



Operations Research Society of South Africa



Category IV Recognition Award

(To an upcoming member of ORSSA
of age 35 or below for excellence
in operations research practice)

Robert Andrew Bennetto

Citation. By Jan van Vuuren, on behalf of the Executive Committee of ORSSA.

Robert Andrew Bennetto was born in Edenvale, Johannesburg on 21 September 1984. He holds a bachelor's degree with statistics and actuarial science as major (2007), an honours degree in mathematical statistics (2008) and a master's degree in operations research (2013), all from the University of the Witwatersrand. In 2013, he won the prestigious Theodor Stewart Medal from ORSSA for the best master's thesis in operations research by a student at any tertiary institution in South Africa – the title of his thesis was *Dynamic Bulk Freight Train Scheduling in an Uncongested Network*.

In 2008, he started working as an analyst on several consulting projects ranging from the benchmarking of practitioner performance to the calculation of margin transfer within the NHN group. His other projects in 2008 also included a spatial analysis of facility suitability relative to expected demand and other (competing) facility supply.

In 2009, he moved to OPSI Systems in Johannesburg where he remained until 2013, first as consultant (in 2009), then as junior developer (in 2010) and finally as development manager (during the period 2011–2013). As consultant he worked on *vehicle routing problems* (VRPs), developing exact searches for the purpose of understanding the computational complexity of the periodic routing problem. He also contributed to various other consulting projects ranging from fleet sizing and facility location to facility sizing and customer re-allocation problems. As junior developer he worked on the design of OPSI's scheduling products, developing new products for rail freight applications, building algorithmic prototypes and understanding business processes and requirements. After his promotion to development manager, he managed a development team overseeing the development and implementation of PLATO.Rail, a dynamic train scheduling tool for the Coal Export Line in South Africa. He also designed geo-spatial correlation algorithms for tracking data from three different (non-geographic) data sources at TFR and used this to provide accurate estimated times of arrival for all train movements on the Coal Export Line. He later designed the architecture for the expansion of PLATO.Rail to all domestic coal flows in South Africa from both an application and algorithmic perspective, also porting the scheduling model to operate on IBM's ILOG solver using integrated multi-phase *Mixed Integer Linear and Constraint Programming* (MIP/CP) modules. This work on PLATO.Rail resulted in several awards and acknowledgements from industry.

During the period 2013–2014 he managed the Actuarial and Consulting division at Chalcid, working very closely with major insurers to price extremal risks. He was also instrumental in the development of alternate pricing models, data analysis and mining to support AD&D model development. In addition, he developed a large distributed online web-based platform for managing quotations and transactions within insurance brokerages and used this to consult to Nashua Telecoms (on network abstraction and least cost routing) and to the healthcare industry (on quantifying uncertain liabilities at certain facilities under adverse conditions).

In 2014, he moved back to OPSI Systems to head up the Consulting division there. This division works on cutting edge optimisation problems in the logistics arena, currently focusing on distributed optimisation techniques for computationally expensive problems distributed on cloud infrastructure. Other ongoing work within the group involves railway optimisation, periodic rep routing algorithms, VRP algorithms and dual MIP/CP models.

Robert has been a member of ORSSA since 2009, is currently enrolled for a doctorate in operations research at Stellenbosch University and has this year been elected as chairperson of the Society's Johannesburg Chapter. During his working career of eight years, Robert Bennetto has produced operations research and consulting work of the highest calibre and for this reason he is, on this 15th day of September 2015, duly awarded a Category IV ORSSA Recognition Award. I call on the President to confer the award.