

# *Editorial*

Volume 29(1) of ORiON is dedicated to Theo Stewart on the occasion of his seventieth birthday. Theo is one of the pioneers of operations research in South Africa and is still playing a leading role in operations research. It is thus a huge privilege to dedicate this issue to which fifteen authors contributed seven papers, each containing a personal dedication, to Theo.

The first paper, titled “The evolutionary spatial prisoner’s dilemma on a cycle,” by Alewyn Burger, Martijn van der Merwe and Jan van Vuuren considers an evolutionary game where players are modelled by the vertices of a graph representing some structure amongst the players. During each round the players play a classical prisoner’s dilemma against each adjacent player in the structure. Players adapt their strategies according to their neighbour’s strategies in the previous rounds. They determine conditions under which players on a cyclical structure will evolve (with a very high likelihood) to a state of persistent cooperation.

The second paper is authored by Paul Fatti and is published under the title “How healthy are the rhinoceros populations in the Hluhluwe-iMfolosi Park?” Paul proposes a method for using past survey data on the population sizes of both the white and black rhinoceros species to determine a good estimate of their true numbers in the park. Judging from the survey data, the rhinoceros numbers are decreasing. However, the model suggests that the population sizes are more stable than the surveys suggest.

Danie Lötter, Isabelle Nieuwoudt and Jan van Vuuren authored the third paper under the title “A multiobjective approach towards weapon assignment in a ground-based air defence environment.” Traditionally, weapon assignment is treated as a single objective problem. In this paper the authors suggest a model that incorporates multiple objectives when assigning weapons to protect ground-based assets against an air attack. They propose implementing a nondominated sorting genetic algorithm to optimise two objectives, namely cost of assigning weapon systems for engagement and the accumulated survival probabilities of the observed threats.

The fourth paper is titled “Metaheuristic approaches to order sequencing on a unidirectional picking line” and is authored by Anton de Villiers, Jason Matthews and Stephan Visagie. The authors considered a real-life problem of order picking in a distribution centre. They implemented and tested several metaheuristics to solve the problem of minimising the total travel distance to pick all orders in a specific wave. A random local search exhibited the best overall solution quality, but a generalised extremal optimisation approach delivered comparable results in considerably shorter computational times.

The fifth paper by Gaetan Kabera and Linda Haines is titled “A note on the statistical analysis of point judgment matrices.” In this paper they consider several known and one novel statistical approach to extract the weights of objects from a judgement matrix. The authors show that fairly similar results are obtained (as should be expected) by the different approaches.

The penultimate paper is authored by Ian Durbach, Leanne Scott, Juwa Nyirenda and Sheetal Silal. The paper, titled “Operational research(ers) in development: Growing a

new generation of operational researchers,” reflects on a master’s programme in operational research (OR) in development, offered at the University of Cape Town (UCT). The authors highlight strengths and weaknesses of the programme, as well as challenges faced when teaching OR at UCT at a postgraduate level. It is concluded that, with a limited number of staff, it is impossible to maintain a constant stream of students to follow this interdisciplinary programme.

The final paper is titled “A review of the Tom Rozwadowski medal” and is authored by Hans Ittmann. In my opinion, Hans is one of the best persons to reflect on the history of the Operations Research Society of South Africa (ORSSA) and thus on the history of ORSSA’s most prestigious award. His overview shows that the Tom Rozwadowski medal was awarded for a wide variety of publications spanning over numerous fields of OR. The winning authors were (and most still are) affiliated with the major OR groups in South Africa. He finds that the award reflects a good representation of exceptional work published by ORSSA members in the field of OR over the past 40 years or so.

As always I would like to end by thanking some people. Publishing a scholarly journal is no small task and a number of people contribute to this process. Three groups make the publication of ORiON possible. First and foremost are the authors, whom I would like to thank for choosing ORiON as their vehicle for publication. Secondly there are the reviewers. They are the silent partners who contribute large amounts of time to review papers. On top of this hard work, reviewers are anonymous and thus get no credit for their hard work. My sincerest thanks go to all reviewers for this selfless deed. The last group are the editorial team. I convey my sincerest thanks to Martin Kidd, the journal manager, and Anton de Villiers, the typesetting assistant for the excellent and professional job of handling the administration and typesetting of ORiON. Finally, I would like to thank associate editor Jan van Vuuren, who handled the review process of the fourth paper on my behalf.

I would like to encourage members of ORSSA, as well as other subscribers and readers of ORiON to submit their research papers to ORiON in order to maintain a steady stream of high quality papers. Readers are welcome to contact the editor-in-chief with any recommendations or suggestions regarding this publication.

Stephan Visagie  
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