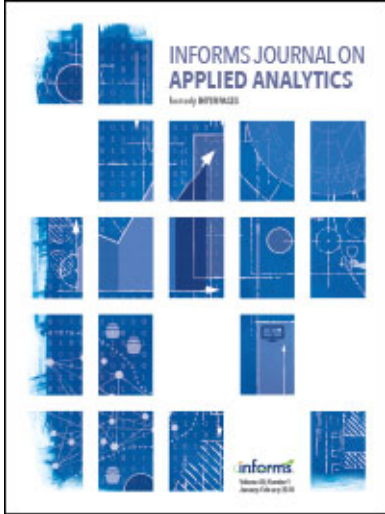




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Introduction: 2025 Daniel H. Wagner Prize for Excellence in the Practice of Advanced Analytics and Operations Research

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Abstract. The four papers in this special issue were selected as finalists for the 2025 Daniel H. Wagner Prize for Excellence in the Practice of Advanced Analytics and Operations Research. Established in 1998 to commemorate the life and work of Daniel H. Wagner, the prize recognizes work that combines strong analytical content with clear exposition and demonstrated success in practice. Wagner believed strongly in bringing mathematical rigor to practical problems while also emphasizing that analytical solutions should be communicated clearly and intelligibly. The papers in this issue exemplify that ideal. They address very different decisions—from managing e-commerce inventory and perishable goods, to setting rideshare prices, to planning urban cycling infrastructure—yet share a common achievement: They turn sophisticated analytics into practical solutions with measurable impact.

The 2025 Wagner Prize was awarded to Ziyuan Zhou, Long He, Guangrui Ma, Yuanbo Peng, Yushu Yao, Zhongyi Zha, Mingyong Zhao, Zhenyu Zhuo, and Zhengling Qi for “Rebalancing and Clearance Pricing of Near-Expiry Inventory in Online Grocery Retail.” Meituan is a major Chinese technology company whose businesses include food delivery, local services, and online retail. Through its Little Elephant Supermarket business, Meituan operates a nationwide network of microfulfillment centers. The paper addresses the challenge of managing inventory as it approaches its expiration date: The products still have value, but little time remains to sell them, and the best action depends both on where the inventory is located and its price. Meituan researchers collaborated with researchers from George Washington University to develop an integrated system that combines inventory rebalancing with clearance pricing. The system uses data-driven estimates of price response together with optimization and dynamic pricing methods and has been deployed across the network. It reduced spoilage and increased revenue from near-expiry inventory, improved annual profit by approximately \$7 million (in U.S. dollar equivalent at the time of analysis), and avoided food waste valued at approximately US\$2.5 million. The work provides a compelling example of how advanced analytics can simultaneously deliver economic and sustainability benefits at substantial operational scale.

The second inventory paper takes a very different analytical approach. In “DeepStock: Reinforcement Learning with Policy Regularizations for Inventory

Management,” Xie, Hao, Liu, Ma, Xin, Cao, and Zhang bring classical inventory management ideas into deep reinforcement learning. They show that policy regularizations grounded in concepts such as the base-stock policy can substantially reduce the sensitivity of reinforcement learning to hyperparameter choices while improving final performance. The approach has been deployed for all domestic and international products managed by Alibaba on Tmall, covering more than one million stock keeping unit-warehouse pairs. This work illustrates how classical operations research concepts can complement modern machine learning, providing structure that makes advanced methods more effective and practical at scale.

Ong, Taghiyeh, and Kassem then address a very different marketplace in “Optimizing Multiproduct Rideshare Pricing via Quasiconvex Efficiency Objectives.” Their system replaces a manual, difficult-to-scale pricing process with an interpretable optimization framework that generates efficient tradeoffs among bookings and other marketplace outcomes while updating prices daily across Lyft markets. The deployed system produced a statistically significant increase in bookings, worth well over \$100 million annually, along with improvements in pickup times and ride acceptance rates. The system also improves pricing observability and allows analysts to focus on strategic choices rather than the mechanics of generating pricing proposals.

The final paper broadens the scope from commercial operations to public infrastructure. In “Analytics for Better Urban Cycling at the City of Toronto,” Lin,

Bonsma-Fisher, Saxe, and Chan develop an end-to-end analytics framework for improving cycling infrastructure. The work measures cycling stress and low-stress accessibility, uses machine learning–augmented bilevel optimization to identify high-value additions to the cycling network, and provides planners with an interactive tool for refining proposed plans. The optimization problem is too large for existing techniques, motivating an approach that combines machine learning with optimization while providing provably high-quality solutions. The analysis has already influenced Toronto’s infrastructure planning: By the time of publication, several dozen kilometers of model-recommended bike lanes had been approved for construction, with additional segments under study or in design.

Across these four applications, several themes stand out. Methodological strength often comes from integration: Machine learning is guided by operations research structure, whereas optimization is informed by causal estimates, images, experiments, and real-time feedback. Implementation requires more than an accurate model; the resulting systems must be computationally tractable, interpretable, observable, and compatible with existing workflows. Also, impact is multidimensional: The finalists improve financial

performance while also advancing mobility, sustainability, service quality, and the quality of managerial and public decision making. Together, these papers illustrate how advanced analytics earns a durable place in practice—by combining analytical rigor with usability, adaptation, and measurable results. In doing so, they embody the spirit of the Wagner Prize and the standard Daniel H. Wagner established: strong mathematics applied to important practical problems, with solutions communicated in a way that makes them directly actionable for the broader analytics community.

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This editorial was written with the help of a large language model.

Vera Tilson is an associate professor of operations management at the Simon Business School, University of Rochester. Her research focuses on applying analytical models to operational problems in healthcare. Her work has been published in *Management Science*, *Operations Research*, *Manufacturing & Service Operations Management*, *Production and Operations Management*, and the *European Journal of Operational Research*. Before entering academia, she worked as a software engineer and project manager in telecommunications, medical instrumentation, supply chain software, and financial services.