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Note from the Editor

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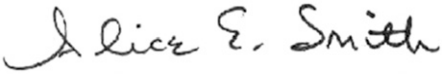
We are announcing the winners of the *IJOC* Test of Time Paper Award once per quarter (with each issue of the journal) to cover the backlog of awards since the journal's inception. The specifics of this award are below:

- *Number of awards*: One per calendar year.
- *Goal*: Recognition of a published *IJOC* paper that has proven impactful over a length of time. Considerations can be citations per year, downloads per year, influence of sparking new areas of research, practical implications, significance of findings, and so forth.
- *Criteria*: All those papers published in the time window are considered. A paper can be recognized with this award only once. The time window is defined as a rolling window of 5 years starting 15 years ago.
- *Deadline*: None. Papers are considered on an annual basis.
- *Selection*: Small committee appointed by the editor-in-chief.
- *Recognition*: Certificate of Test of Time Award (transmitted by email) and annual recognition in the journal (paper, authors, affiliations, citation).
- *Procedure*: The set of papers published in *IJOC* during the time window with their citations per year (since publishing) will be sent to the committee members for their deliberation. A winner is selected by the committee, and the editor-in-chief is notified.

I am happy to report that the remarkably able committee, chaired by John Chinneck with members Bill Cook, Bruce Golden, Pascal Van Hentenryck, and David Woodruff, have selected the awardee, covering the period 2002–2006. What follows is the citation from the award committee and a reflection on the paper and this award by the authors.

I want to thank the committee for their continued efforts, and I am very pleased to share this recognition of the impactful heritage of our journal.

My best regards,



The Test of Time Award for papers published in the *INFORMS Journal on Computing* in the years 2002–2006 is awarded to the following:

A Unified Framework for Numerically Inverting Laplace Transforms

Joseph Abate, Ward Whitt
INFORMS Journal on Computing (2006) 18(4):408–421
https://doi.org/10.1287/ijoc.1050.0137

Test of Time Award Citation 2002–2006

This paper unifies methods for inverting Laplace transforms. The importance of numerical methods for such inversions resulted in significant research, including an award-winning paper by the authors that appeared a decade before this work. In addition to introducing the framework, the authors show how three popular methods fit into it. The paper shows that different components can be combined to create algorithms that are more effective than individual methods. It continues to be cited by researchers who use it as a springboard for new methods.

Comments on the *IJOC* Test of Time Paper Award from the Authors, Joseph Abate and Ward Whitt

Our selected 2006 *IJOC* paper "A Unified Framework for Numerically Inverting Laplace Transforms," was the culmination of more than 20 years of joint research, much in collaboration with Gagan L. Choudhury, Kin K. Leung, and David M. Lucantoni (recognized by the Lanchester Prize Committee in 1998). In 1990, the two of us began studying algorithms for numerically inverting Laplace transforms and their application to stochastic models in operations research. We developed and analyzed candidate algorithms, as illustrated by our earlier papers in this journal: "Numerical Inversion of Laplace Transforms of Probability Distributions" (Abate and Whitt 1995); "On the Laguerre Method for Numerically Inverting Laplace Transforms" (also with Gagan L. Choudhury; Abate et al. 1996); and "Computing Laplace

Transforms for Numerical Inversion via Continued Fractions" (Abate and Whitt 1999).

For complex stochastic models, such as stochastic networks or polling models, special methods are needed in order to apply the inversion algorithms. Thus, there are additional papers for specific classes of models. A tutorial survey appears in "An Introduction to Numerical Transform Inversion and its Application to Probability Models," in *Computational Probability* (also with Gagan L. Choudhury; Abate et al. 1999).

By 2006, it was well established that there are several effective approaches to numerical transform inversion, but there was not a coherent unified story. The selected paper makes progress in that direction by introducing a general framework for inversion algorithms and showing how three classic inversion algorithms can be expressed in that framework. The key idea is recognizing that a function $f(t)$ can be approximated by a finite linear approximations of the transform values, depending on two sets of complex numbers, called nodes and weights, but independent of the argument t and the Laplace transform of f, as shown in equation (2) of the paper. The algorithms differ by the way they specify the nodes and weights.

As shown in equation (5) of the paper, the representation extends directly to multivariate functions.

Moreover, different one-dimensional algorithms can be combined to create multivariate algorithms. We show that it can be more effective to combine different one-dimensional algorithms than repeat individual one-dimensional algorithms.

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