

Editorial

For many of us, the journey through the Operations Research universe typically starts in a school classroom solving the two-dimensional linear programming problem with a pencil and ruler. Of course, it is only later during undergraduate studies that I became aware that this powerful mathematical tool belongs to a field of study called *Operations Research*. From the very beginning I was fascinated by the possibility to express (almost) any decision problem as a mathematical programming formulation, and over the years I have also developed a sincere appreciation for the multidisciplinary nature of Operations Research.

It is a great privilege to be serving the Operations Research Society of South Africa as part of the editorial team of ORiON. I want to express my gratitude towards Stephan Visagie for his guidance and assistance in handing over the responsibilities of editor-in-chief. I also want to thank Martin Kidd and Gavin le Roux for assisting the new editorial team to get up to speed with the journal management system and the typesetting environment.

The first paper in this issue of ORiON is by JC van der Walt and JH van Vuuren, titled “Decision support for open-air irrigation reservoir control”. A decision support system is proposed which may aid operators of an open-air irrigation reservoir in implementing effective water release strategies. The proposed system is based on mathematical models that allow for the calculation of quantitative performance metrics. These metrics are crucial for balancing irrigation demand and the risk of water shortages when formulating a water release strategy. Validation of the proposed decision support system was performed as part of a case study involving the Keerom Dam open-air reservoir in the Western Cape, South Africa.

A van der Merwe, HA Kruger and JV du Toit are the authors of the second paper in this issue. It is titled “Mathematical modelling for academic performance status reports in learning analytics”, and it addresses the challenges faced in providing students with the necessary feedback which allow them to improve on their academic achievements. By making use of a ranking mechanism, which is based on the participation marks of the students, valuable information is extracted to compile performance status reports. A hybrid approach comprising three separate algorithms is proposed, and collectively these algorithms generate a future participation and improvement plan for each student.

The third paper in this issue by RF Rossouw, RLJ Coetzer and NJ le Roux, is titled “Simulation of a coal stacking process using an online X-Ray Fluorescence analyser”. In this paper, a simulation model is presented that utilises data from an online X-Ray Fluorescence analyser for the purposes of predicting the properties of coal heaps in a stackyard. Information on the distribution of the coal heaps is crucial for the blending process, which in turn ensures that the desired quality of coal is feed to the factory. The simulation model was validated using data from the Sasol Synfuels Coal-to-Liquids factory.

I want to convey my sincerest thanks to Susan Campher, our newly appointed Journal Manager, and to Zander Labuschagne who was responsible for typesetting the papers for this issue of ORiON in L^AT_EX. It has been a steep learning curve, and I want to thank you for all your tireless effort in producing a high-quality publication.

A final word of appreciation to all the ORiON authors and reviewers. Thank you to the authors for submitting your scholarly work, we greatly value your contributions and would like to encourage you to keep on submitting your papers to ORiON. To all the anonymous reviewers who contributed towards providing quality feedback to the authors, thank you for your time and expertise. Your contributions uphold the quality standards of ORiON.

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