



**informs**  
Simulation  
Society

## INSTITUTE FOR OPERATIONS RESEARCH AND THE MANAGEMENT SCIENCES

# I-Sim News

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## President's Message

The fall season means – in addition to football – *I-Sim*'s key meetings for the year. The INFORMS national meeting was moved from New Orleans to San Francisco after the devastation caused by Hurricane Katrina. Kudos to Terry Cryan, the INFORMS staff and the conference committee for making these changes quickly and effectively. Thanks also to Steve Chick for organizing ten sessions in the Simulation cluster, and thanks to our members for their participation. Please note that our business meeting in San Francisco will be at 6:15pm on Sunday in the Taylor room. For the Winter Simulation Conference in Orlando, our business meeting will be Tuesday evening at 5:15pm; the room is yet to be determined. The Orlando business meeting will be followed by a reception for our LPAA and other award winners. There is more about both of these conferences later in this issue.

Speaking of awards, our *I-Sim* award committees have been active and very successful this year. There are a number of awardees, whose names will remain confidential for now, but please look for the results of the efforts of these committees at the upcoming conferences (and a description of the outstanding characteristics of the awardees). Special thanks to the committee chairs, Bruce Schmeiser, Dave Goldsman, Lee Schruben and Leyuan Shi and their committee members Steve Chick, Joan Donohue, Steve Roberts, Barry Nelson, George Fishman, David Kelton, and Peter Haas.

New bylaws were developed last year as part of our move to Society status. They help us to focus on key activities using fair, repeatable and reliable procedures. Article V of the bylaws focuses on committees for our Society and lists several standing committees. Other committees can be created on an ad hoc basis by the President, and remain in existence for the duration of that president's term. I have had discussions with the Council about moving two of our ad hoc committees to standing committee status: the Ph.D. Colloquium Committee and the Committee for Underrepresented Minorities and Women (CUMW). Special thanks go to Theresa Roeder and Barb Tawney for their efforts to support and more clearly define the mission of the CUMW. A proposed modification to the bylaws is included in this issue. It will be discussed at the business meetings this fall. If it is approved by a quorum, the modification will be put before the general membership for a vote. Please take a moment to look at the draft modification, and come prepared to discuss it at our business meeting in San Francisco and, if necessary, Orlando.

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## Editor's Corner

Our I-Sim News depends on the contributions and helps of many people for each issue. Particular thanks to Russell Barton, Susan Sanchez, Michael Fu, Shane Henderson, Chun-Hung Chen, Steve Chick, Jim Wilson, Perwez Shahabuddin, Theresa Roeder, Charles Standridge, Seong-Hee Kim, and Peter Welch.

There are few things that I would like to highlight in this newsletter. First, there is a proposed modification to the bylaws, please take a look as it will be discussed at the business meetings in San Francisco and possibly in Orlando. Second, the INFORMS Simulation Society will be holding its election of officers and council members in May of next year for terms beginning 1 July 2006. The Nomination Committee has prepared a slate of candidates. Moreover, there are some highlights for the upcoming INFORMS annual meeting at San Francisco which is prepared by Steve. Finally, don't forget to come to the business meetings at both the INFORMS and WSC 05. See you at San Francisco and Orlando.

-- Loo Hay Lee

Please pass along printouts of the newsletter to friends and colleagues, or let them know about the *INFORMS Simulation Society* World Wide Web page. You'll get more than just a newsletter. Its URL is

<http://www.informs-sim.org/>

This web page is designed to be a general source of information and WWW links for the simulation community, with a particular focus on society interests and activities. There are often additional special items, such as *WSC'05*, and upcoming *INFORMS* conferences.



*INFORMS Simulation Society Newsletter* is published in the Spring and Fall of each year by the *INFORMS Simulation Society*. Membership in the *Simulation Society* is independent of membership in *The Institute for Operations Research and the Management Sciences*. The annual membership fee for non-*INFORMS* members is \$20.00; *INFORMS* members may join for \$10.00. The fee for students and retired members who are also members of *INFORMS* is \$5.00.

**To join**, call 1-800 4 INFORMS (from the USA) or (+1)(410) 850-0300 (from outside the USA). Or point your web browser to <http://www.informs-sim.org/join.html>. Or contact the secretary, Shane Henderson. His address information appears on the front cover. Please pass along this announcement to others who might be interested in joining. POSTMASTER: Send address changes to *INFORMS Simulation Society Newsletter*, 901 Elkridge Landing Road, Suite 400, Linthicum, MD 21090.

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# INFORMS Simulation Society Treasurer's Report

2005 Year-to-Date Cash Flow report  
August 31, 2005

Net Worth August 31, 2005	
<b>ASSETS</b>	
Cash and Bank Accounts	
INFORMS Account Available	12,922.63
INFORMS-CS Checking	2,631.53
INFORMS Account (Deferred dues for 2006)	150.00*
Nonliquid Assets	
WSC Seed Money	4,000.00
<b>TOTAL ASSETS</b>	<b>19,704.16</b>
<b>LIABILITIES</b>	
	0.00
<b>NET WORTH</b>	<b>19,704.16</b>

Headquarters Account funds are held by the *INFORMS* office: 901 Elkridge Landing Road; Suite 400; Linthicum MD 21090-2909. Checking account funds on deposit with Bank of America, 10 Light Street, Baltimore MD 21202 (checking account number 003936322008).

<b>INFLOWS*</b>	
Dues Income (as of June 30, 2005)*	4,575.00
WSC'04 Surplus	1,000.00
'04 Ph.D. Colloquium Reimbursed by WSC	1,600.00
Interest Income*	75.67
<b>TOTAL INFLOWS</b>	<b>7,250.67</b>
<b>OUTFLOWS (includes December '04 outflows)</b>	
'04 LPAA Award	969.62
'04 Ph.D. Colloquium	1,600.00
WSC'04 Reception	2,282.40
Web Page Maintenance	1,200.00
Domain Name Registration	62.19
Stationery	11.90
<b>TOTAL OUTFLOWS</b>	<b>6,126.11</b>
<b>NET CASH FLOW (estimate)</b>	<b>1,124.56</b>

\* Deferred dues for 2006 are funds received but that become available only on January 1, 2006 and are therefore not counted in the asset totals. Interest income from the account held at *INFORMS* headquarters is not calculated until the end of the calendar year. Interest income for 2004 was \$75.67. Dues income reflects actual receipts to *INFORMS* office until 6/30/05. For the entire calendar year 2004, there was \$4,327 in dues revenue.

*Chun-Hung Chen, Treasurer, September 20, 2005*

## INFORMS 2005 Annual Conference Simulation Society Highlights

*Steve Chick*

The *INFORMS* Simulation Society is sponsoring 10 sessions at the *INFORMS* 2005 Annual Conference, scheduled to take place in San Francisco, CA. Sessions on Sunday include those chaired by Bruce Ankenman (8am, joint session: Design and Analysis of Simulation Experiments), Charles Macal (10am, joint session, Tutorial on Agent-based modeling and simulation), Ted Allen (1:30pm Simulation optimization methods and applications), and Bahar Biller (4:30pm, Input modeling and applications). On Monday, sessions will be chaired by Wai Kin Chan (1:30pm, Simulation optimization) and Michael Fu (4:30pm, Simulation methods for selecting the best system). On Tuesday, sessions will be chaired by Seong-Hee Kim (8am, Simulation output analysis),

Young Lee (Simulation analysis in supply chain and resource management), John Shortle (1:30pm, Aviation applications in simulation) and Roberto Szechtman (4:30pm, Advances in simulation methodology). I would like to thank each of these session organizers, as well as the fine panel of speakers in those sessions, for helping to make for a great conference. More details about each of the talks in those sessions can be found by searching the on-line program at <http://www.informs.org/Conf/NO2005/>.

You are also invited to the *INFORMS* Simulation Society Business Meeting on Sunday, November 13, at 6:15pm. Please come out to meet your simulation colleagues.

## President's Message Continued

Time flies! The next I-Sim elections will take place in the spring, to select officers and council members who will begin their two-year terms in July. The Nominating Committee chaired by Susan Sanchez has identified candidates for Vice-President/President-Elect, Secretary, Treasurer and Council. Thanks to her and to the other members of the committee, Jack Kleijnen and Keebom Kang. The candidates are included in this issue. Additional candidates can be added to the ballot by submitting a petition with ten or more member signatures to Susan.

Finally, the bylaws state that a primary purpose of *I-Sim* is to “To promote communication and interaction among individuals and organizations who share an interest in simulation.” Thanks to all of you who continue to support this purpose. I encourage all members to think about ways that we can be more effective in this role, and to communicate your ideas to me, or to other officers or Council members. You can find us on the INFORMS-Sim web site: [www.informs-sim.org](http://www.informs-sim.org). I look forward to seeing many of you in San Francisco and Orlando.

--Russell Barton

### *Attending INFORMS at San Francisco?*

Please be sure to come to **the Informs Simulation Society Business Meeting**

Date: **November 13 2005 (Sunday)**

Time: **6:15 pm**

Venue: **Taylor**

## Secretary's Corner

I'd just like to comment on some changes to the webpage and our membership numbers.

Our main webpage URL is [www.informs-sim.org](http://www.informs-sim.org). Please use this domain name in any links to the society webpage. We have also kept the [www.informs-cs.org](http://www.informs-cs.org) domain name because so many articles have been published that point to it. To simplify things and to save the society money, we are retiring the [www.i-sims.org](http://www.i-sims.org) name in November 2005.

Our membership numbers remain strong and healthy, and so our status as an INFORMS society remains solid. Thank you for your continued support of the society. Please help us to remain in this solid position by renewing your membership promptly - especially before the Winter Simulation Conference so that you can take advantage of the substantial registration discount for members of the society.

-- *Shane Henderson*

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## The Puzzle : Can't Win in a Fair Coin-Flipping Game?

*Seong-Hee Kim*

There is a coin flipping game in which

- (1) you have your own coin and flip the coin at each round;
- (2) you must play 100 rounds without quitting;
- (3) you should bet the half of the total amount you have at each round;
- (4) at each round, if a head comes up, the same amount of your bet will be paid; and
- (5) at each round, if a tail comes up, you lose the amount of your bet.

1. Suppose that one finished the game and 50 heads came up. How much does she have in her pocket after the last round? (Assume that people are allowed to bet any amount so \$0.00001 or smaller is possible.)

2. How many heads should come up not to lose money in this game? Also, what is the probability that a person makes some money in this game?

Everyone starts with \$1 million at the beginning. Since the expected amount one can have in her pocket after the first round is \$1 million, this is a fair game.

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## Society Sponsors Under-Represented Minorities and Women

*Theresa Roeder*

The Simulation Society awards sponsorships to assist in the costs of attending the Winter Simulation Conference (WSC) in an effort to support and encourage newcomers to the field of simulation and to spur interest in the field among under-represented minorities and women. This year's award will cover the cost of the conference registration and give a free year's membership to the Society. In addition, a luncheon will be hosted to give awardees an opportunity to meet each other and other members of

the Society. Priority will be given to first-time attendees.

To apply for one of these awards for this year's WSC, please send a statement of purpose and letter of recommendation demonstrating the applicant's promise as a Society member to Theresa Roeder at [tmroeder@sfsu.edu](mailto:tmroeder@sfsu.edu). The deadline for applications is November 15, 2005.

2006 INFORMS Conference on  
OR/MS Practice  
Applying Science in the Art of Business  
April 30 – May 2, 2006

Miami, Florida

*Steve Chick*

The Annual INFORMS Conference on OR/MS Practice will be held in Miami, Florida on April 30-May 2, 2006. Comprehensive information is available at <http://www.informs.org/Conf/Practice06/>. The conference is particularly targeted to analytic practitioners in all application areas, and academics that are interested in practice-oriented OR. Features of the conference will be the Edelman Award Competition, the Young Researcher Roundtable, and

2006 INFORMS CONFERENCE ON OR/MS PRACTICE  
**APPLYING SCIENCE**  
TO THE *Art of Business*

the INFORMS Professional Colloquium. There is also a call for presentations, as this year's conference will see an expansion of speaker invitations to a broad spectrum of practitioners and academics. The deadline for submitting a proposal to present is December 16, 2005. For further details, see <http://www.informs.org/Conf/Practice06/call.htm>.

Call for Sessions/Talks:  
INFORMS Annual Meeting  
November 5 -8, 2006  
Pittsburgh, Pennsylvania

*Steve Chick*

While next year seems so far away, please note that the INFORMS Annual Meeting in 2006 is scheduled for November 5-8 in Pittsburgh. The focus is both academic and practice oriented. If you would like to organize a session for the simulation cluster, please



contact Steve Chick ([stephen.chick@insead.edu](mailto:stephen.chick@insead.edu)) with session information. Information should be available sometime soon at <http://www.informs.org/Conf/>.





## 2005 Winter Simulation Conference December 4-7, Orlando, FL <http://www.wintersim.org/>



*Loo Hay Lee*

WSC' 05 will be held in beautiful Orland Florida, USA at the Hilton in the WALT DISNEY WORLD® Resort so BRING THE FAMILY!!

WSC '05 features a comprehensive program ranging from introductory tutorials to state-of-the-art research and practice. Targeted for those who are considering simulation as a tool to improve their business competitiveness, a one-day Introduction to Simulation for Management will debut this year. Led by leading industry notables, it will give attendees the benefit of over twenty-five years of best practices. Coupled with last year's new Case Studies track being brought back by popular demand, this year's conference will provide newcomers to the field with the knowledge and resources to effectively bring simulation into their organization. In addition, the conference includes student presentations, exhibits, training sessions by software/hardware vendors, business meetings for professional societies and software user groups, a general reception, and a spouse's program.

Our keynote speaker will be Colonel Nancy J. Currie, Ph.D. Nancy is a Mission Specialist ASTRONAUT on the Space Shuttle. She is currently the Manager of the Space Shuttle Safety and Mission Assurance at the NASA Johnson Space Center. Families will get the opportunity to have breakfast with Nancy.

As an "official" hotel of WALT DISNEY WORLD®, take advantage of the "Extra Magic Hour". This exciting program will allow our guests to enter a selected WALT DISNEY WORLD Theme Park (Four

parks in all) one hour prior to the official opening! Also, you will be enjoying one of the best times (i.e., in between Thanksgiving and Christmas) to visit WALT DISNEY WORLD in terms of people and waiting lines. Walt Disney will be celebrating their 50th anniversary in 2005.

You'll enjoy exceptional facilities at a Four Star, Four Diamond hotel. The hotel is steps away from Downtown Disney®, home of the Disney Marketplace, Pleasure Island, and Disney's West Side. What's more, free transportation to WALT DISNEY WORLD Theme Parks is provided for all Hilton guests.

A multitude of activities awaits you at the Hilton. Take a refreshing dip in either of two swimming pools, enjoy a workout at their health club, play golf in one of five WALT DISNEY WORLD championship courses, and savor a variety of cuisines at their seven restaurants and lounges. Also, you can enjoy the other major theme parks in Orlando (SEA World and Paramount).

Mark your calendar now for WSC '05 and join us in Orlando for an exceptional conference!

**The business meeting for the INFORMS Simulation Society will be on Tuesday (December 6) evening at 5:15pm. Plan to stay afterwards for a reception honoring the LPAA Award winner.**

## Operational Research Society (UK) Simulation Study Group 3<sup>rd</sup> Simulation Workshop (SW06) March 28-29, 2006

*Steve Chick*

In cooperation with the Association for Computing Machinery's Special Interest Group for Simulation (ACM SIGSIM) and the INFORMS Simulation Society. For more details of the conference, the streams and paper submission see [www.theorsociety.com](http://www.theorsociety.com) (under conferences).

The biennial Operational Research Society Simulation Workshop brings together practitioners and academics working in the field of discrete-event simulation. It provides an opportunity to exchange ideas on the current and future state-of-the-art in simulation and modelling. The workshop (labelled SW06) will be held at the Ashorne Hill Conference Centre, situated



close to Royal Leamington Spa in the West Midlands region of England (London 1 hour, Birmingham 30 minutes). Nearby are Stratford-upon-Avon (Shakespeare's birthplace) and Warwick's Medieval Castle.

The workshop will include plenary sessions, special focus streams and a PhD poster session. The technical programme includes papers in the areas of simulation methodology, simulation applications and simulation modelling and analysis. The deadline for submission of contributed papers is 28 October 2005. The deadline for the PhD poster session is February 11.

## Nominating Committee Presents Candidates for I-Sim Officers and Council

*Susan Sanchez, Chair, Nominating Committee*

The I-Sim Nominating Committee has identified highly qualified candidates willing to serve our society as officers and Council members. Officers and Council members serve for two years, and are elected by the membership in the Spring. Additional information on these candidates will be provided with the ballot that you will receive next Spring. The Nominating Committee welcomes additional candidates by petition of ten members or more. If you would like to offer a candidate by petition, please contact the Committee by February 15, 2006.

Candidates (in alphabetical order) for  
VP/Pres Elect:

John Fowler, Arizona State University  
Mike Kuhl, Rochester Institute of Technology

Secretary:

Gul Gurkan, Tilburg University, The Netherlands  
Roberto Lu, Boeing Systems

Treasurer:

Seong-Hee Kim, Georgia Tech  
Mansoor Mollaghasemi, University of Central Florida

Council:

Chun-Hung Chen, George Mason University  
Russell Cheng, Southampton University, UK  
Gary Horne, Referentia Systems  
J. O. Miller, Air Force Institute of Technology  
Michael Pidd, University of Lancaster, UK

Nominating committee:

Susan Sanchez ([ssanchez@nps.edu](mailto:ssanchez@nps.edu)),  
Keebom Kang ([kkang@nps.edu](mailto:kkang@nps.edu)),  
Jack Kleijnen ([Kleijnen@uvt.nl](mailto:Kleijnen@uvt.nl)).

## Proposed Change to the Bylaws

Russell Barton

Article V of our bylaws identifies the following standing committees for our Society:

- Outstanding Simulation Publication Award Committee
- Distinguished Service Award Committee
- Lifetime Professional Achievement Award Committee
- Communications Committee
- Awards Committee
- Nominating Committee

In addition, the bylaws specify that ad hoc committees may be established by the President. They remain in existence only for the duration of that president's term. I have proposed and the Council has approved moving two of our ad hoc committees to standing committee status: the Ph.D. Colloquium Committee and the Committee for Underrepresented Minorities and Women. Since their creation many years ago, these committees have been renewed by each subsequent President. The proposed modification to the bylaws is shown below. The bylaws state that modifications must be approved by the majority at an *I-Sim* business meeting (with a quorum of 15 members or more), and then be put up for vote by the general membership. The proposed modification will be discussed at the business meeting in San Francisco.

Article V Section 1, *Current*:

1. The Society shall have the following standing committees:

- A. An Outstanding Simulation Publication Award Committee whose members are appointed by the procedures established for this Committee.
- B. A Distinguished Service Award Committee whose members are appointed by the procedures established for this Committee.
- C. A Lifetime Professional Achievement Award Committee whose members are appointed by the procedures established for this Committee.

- D. A Communications Committee responsible for the Newsletter and Website. Unless a procedure for appointing members to this committee is established by the membership, this committee shall consist of three Society members appointed by the President and whose term shall coincide with the President's term. The President shall appoint editorial staff for the Newsletter after consultation with the Communication Committee. At least two Newsletters shall be produced each calendar year. The President may also appoint a Webmaster after consultation with the Communication Committee.
- E. An Awards Committee to nominate candidates for INFORMS Fellows and for (non- Society) Awards. Unless a procedure for appointing members to this committee is established by the membership, this committee shall consist of three Society members appointed by the President and whose term shall coincide with the President's term.

Article V Section 1, *Proposed Addition*:

- F. A Ph.D. Colloquium Committee to organize and conduct the Ph.D. Colloquium at the Winter Simulation Conference. Unless a procedure for appointing members to this committee is established by the membership, this committee shall consist of three Society members appointed by the President and whose term shall coincide with the President's term.
- G. A Committee for Underrepresented Minorities and Women to promote Society membership by underrepresented minorities and women. Unless a procedure for appointing members to this committee is established by the membership, this committee shall consist of three Society members appointed by the President and whose term shall coincide with the President's term.

## Report on ACM Transactions on Modeling and Computer Simulation

*Jim Wilson, Editor-in-Chief of ACM Transactions on Modeling and Computer Simulation, 1 November 2005*

Here is an updated summary of the editorial activities of the ACM Transactions on Modeling and Computer Simulation (TOMACS) for the period January 1, 2005 -- October 31, 2005:

# Papers submitted: 46  
 # Papers accepted: 9  
 # Papers rejected: 27  
 # Papers withdrawn: 6

As of October 31, 2005, there were 35 papers in review and 9 papers were being revised by the authors.

From the *ACM TOMACS* Editorial Scope and Charter: The ACM Transactions on Modeling and Computer Simulation (TOMACS) provides a single archival source for the publication of high-quality research and developmental results in computer simulation. The subjects of emphasis are discrete event simulation, combined discrete and continuous simulation, as well as Monte Carlo methods. Papers in continuous simulation will also receive serious consideration if their contributions to modeling and simulation in general are substantial.

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## Report on the Simulation Area of INFORMS Journal on Computing

*Susan Sanchez, Simulation Area Editor*

The Simulation Area is interested in research in all computational aspects of simulation. We seek high-quality research on the computational aspects of simulation model building, simulation data structures, simulation modeling and experiment environments, stochastic input modeling, random-variate generation, output analysis, optimization, variance-reduction methods for simulation experiments, and other aspects of simulation modeling, experimentation, and analysis. Tutorials and applications in the above areas that are comprehensive and integrate from multiple sources are also welcome.

Complete instructions for authors are available at <http://joc.pubs.informs.org>. Electronic submissions (preferably in .PDF format) should be sent to

Susan M. Sanchez  
 Simulation Area Editor, INFORMS JOC

[ssanchez@nps.edu](mailto:ssanchez@nps.edu)

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 273 Glasgow Hall  
 Naval Postgraduate School  
 Monterey, CA 93943-5219  
 831-656-2780 (phone)  
 831-656-2595 (fax)

Since the Spring 2005 newsletter, there have been four new submissions and two resubmissions. Two papers have been accepted and three papers have been rejected. Five papers are with the authors for revision, and three are under review.

The Associate Editors are Paul Fishwick (University of Florida), Marvin Nakayama (New Jersey Institute of Technology), Harriet Black Nembhard (Pennsylvania State University) and Leyuan Shi (University of Wisconsin-Madison).

## Report on the Stochastic Models and Simulation Department for Management Science

Perwez Shahabuddin, Departmental Editor, October 15, 2005

Department's Editorial Objectives: We are interested in innovative modeling and methodological contributions that have relevance to the current theory and practice of management science, or have potential to be relevant in the future. A more detailed statement may be found at <http://mansci.pubs.informs.org/statements.html#stochastic>

Submission Information: Manuscripts may be submitted online at <http://informs.manuscriptcentral.com>

Report for the first 6 months of the 2005 is pending due to shift to new on-line system.

### Associate Editors:

Thanos Avramidis, Universite de Montreal  
Gerard Cachon, University of Pennsylvania  
Rene Caldentey, New York University  
Stephen E. Chick, INSEAD

Michael Fu, University of Maryland.  
Sandeep Juneja, Tata Institute of Fundamental Research  
Steven Kou, Columbia University  
Tava Lennon Olsen, Washington University  
Erica Plambeck, Stanford University  
Garrett van Ryzin, Columbia University  
Alan Scheller-Wolf, Carnegie Mellon University  
James Taylor, Oxford University  
Felisa J. Vazquez-Abad, Universite de Montreal  
Stefanos Zenios, Stanford University

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## Report on the Simulation Area for Operations Research

Michael Fu, Operations Research Simulation Area Editor October 26, 2005

Activity in the Simulation Area of Operations Research (Feb. 21, 2005 to Oct. 26, 2005)

For the period specified, there were 11 new submissions and 4 resubmissions.

For decisions on manuscripts made during the period, there were 6 rejections, 7 revise/resubmit recommendations, and 2 acceptances. Of the 15 decisions made during the period, 5 were late (3 to 6 months) and 0 very late (over 6 months).

The Associate Editors in the Simulation Area are Sigrun Andradottir, Peter Haas, Jian-Qiang Hu, Sheldon Jacobson, and Jack Kleijnen.

At present, there are 4 manuscripts under review, of which 0 are late and 1 very late.

A note to prospective authors:  
New submissions should be submitted electronically via the Manuscript Central OR Web site (<http://mc.manuscriptcentral.com/opre>) and NOT directly to the Area Editor.

My term as Area Editor will be finishing at the end of this year (2005). The new incoming Editor-in-Chief, David Simchi-Levi, has announced that the new Simulation Area Editor will be Shane Henderson.

## Member's Corner – Closing the Loop: Converting Projects into Teachable Cases

Charles R. Standridge, School of Engineering, Padnos College of Engineering and Computing  
Grand Valley State University [standric@gvsu.edu](mailto:standric@gvsu.edu)

A fundamental objective of the system simulation courses taught in our undergraduate and graduate product design and manufacturing engineering programs is preparing students to address the system design and operation problems commonly found in a wide range of manufacturing industries. These problems have to do with pull manufacturing systems and work cells as well as material movement within and between facilities. In meeting this objective, realistic case studies and case problems have been used extensively. Shore and Plager (1978) proposed and discussed this approach. In the general engineering education literature the following benefits of case studies have been identified by Richards, et al., 1995: relevance; student motivation for working on realistic problems; consolidation and integration of multiple concepts and techniques; and transfer of knowledge to other cases and job situations.

The development of realistic cases is a challenge. Our approach is to convert industrial based projects into teachable cases, either into completed case studies that show the application of simulation modeling and

experimentation or into case problems that are assigned as student work. These projects arose from a variety of sources including capstone masters degree projects of part-time students based on their work experience, faculty consulting activities, and GVSU campus operations such as the mini AS/RS system used for the storage and retrieval of library holdings.

The case studies often require the students to learn additional modeling techniques or experimental approaches. Thus, the teaching of more advanced methods is done in the context of their application.

The following is a typical example of how cases are developed. A completed logistics case study was derived from a consulting project as described in Standridge and Heltne (2000). The original consulting project had too many details and was generally too complex to be directly used as a teachable case. A case study containing only the significant educational elements of the project was constructed. Table 1 compares the consulting project and the teachable case.

**Table 1. Comparison of Consulting Project and Teachable Case**

	Consulting Project	Teachable Case
Number of Products	As defined by input data.	One.
Shipping Mode	Rail cars with load size varying by product.	Trucks with one load size.
Maximum Number of Rail Cars or Trucks	As defined by input data for each rail car type.	Specified upper bound on the number of trucks.
Daily Customer Demand	Modeled as a triangularly distributed number of pounds. The number of loads is derived from the number of pounds. Fractional loads are added to the next day's demand.	Modeled as a triangularly distributed number of loads. Fractional loads are added to the next day's demand.
Loading	One of numerous load spots is assigned based on the product with objective of leveling load spot utilization. Loading time is constant.	Modeled as a uniformly distributed time delay.
Time to customer and time from customer to plant	All rail cars wait for departing train. Travel time is modeled as triangularly distributed depending on the product.	Travel time delay is modeled as triangularly distributed.
Time at customer	All rail cars wait till the train arrival time. Time delay is modeled as triangularly distributed.	Time delay is modeled as triangularly distributed.
Inspection	Need for repair is modeled as a random choice. Inspection and repair time delay is modeled as triangularly distributed.	Need for repair is modeled as a random choice. Inspection and repair time delay is modeled as triangularly distributed.

**Table 2. Model Process Logic.**

Process	Logic
Daily Demand	Sample daily demand and determine the number of loads to send.
Shipment	For each load entity, acquire a truck for shipping and experience delays: loading, moving to the customer, at the customer, and returning from the customer.
Inspect	For each entity, acquire a worker, experience a delay for inspection, experience a delay for repair if necessary by random choice, and release the truck and worker.

The case study model was implemented in AutoMod using three processes whose logic is summarized in Table 2. The objective is to minimize the cost of trucks and workers without compromising the delivery of loads to the customers. Thus, the simulation experiment seeks to find the minimum number of trucks and workers needed to move all loads. First, the expected number of trucks and workers needed to move the expected annual number of loads is computed. Given that demand and travel times as well

as truck inspection and repair times are all random, the expected number is the minimum number required.

The first set of simulation runs is made with no constraint on the number of workers. The number of trucks is arbitrarily increased from the minimum by 5 each time until the number of loads delivered per year shows no operationally significant change. The average number of loads delivered per year over 10 replicates for various numbers of trucks is shown in Table 3.

**Table 3. Average Number of Load Delivered Per Year**

Number of Trucks	68	70	75	80
Average Deliveries	13823	14156	14377	14387

The difference of 10 in the average number of deliveries using 75 and 80 trucks is operationally insignificant. It is interesting to note that the approximate 95% confidence interval for the true mean difference is (3, 17), illustrating that statistically significant differences are not necessarily operationally meaningful. Thus, the number of trucks is set to 75.

and instructional modules. *Journal of Engineering Education*, 84(5): 375-381.

Shore, B. and D. Plager, 1978. Simulation: a case approach. In *Proceedings of the 1978 Winter Simulation Conference*, ed., H. J. Highland, N. R. Nielsen, and L. G. Hull, 361-370. Institute of Electrical and Electronics Engineers, Piscataway, NJ.

The simulation experiment to determine the number of workers is similar. The number of trucks is fixed at 75. It was determined that 7 workers are needed.

Standridge, C. R. and D. R. Heltne. 2000. An MSE-based simulation capability for strategic and tactical logistics. In *Proceedings of the 2000 Winter Simulation Conference*, ed., J. A. Joines, R. R. Barton, K. Kang, and P. A. Fishwick, 1107-1113. Institute of Electrical and Electronics Engineers, Piscataway, NJ.

**Bibliography:**

Richards, L. G., M. Gorman, W. T. Scherer, and R. D. Landel, 1995. Promoting active learning with cases

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## The Puzzle Answered

*Seong-Hee Kim*

1. If one head and one tail come up, then one gets \$1 million \* 1.5 \* 0.5 = \$0.75 million in her pocket. That is, for each pair of one head and one tail, she loses 25% of what she had in her pocket. Therefore, even with 50 heads and 50 tails out of 100 flips, she ends up with only around 57 cents out of the initial \$1 million!!!

2. If 63 heads come up, then one loses around \$97,200 (Why? Because \$1million \* 1.5<sup>63</sup> \* 0.5<sup>37</sup> = \$0.9029 million). If 64 heads come up, then she earns around \$1.7million in addition to her initial \$1 million. But, the probability that 64 or more heads come up is only 0.33%!!!

Does this partially explain why it is so difficult to make money in a stock market?

# Edward P. Fitts Endows NC State's Industrial Engineering Department

*Jim Wilson*

In September 2005, Mr. Ed Fitts pledged \$10 million to endow the Edward P. Fitts Department of Industrial Engineering at North Carolina State University—the first named academic department in the University, and the fourth such designation among all academic departments of industrial engineering worldwide.

A 1961 industrial engineering graduate of NC State, Mr. Fitts began his career with Sunoco Products Company, where he remained for eighteen years, eventually becoming vice president of paperboard packaging. In 1979 he led a management team that purchased the paperboard packaging operation from Sunoco and renamed the company Dopaco. During Mr. Fitts's twenty-seven-year tenure as chairman and CEO of Dopaco, the company has grown from 115 employees to 1,500 employees, with nine plants and sales of more than \$300 million annually. Dopaco is recognized internationally for its strong commitment to environmentally friendly packaging and processes.

Mr. Fitts has assembled a project team of distinguished individuals to provide advice on the structure of the departmental endowment, which will include the creation of several endowed professorships and fellowships for graduate students. The members of this project team are: Ed Woolard, also an industrial engineering graduate of NC State and former CEO of E. I. du Pont de Nemours and Company; Don Russell; Bob Kearns; and Bill Rouse, professor and former head of the School of Industrial and Systems Engineering at Georgia Tech and currently Executive Director of the Tennenbaum Institute for Enterprise Transformation at Georgia Tech. Working closely with this team is a project group of NC State industrial engineering professors, including Shu-Cherng Fang, Walter Clark Professor of Industrial Engineering;

Thom Hodgson, James T. Ryan Distinguished University Professor of Industrial Engineering and former department head; Steve Roberts, former department head; Clarence Smith, assistant department head; Jim Wilson, department head; and Bob Young.

Mr. Fitts has compiled a long record of generous support for the industrial engineering programs at NC State. Since he inaugurated the Fitts Scholarships in 2000, nineteen awards have been made to undergraduates majoring in industrial engineering; and these students have shown themselves to be among the most accomplished in the College of Engineering and the entire University. In 2002, Mr. Fitts endowed the Edward P. Fitts Industrial Engineering Professorship, with the objective of recruiting an internationally known authority in the field of information technology and its application in the domains of logistics and supply-chain engineering. Professor Reha Uzsoy, who is currently in the School of Industrial Engineering at Purdue University and Director of the Laboratory for Extended Enterprises at Purdue, has accepted this position and will join the NC State industrial engineering faculty in the next year.

It is noteworthy that many active members of the INFORMS Simulation Society are either alumni of the NC State industrial engineering program or members of its faculty—including Tayfur Altioek (Ph.D. 1982); Brad Armstrong (M.S. 1996); Jeff Joines (B.S. 1990, M.S. 1993, Ph.D. 1996); Mike Kuhl (M.S. 1994, Ph.D. 1997); Emily Lada (M.S. 2000, Ph.D. 2003); Leon McGinnis (Ph.D. 1975); Dick Nance (B.S. 1962, M.S. 1966); Steve Roberts; Natalie Steiger (Ph.D. 1999); and Jim Wilson.

## Job Openings in Simulation

### **THE UNIVERSITY OF MICHIGAN** **Department of Industrial and Operations** **Engineering Faculty Positions**

The Department of Industrial and Operations Engineering at the University of Michigan invites applications and nominations for two faculty positions beginning September, 2006.

We are seeking outstanding candidates in the following areas:

- Associate/Full Professor in Financial Engineering
- Associate/Full Professor in Simulation/Stochastic Modeling

Candidates must demonstrate research excellence and evidence of teaching potential and must have a Ph.D. Experience related to manufacturing or service operations is desirable. Senior candidates are expected to provide organizational and research leadership, develop sources of external funding, build relationships with industry, and interact substantively with faculty colleagues. Candidates should provide (i) a current C.V., (ii) a list of references, and one page summary statements describing: (iii) qualifications for this position; (iv) career teaching plans; and (v) research plans. To ensure full consideration, applications should be received by December 1, 2005, but the positions will remain open and applications will continue to be reviewed until appointments are made.

Send inquiries and responses to:  
Professor Lawrence M. Seiford, Chair  
Department of Industrial and Operations Engineering  
University of Michigan  
1205 Beal Avenue  
Ann Arbor, MI 48109-2117

*The University of Michigan is a non-discriminatory, affirmative action employer.*

### **UNIVERSITY OF CALIFORNIA, BERKELEY**

The Department of Industrial Engineering and Operations Research is seeking highly qualified candidates for a tenure-track faculty position at the Assistant Professor level, beginning fall 2006. We welcome qualified applicants with diverse interests and

backgrounds. We are particularly interested in candidates with teaching and research emphases in stochastic modeling and methodologies applied to service industries or related areas.

A doctorate in Industrial Engineering, Operations Research, Systems Engineering, Operations Management, or a related field, is required. The position involves teaching at all levels from undergraduate courses to advanced graduate seminars, and supervision of doctoral students. Candidates should have the potential to develop a strong record of research, teaching and service, as well as interest and ability to pursue industrial interaction and research funding from industrial and/or governmental sources.

The Department offers integrated programs in Industrial Engineering and Operations Research at the B.S., M.S. and Ph.D. levels. There is opportunity for collaboration within the department and with faculty in Business Administration, other engineering fields, Statistics and other disciplines.

Applications must include current curriculum vitae, statement of interest in the position, copies of selected publications, and four or more letters of reference. Refer potential reviewers to the UC Berkeley Statement of Confidentiality found at: <http://apo.chance.berkeley.edu/evaltr.html>. The application must arrive by January 5, 2006. Late applications cannot be considered. Please send applications to:

Search Committee Chair  
Department of Industrial Engineering & Operations  
Research, University of California  
4141 Etcheverry Hall  
Berkeley, CA 94720-1777  
Telephone: (510) 642-5484  
FAX: (510) 642-1403  
[www.ieor.berkeley.edu](http://www.ieor.berkeley.edu)

Several faculty members will be available for a limited number of informal meetings during the upcoming INFORMS Annual Meeting in San Francisco. Interested applicants should contact Phil Kaminsky ([kaminsky@ieor.berkeley.edu](mailto:kaminsky@ieor.berkeley.edu)).

*The University of California is an Equal Opportunity, Affirmative Action Employer.*

# INFORMS Simulation Society E-mail Directory

E-mail listings for Simulation Society members that allow their names to be published are available electronically at the WWW site: <http://www.rit.edu/~mekeie/icsemail.html>

The list is created automatically by querying the INFORMS registration database. You can update your

membership information via <http://www.informs.org/members.html>. If you have questions or difficulties, please contact Seong-Hee Kim (see cover for contact details). If you are unsure whether or not your membership is current, contact Shane Henderson (see cover for contact details) for confirmation

## Event Calendar

*Seong-Hee Kim, Associate Newsletter Editor, October 20, 2005*

This is the event calendar as it appears in the Newsletter, See [Conferences and Workshops](#) for the regularly updated calendar of the I-Sim Society site (<http://www.informs-sim.org>).

INFORMS Annual Meeting 2005, San Francisco, California, November 13 – 16, 2005. WWW: <http://www.informs.org/Conf/NO2005/>

WSC 2005: Winter Simulation Conference, Orlando, Florida, December 4 – 7, 2005. Contact: Brad Armstrong or Jeff Joins E-mail: [seav@earthlink.net](mailto:seav@earthlink.net) or [jeffjoines@ncsu.edu](mailto:jeffjoines@ncsu.edu) WWW: <http://www.wintersim.org>

The IASTED International Conference on Advances in Computer Science and Technology (ACST 2006), Puerto Vallarta, Mexico, January 23 – 25, 2006. WWW: <http://www.iasted.com/conferences/2006/mexico/acst.htm>

The 5<sup>th</sup> IASTED International Conference on Web-Based Education (WBE 2006), Puerto Vallarta, Mexico, January 23 – 25, 2006. WWW: <http://www.iasted.com/conferences/2006/mexico/wbe.htm>

International Conference on Modeling and Simulation Technology for Power Plants (PowerPlantSim'06), Atlanta, Georgia, February 6 – 8, 2006. WWW: <http://www.scs.org/confemc/powerplantsim/powerplantsim06/cfp/powerplantsim06.htm>

The 3<sup>rd</sup> Annual CIO Forum: CIO Perspectives, UCLA, California, February 7, 2006. E-mail: [info@cio-conference.ucla.edu](mailto:info@cio-conference.ucla.edu) WWW: <http://www.cio-conference.ucla.edu/2006/>

Operational Research Society (UK) Simulation Study Group 3<sup>rd</sup> Simulation Workshop (SW'06), Ashorne Hill, UK, March 28 – 29, 2006. E-mail: [scb@socsci.soton.ac.uk](mailto:scb@socsci.soton.ac.uk) WWW: [http://www.theorsociety.com/conf/simulation2006/simulation2006\\_main.htm](http://www.theorsociety.com/conf/simulation2006/simulation2006_main.htm)

The 8<sup>th</sup> INFORMS Telecommunications Conference, Dallas, Texas, March 30 – April 2, 2006. WWW: <http://telecom.section.informs.org/conference/>

2006 Spring Simulation Multiconference (SpringSim'06), Huntsville, Alabama, April 2 – 6, 2006. WWW: <http://www.scs.org/confemc/springsim/springsim06/cfp/springsim06.htm>

2006 Spring Simulation Interoperability Workshop (SIW'06), Huntsville, Alabama, April 2 – 7, 2006. WWW: <http://www.sisostds.org/cfp.htm>

Wireless Telecommunications Symposium 2006, Pomona, California, April 27 – 29, 2006. WWW: <http://www.csupomona.edu/~wtsi/>

INFORMS Practice Conference 2006: Applying Science to the Art of Business, Miami, Florida, April 30 – May 2, 2006. WWW: <http://www.informs.org/Conf/Practice06/>

2006 Behavior Representation in Modeling and Simulation (BRIMS) Conference, Baltimore, Maryland, May 15 – 18, 2006. WWW: <http://www.sisostds.org>

The 12<sup>th</sup> IFAC Symposium on Information Control Problems in Manufacturing, Saint-Etienne, France, May 17 – 19, 2006. WWW: <http://www.emse.fr/incom2006/>

2006 IIE Annual Conference and Exposition, Orlando, Florida, May 20 – 24, 2006. WWW: <http://www.iieannual.org/>

2006 Industrial Engineering Research Conference (IERC), Orlando, Florida, May 20 – 24, 2006. WWW: <http://www.x-cd.com/iie06/abstract.cfm>

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The 14<sup>th</sup> International Conference on Management of Technology, Beijing, China, May 22 – 26, 2006. WWW: [www.iamot.org](http://www.iamot.org)

2006 European Simulation Interoperability Workshop (EURO SIW), Stockholm, Sweden, June 19 – 22, 2006. WWW: <http://www.sisostds.org>

The INFORMS International meeting in Hong Kong, Hong Kong, China, June 25 – 28, 2006. WWW: <http://www.informs.org/Conf/Hongkong06/>

The 16<sup>th</sup> International Flexible Automation and Intelligent Manufacturing (FAIM), Limerick, Ireland, June 26 - 28, 2006. WWW: [www.ul.ie/faim2006](http://www.ul.ie/faim2006)

2006 Summer Simulation Multiconference (SummerSim'06), Calgary, Canada, July 30 – August 3, 2006. WWW: <http://www.scs.org/confmc/summersim/summersim06/cfp/summersim06.htm>

INFORMS Annual Meeting 2006, Pittsburgh, PA, November 5 – 8, 2006. WWW: <http://www.informs.org/Conf/Pittsburgh06/>

The 2006 IEEE/WIC/ACM International Conference on Web Intelligence (WI-06), Hong Kong, China, December 18 – 22, 2006. WWW: <http://www.comp.hkbu.edu.hk/~wii06/wi/>

The 2006 IEEE/WIC/ACM International Conference on Intelligent Agent Technology (IAT-06), Hong Kong, China, December 18 – 22, 2006. WWW: <http://www.comp.hkbu.edu.hk/~wii06/iat/>

The 2006 IEEE International Conference on Data Mining (ICDM-06), Hong Kong, China, December 18 – 22, 2006. WWW: <http://www.comp.hkbu.edu.hk/~wii06/icdm/>



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