice@springernature.com](mailto:customerservice@springernature.com). / For outside the Americas call +49 (0) 6221-345-4301 / or email us at: [customerservice@springernature.com](mailto:customerservice@springernature.com).

The first € price and the £ and \$ price are net prices, subject to local VAT. Prices indicated with [1] include VAT for books; the €(D) includes 7% for Germany, the €(A) includes 10% for Austria. Prices indicated with [2] include VAT for electronic products; 19% for Germany, 20% for Austria. All prices exclusive of carriage charges. Prices and other details are subject to change without notice. All errors and omissions excepted. [3] No discount for MyCopy.