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Newsletter

of the INFORMS Computing Society

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ICS Newsletter Has a New Format

By David L. Woodruff ICS Chair and Acting Newsletter Editor

This newsletter marks the change from a printed to an electronic newsletter, which will allow us to try some innovative things. However, for this issue we are happy to get it out with a lot of important content. Our feature piece, written by one of the new ICS board members, concerns the COIN-OR open source initiative. We see the ICS playing a central role in the open source initiative. Watch this newsletter for breaking news.

One of the advantages of being newsletter editor is the privilege of selecting the member to profile. This

COIN-OR Report

Robin Lougee-Heimer
Optimization Center
IBM T.J. Watson Center

COIN-OR Background

The "Computational Infrastructure for Operations Research" (COIN-OR, http://www.coin-or.org) was conceived to explore the viability of open source and its potential to accelerate progress in the field of operations research. COIN-OR was launched at the 2000 International Symposium on Mathematical Programming (ISMP), as a community, volunteer organization. IBM Research provided hosting services and seeded the initial repository with several software packages licensed under the Common Public License (a certified opensource license). In the first (almost) two and half years of its existence, COIN-OR has grown thanks to the participation and contributions of many different people. As of this writing there are nine projects underway, spanning the areas of nonlinear, integer, and linear optimization, tabu search, and approximation algorithms. In addition to the software packages being developed, there is also a group led by Leo Lopes to develop a standard for the exchange of mathematical programs using XML. (For more on the standards effort, visit the archives of the coin-standards list on the coin-or website.)

COIN-OR Update

COIN-OR is to be Hosted by INFORMS. At the 2003 national meeting, the board of INFORMS unanimously agreed to become the new host of COIN-OR in 2003. This is a major milestone for the COIN-OR project, which was conceived by IBM Research as a professional service project with the goal of being an independent community-run, community-owned resource. For more on the details, and to

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The ICS Newsletter is published semiannually by the INFORMS Computing Society (ICS). Manuscripts, news articles, advertisements and correspondence should be addressed to the Editors. Manuscripts submitted for publication will be reviewed and should be received by the Editor three months prior to the publication date. Requests for ICS membership information, orders for back issues of this Newsletter, and address changes should be addressed to:

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month we have a short conversation with my pal Stefan Voâ. He recently moved from the University in Braunschweig to the University of Hamburg and has some interesting perspectives on almost every topic. We report on Stefan's answers to a few questions concerning the differences between



North America and Europe that relate to the INFORMS Computing Society.

We held the presses for as long as we could, but the hottest story out there has not yet broken. Informed sources report that the ICS meeting is going back to the East Coast in January of 2005. Negotiations are underway with a dream team organizing committee. Watch your email and this newsletter for news as it unfolds.

There's a lot more in this newsletter: a report on the Phoenix ICS meeting, news about the vice-chair proposal, meeting announcements, and more that you will find interesting. If you would like to get involved in editing or writing for the newsletter, send me an email.

Ariela Sofer will be organizing the ICS track for the Atlanta INFORMS meeting to be held in October in Atlanta. Send her an email at asofer@gmu.edu if you would like to organize a session. It's a great chance to put together a collection of research presentations in your area.

Report on the ICS Meeting in Phoenix

After missing our normal two year cycle, the ICS membership was very grateful to Hemant Bhargava and Nong Ye for co-chairing the event in Phoenix. The edited volume published by Kluwer was a timely collection of very interesting work, and has 325 pages and 15 articles covering computational modeling, heuristics, algorithm performance issues, and a variety of applications. The sessions were varied and interesting and the resort hotel was very nice. It did rain, but only during the first sessions when all serious attendees were planning to stay off the golf course and listen to state-of-the-art research presentations anyway.

Meeting attendance was 65, which was lower than normal, so the Society lost some money as a result of a hotel contract that guaranteed a pre-specified number of rooms. The loss was mitigated by sponsorship provided by the eBusiness Research Center at Penn State, IBM, ILOG Corporation and some of the major modeling language players. We appreciate the support of AMPL, COIN-OR, ILOG, Maximal, and Mosel/Dash and the tutorials and displays that added interest to the meeting. Students from Arizona State were a great help during the meeting and Daewon Sun of Penn State devoted a lot of time to organizational issues before, during and after the meeting.

Member Profile: Stefan Voß

Stefan Voß, born 1961 in Hamburg, is full professor and director of the Institute of Information Systems at the University of Hamburg. Previous positions include full professor and head of the department of Business Administration, Information Systems and Information Management at the University of Technology



Braunschweig (Germany) from 1995 up to 2002. He holds degrees in Mathematics (diploma) and Economics from the University of Hamburg and a Ph.D. and the habilitation from the University of Technology Darmstadt.

His current research interests are in quantitative / information systems approaches to supply chain management and logistics including public mass transit and telecommunications. Current projects are, among others, considering problem formulations in the field of Information Systems in Transport, Supply Chain Management as well as Meta-Heuristics and Intelligent Search Algorithms in practical applications. He obtained an international reputation as a result of numerous publications in the latter research field. Prof. Voß participates in advisory boards and editorships, respectively, for academic journals such as *INFORMS Journal on Computing* and *Journal of Heuristics*.

He is author and co-author of several books and numerous papers in various journals. Stefan Voß serves on the editorial board of some journals

including being Associate Editor of INFORMS Journal on Computing and Area Editor of Journal of Heuristics. He is frequently organizing workshops and conferences. Furthermore, he is consulting with several companies.

1. What do you see as the biggest differences between societies in the US and Europe.

The biggest difference might be some sort of "open-mindedness" (i.e., INFORMS is more open minded than many information systems or OR societies in Europe). In the US societies have - mainly due to the size of the country compared to European countries - more options to provide you some feeling of being at the right place. In Europe it might be difficult to find people of the same interest at the samemeeting as many OR societies have their own annual meeting and, besides English, there is no common language (The EURO meeting is not the same as an INFORMS meeting in that respect as there is no real society behind it).

2. Is computational OR on the rise in Europe?

Yes, if you do not call it OR. People discover that they need planning functionality and they like solutions and systems that come from computational OR -but do not call it OR or mathematics. In German: Es gibt noch Berührungsängste.

3. What attracted you to CSTS (now ICS)?

The early Williamsburg meetings had the right people and the right spirit to give me some feeling of being at home. The same question would be: Why do I edit or co-edit a book series on the interface of OR and CS? (In fact this is the book series where all the CSTS proceedings appear.) I would characterise myself as an operations research person in the same way as an information systems person. Is there any better place?

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Report on the INFORMS Journal on Computing

Respectfully submitted by David Kelton, Editor-in-Chief, October 31, 2002

The first three issues of 2002 were published on time and the fourth is ahead of schedule. During 2002 we published 22 papers and had a total of 448 pages. This is up from each of the last two years, and puts the total page count at (exactly) the budgeted level. As with the previous two years, issue 4 contains complete indexing information for the volume, including referees, authors, and subjects (using authors' keywords).

Over the past 12 months we've had 86 new submissions, down somewhat from 104 for the previous 12 months. However, we've accelerated overall throughput, and have finished processing on 89 papers (36 accepted, or 40%) in the past 12 months, compared to 70 for the previous 12 months. As a result, the backlog of accepted papers (not counting the final issue for this year) now stands at 24 papers, plus another three on my desk for final editing and acceptance. This is approximately a year's worth of accepted material, so we're now at a level that I feel might be about right ... a longer backlog might be personally more comfortable for me, but might also be skirting the problem of taking too long from acceptance to appearance.

The last issue for this year is designated as a Special Issue, "The Merging of Mathematical Programming and Constraint Programming" and was Guest-Edited by John Chinneck; he coordinated this with a similar session he's chairing at the upcoming San Jose meeting. We also have another Special Issue ready for next year, "Mining Web-Based Data for e-Business Applications," Guest-Co-Edited by Louiqa Raschid and Alex Tuzhilin.

We had one Feature Article this past year, by Michael Fu, "Optimization for Simulation: Theory vs. Practice," with Commentaries by Sigrún Andradóttir, Peter Glynn, and Jim Kelly. We also had one other special-designation paper, for which we introduced a new category, Research Perspective, "Ranking and Selection for Steady-State Simulation: Procedures and Perspectives," by David Goldsman, Seong-Hee Kim, Bill Marshall, and Barry Nelson. For the future, Ed Wasil has in review or development three new Feature Articles on a wide variety of topics.

While not especially fancy, our website has proven useful on a number of fronts: by authors for preparing manuscripts, cataloging forthcoming papers (updated with every acceptance letter), editorial statements for each Area to help authors decide about fit, a directory of people involved at all levels, back issues for full-text files of everything ever published in JOC, and Online Supplements (which grew from two to four over the past year). I update the website whenever there's a change in anything, so it remains the definitive reference on all the state variables. It is very easy for me to maintain. In addition, I maintain an "unadvertised" (though not password-protected) site that serves as a procedures manual for Referees, Associate Editors, Area Editors, and myself; whenever new people become involved they are directed to this site.

We have begun a project to create a merged subject index for the entire history of the journal, using authorsupplied keywords, and hyperlinked from each keyword to a page containing in turn links to all *JOC* papers using this keyword. I plan to resume this project in January, and hopefully get it all posted as a new part of the website during 2003.

We still see no need for a web-based system for submission, reviewing, and tracking. Aside from signed copyright forms and copyedited manuscripts, almost everything is transmitted in electronic form, including submissions, reviews, and my final edited version of accepted papers.



The list of Area Editors has remained stable over the past year. Associate Editors stepping down were Suvrajeet Sen, Dan Heyman, David Woodruff, and Giorgio Gallo. New Associate Editors are Harriet Black Nembhard, Jeff Kennington, Gautam Natarajan, Rex Kincaid, and Kweku-Muata Osei-Bryson.

The page style and production process has continued to serve us well, and things are essentially unchanged since my report a year ago. We look forward to continuing in this mode, working directly with Dr. Mirko Janc, who has moved from Technical Typesetting, Inc. into a position within INFORMS with direct responsibility for producing *JOC*.

We finished calendar year 2001 with revenues of \$110K and expenses of \$77K (including \$10K overhead to INFORMS), for a net of \$34K, or 44% of expenses. For calendar year 2002, postings through August are at \$90K revenue and \$45K expenses, which appears to be tracking well though still subject to the vagaries of timing of postings. Institutional sponsorship for 2002 is \$3500, off from \$4500 last year.

Total circulation, as of the end of September 2002, stands at 1,907. This figure includes 1,045 IPOL suite subscriptions (for all INFORMS journals) plus 862 non-IPOL subscriptions (i.e., specifically *JOC* subscriptions, print or online); the latter figure is up from 555 last year. Institutional subscriptions (mostly libraries, and part of the 862) are at 297, up from 292 last year.

I wish to acknowledge the Department of Quantitative Analysis and Operations Management at the University of Cincinnati for providing substantial indirect support to *JOC* in the form of teaching-load reduction to me for this academic year, without which I probably couldn't carry out this job.

For the coming year, I would like to encourage the Area Editors to increase submissions by marketing their Areas actively and creatively, and recruiting good papers. This will allow us to maintain a discriminating review process while keeping the inventory of accepted papers at an appropriate

level. By these efforts I hope to enhance the journal's appeal, and so maintain or increase subscription levels. And I intend to complete the project of on-line subject indexing for all papers in the history of the journal, making this freely available on our website as a service to researchers in our community.

Finally, I'm grateful to the INFORMS Board and the Review Committee for reappointing me to a second three-year term. And I thank the Area Editors, Associate Editors, referees, and certainly the INFORMS staff for their support and hard work.

Vice-chair nominations sought

At our business meeting in San Jose and again in Phoenix, we discussed experimenting with the idea of vice-chairs for various areas. These vice-chairs would be responsible for providing short newsletter items and for finding session chairs and/or organizing sessions for the annual INFORMS meetings. The board will make the final decisions during this experimental period, but we might change the name from "vice-chair" to something else.

What we need right now are nominations for vicechair areas and the person who would be the chair. Send your nominations to me and I will collect for the board. As food for thought, here are a few potential vice-chair areas.

Modeling Languages
Constraint Programming
XML
Open Source Software Development
Artificial Intelligence
Bioinformatics

Send your (area, person) pairs to DLWoodruff@UCDavis.edu for consideration by the board.

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ICS 2003 Conference Book: Special Discount for ICS Members

A copy of the proceedings will be available to ICS members for a limited time at a discounted price (from 20 to 50% off, depending on quantity). Your purchase will help the INFORMS Computing Society financially with regard to meeting all of the costs for the ICS Conference.

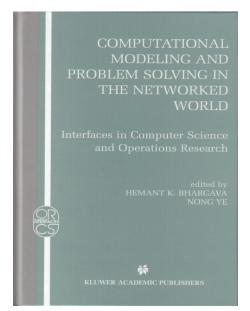
COMPUTATIONAL MODELING AND PROBLEM SOLVING IN THE NETWORKED WORLD: Interfaces in Computer Science and Operations Research Edited by Hemant K. Bhargava and Nong Ye, Kluwer Academic Publishers

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 John N. Hooker
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- 4. Tabu and Scatter Search for Artificial Neural Networks

 Abdellah El Fallahi and Rafael Marti
- 5. A Machine-Learning Approach to Optimal Bid Pricing Richard D. Lawrence
- GRASP with Adaptive Memory Programming for Finding Good Starting Solutions to the Multicommodity Capacitated Network Design Problem
 - Karim De Alba, Ada Alvarez, and Jose Luis Gonzalez-Velarde
- 7. Analyzing the Impact of Knowledge on Algorithm Performance in Discrete Optimization *Xiaomin Zhong and Eugene Santos Jr.*
- 8. A Computational Study of Three Demon Algorithm Variants for Solving the Traveling Salesman Problem Bala Chandran, Bruce Golden, and Edward Wasil
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- 11. Batching Techniques for Task Allocation in Workflow Systems Towards Effective Role Resolution Daniel D. Zeng and J. Leon Zhao
- 12.RECO: Representation and evaluation of configurable offers Martin Bichler, Jayant R. Kalagnanam, and Ho Soo Lee
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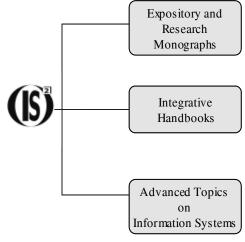
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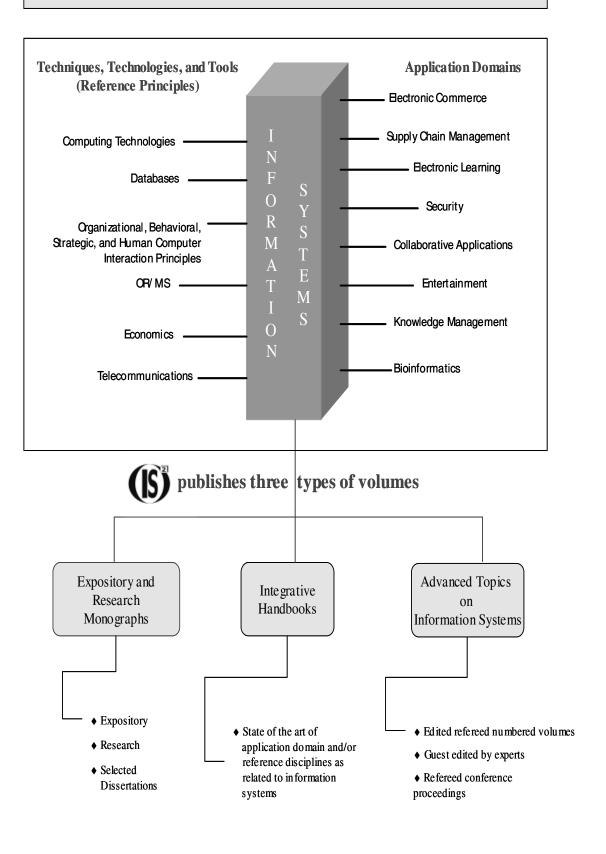
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Integrated Series in Information Systems



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Computational Molecular Biology/Bioinformatics

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Computational biology, or bioinformatics, has emerged from the Human Genome Project as one of the new frontiers for biomedical research. As problems become better defined, it becomes evident that operations research techniques can be applied with great success. Although some computational, mathematical, and statistical techniques have been used for more than a century, it is the recent explosion of data that has brought this to an information science that requires new algorithms and models to understand complex biological systems. We invite research papers that apply OR to these problems. Some examples and elaboration are at http://joc.pubs.informs.org/CallSpecialIssueCompBio.html

Deadline: August 1, 2003

Expected publication: Fall 2004

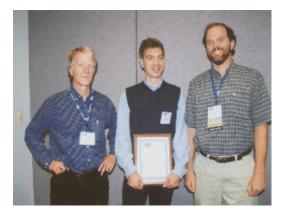
You can submit electronically a postscript or pdf file to the Editor, or to any Associate Editor with cc: Harvey.Greenberg@cudenver.edu.

News

Janos Pinter (Vice Chair, Global Optimization of the INFORMS Optimization Section (2002-2004)), welcomes news from the members of the INFORMS Computing Society regarding nonlinear/global optimization. Challenging applications and case studies, as well as software development and test/benchmarking results are of special interest. Janos can be contacted at: idpinter@hfx.eastlink.ca

At the San Jose Meeting, the INFORMS board unanimously voted to host the open source software resources for OR professionals, COIN-OR (http://www.coin-or.org). COIN-OR will be transferring it's operations from IBM Research (which launched the initiative with a three year committement at ISMP in 2000) to INFORMS some time in 2003.

2002 ICS Prize



(Left to right- 2002 ICS Prize Committee Chairman Kevin Wood, Pascal Van Hentenryck, Brown University, who won the prize for his many contributions to The field of Constraint Programming and its integration into Operations Research, ICS Chariman David Woodruff)

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COIN-OR continued from page 1

find out to become involved in setting up "COIN-OR, Inc." see http://www-124.ibm.com/pipermail/coin-announce/2003-January/000032.html.

The COIN-OR Open Source Coding Contest

To celebrate COIN-OR's move to INFORMS, we're throwing a contest. If you're working in mixed-integer optimization and want to have some fun, check out the contest at http://www.coin-or.org/contest.htm. Three IBM Thinkpads will be awarded August 2003, at ISMP as the student prizes. Non-students can compete, but no word on the professional prize as yet. The contest deadline is June 31st, so don't delay too long.

New Tools Available

Two new tools have recently been added to the collection of packages available at www.coin-or.org. Both are authored by John Forrest (IBM Research).

The COIN-OR Linear Program Solver (CLP) is designed to be a high-quality simplex-based LP solver. Some speed has been sacrificed to make the code cleaner and more understandable (hence, hopefully more maintainable and extensible) by the larger community. CLP uses sparse-matrix techniques designed for very large problems. For more features, see the FAQs page on www.coin-or.org. A new mailing list, coin-lpsolver, is available for discussion on CLP. To subscribe, visit the mailing list page on https://www.coin-or.org.

The "Simple Branch and Bound" (SBB) code has quickly outgrown it's name. What was meant as a quick branch-and-bound code to satisfy the CLP Open Solver Interface (OSI) requirement to provide an integer solver has now been spawned into a project of its own. SBB is more aptly described as a branch-and-cut code. It is written using OSI, is integrated with the Cut Generation Library (CGL), has strong branching, hot starts, and heuristic(s).

For more on its features, see the FAQs page on www.coin-or.org and the Jan 03 coin-announce mailing list archives, http://www-124.ibm.com/pipermail/coin-announce/2003-January/000030.html

COIN-OR has a New Name (and the same acronym)

COIN-OR originally stood for the "Common Optimization Interface for Operations Research." Although the COIN-OR repository initially distributed software for mixed-integer programming, we always aspired at some point to distribute test sets, models, simulation software, constraint programming tools, visualization aids, and other resources meeting the specific needs of operations researchers. It was brought to our attention that the word "optimization" in the project's name didn't convey our broad mission, so by a vote of the project core-team members, the name has been changed to the "Computational Infrastructure for Operations Research".

A new "Events" Web Page

In conjunction with the INFORMS annual meeting, a new "Events" web page was born. We will be posting news of talks/workshops/usergroups meetings at upcoming conferences on this page. Send us your events and check out the open source related events at conferences you may be attending at http://www.coin-or.org/events.html

COIN-OR Article Appears

An article on COIN-OR appears in the latest issue of the IBM Journal of Research and Development. This issue celebrates the Mathematics Departments 40th anniversary; http://www.research.ibm.com/journal/rd47-1.html.



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