

# IE ANNUAL ALUMNI NEWSLETTER

The University of Michigan College of Engineering DEPARTMENT OF INDUSTRIAL AND OPERATIONS ENGINEERING

## A Word From the Acting Chairman

An unanticipated pleasure of my six months' tour as acting chairman during Steve Pollock's sabbatical is this opportunity to write these observations. I am gratified to be able to report that the department continues to be a stimulating cluster of faculty, students, staff, and ideas. In comparing notes with chairmen of IE departments at other universities, I conclude that our salubrious situation arises from a combination of factors, including the constitutional autonomy of the University which allows us to devise and execute academic plans outside the political arena. In addition, we are enjoying an improved economic climate in the state, and the University is helped by public recognition that research excellence in higher education can be an important factor in strengthening the state's future economy. We also are benefiting from the efforts of a vigorous College administration, which has established renewed emphasis on graduate education and research in engineering, and has provided resources and incentives to faculty for outstanding performance. Given this environment, the combination of a significant fraction of young members among the IOE faculty, a highly qualified and motivated undergraduate and graduate student body, and continuing demand for the technologies and application of IOE skills, provide the ingredients for sustaining the reputation and achievements of the department. I have just finished reviewing the student evaluations for 1984-85 of faculty teaching and courses offered by the department, and that data supports the high regard of the students for the IOE faculty. A comparable review of activities reported by the IOE faculty during the last year impressed me with the quality and scope of their efforts toward course innovation, individual instruction and student interaction, professional society participation, publications, consulting, and a variety of other services to the University and the engineering community.

By the time you receive this newsletter, Steve Pollock will have reoccupied the chairmanship, and I again will be actively retired. It is gratifying to me, as it must be to many of you, to have this reassurance that the department contains the ingredients for continued excellence into the future. I am proud to have been associated with it and with many of you, through this and uncountable prior years.

--- Dick Wilson

## Faculty Changes

**M. M. Srinivasan** joined the IOE faculty in January of 1985. He is a graduate of Northwestern University and worked in the automobile manufacturing industry for over five years prior to joining Northwestern. His major areas of interest include queuing network modeling and distributed database management.

**Hudson de Araujo Couto** has been visiting the department over the past two months. He is a professor of human physiology at Faculdade de Ciencias Medicas (Medical Sciences School), Belo Horizonte, Minas Gerais,

Brazil. Araujo Couto has been studying techniques of biomechanical evaluation and of complete dynamometric study of the osteomuscular system of the worker (try saying this three times fast while humming the UM fight song).

**Reuven Karni** has been visiting during the past academic year. He is a senior lecturer at the Technion, Haifa, Israel. His major areas of interest include requirements planning systems, computer-integrated production planning systems, and information policy planning.

## Faculty News

**Jeffrey K. Likier** and **Walton Hancock**, in collaboration with a group from the Industrial Technology Institute, have developed a research program called "Design for Quality". This four-phase program is designed to reduce lead time, engineering changes and manufacturing and warranty costs, and to increase product quality. The assumption is that, although a first-rate design is a necessary condition for success in manufacturing, many companies do not provide engineers with a work environment conducive to first-rate design. The program includes data collection on organizational impediments to design, data feedback, consultation with multi-level, multi-functional task forces, and evaluation of positive steps aimed at improvement. For more detail see their article in Industrial Engineering, (July, 1984 - "Work Environment Survey Generates Ideas on Increasing White Collar Productivity").

**John Birge** has received a grant from General Motors to study Real Time Adaptive scheduling. He is also continuing his involvement with IIASA (International Institute for Applied Systems Analysis).

**Don Chaffin** has co-authored a text book with Gunnar Anderson (Sweden) entitled, "Occupational Biomechanics", published by J. Wiley and Sons, Inc. It is already scheduled for a second printing. He is Director of the Center for Ergonomics (see Center for Ergonomics) and is Project Director on two major grants from NIOSH and Ford Body and Assembly Operations. This past Spring he was invited to give the prestigious Wartenweiler Memorial Lecture for the International Society of Biomechanics in Umea, Sweden.

**Gary D. Herrin** is the chairman of one of this summer's Engineering Summer Conferences being held at the Chrysler Center. His course is designed for occupational health and safety professionals who want or need to use the personal computer with applications in occupational health. Applications presented are directed toward: general software, ergonomic software, computer assisted workplace design, medical surveillance, and job function analysis.

**David Kelton** has received a grant from the Rackham school of graduate studies. David will be using this grant in the study of input modeling and simulation.

**Katta G. Murty** has a new book Linear Complimentarity, Linear and Nonlinear Programming in

production, being published by Heldermann Verlag Publishers of West Berlin. This up-to-date comprehensive text (covering quadratic programming, linear complementarity, nonlinear programming, fixed point computing algorithms, and new algorithms for linear programming) should be a major advance in optimization.

Steve Pollock has recently returned from the MIT Operative Research Center where he spent January through June on Sabbatical leave. He has been developing new fast approximation methods for analyzing networks of service facilities. Steve was recently elected Vice-President (1985-86) and President-elect (1986-87) of the Operations Research Society of America.

Robert L. Smith has been awarded an NSF grant with co-principal investigator James C. Bean to study in the area of Infinite Horizon Optimization. Bob and Jim have a recent PhD student (Wally Hopp) who won the prestigious ORSA Nicholson Prize for the best PhD thesis in Operations Research for 1984. Bob just ended his term as Chairman of the ORSA Visiting Lecturers Program Committee and spent last summer at Technion in Haifa, Israel as a visiting professor in the Department of Industrial Engineering and Management.

Tony C. Woo is the recipient of the 1985-86 TRW Foundation Award in Manufacturing Engineering. He will be visiting TRW subsidiaries in Germany, England and the U.S. His research interest continues to be the development of high performance geometric algorithms for CAD/CAM and robotics.

## ISDOS

### Becomes a Private Corporation while PRISE stays in IOE

Originally an organization within the IOE department, ISDOS (Information Systems Design Optimization) is now an independent corporation. ISDOS is one of a number of "spin off" companies generated by professors in the College of Engineering. Professor Daniel Teichroew of IOE, who remains with the department as the director of a new IOE organization known as PRISE, is the originator of ISDOS and describes his company's software by explaining that it is to the design of information processing systems what CAD tools are to the design of mechanical systems.

PSL, Problem Statement Language, and PSA, Problem Statement Analyzer (which, like ISDOS, are trademarked), are aids for software engineering and systems analysis and design. The systems analyst/designer is to an information processing system what the architect is to a house, Teichroew explains.

PSL is an English-like non-procedural language that can unambiguously describe the desired information-processing system with its required components and relationships, and PSA can help the system-analyst/designer analyze the system for completeness and consistency.

"When you want to build a house for yourself you must first get an architect to help you develop a concept for the house. When an organization wants a computer-based information system, it has to have the systems analyst or analysts first work out the concept."

ISDOS currently has a staff of 41 people, about a third of whom are former college students or staff members. The firm grossed over one million dollars in its first year of operation. The size of the market, Teichroew estimates, is now about 50 to 100 million dollars a year, and it's growing by at least the rate of growth of software in general, which is over 20 percent a year.

Although some products are appearing on the market that do some of the same things as PSA/PSL, ISDOS is still enjoying the benefits of being there first. ISDOS users include GE, IBM, Metropolitan Life, Standard Oil of California, Boeing, Ford Aerospace and a long list of other organizations at home and abroad. The software ranges in price from over fifty thousand dollars for large mainframes to several thousand dollars for personal computers.

Teichroew expects to keep the competition at bay with aggressive marketing and product development efforts. The latter include research to make the tools useful for a larger spectrum of computers. Another goal is to make the product easier to use for the growing numbers of computer novices.

## Center for Ergonomics

The Center for Ergonomics, once again under the directorship of Don Chaffin, continues its very active role of individual and collaborative research. Don, Gary Langolf, Gary Herrin, Dev Kochhar, Jeffrey Liker, and Monroe Keyserling plus a host of PhD students and support staff are continuing their investigation of ergonomics in Ford assembly plants. The findings are certain to impact future assembly plant operations. The group also continues its Center Grant program in Occupational Health and Safety Engineering jointly with Industrial Health and the Medical School. Don serves on the College's Executive Committee, has just completed a text "Occupational Biomechanics" (highly recommended), and among other extramural activities, has served as President of the Association of University Programs in Occupational Health and Safety.

## STUDENT ACTIVITIES

### Institute of Industrial Engineers

The local chapter of IIE continues to help Industrial engineering students become more aware of the profession. The UM chapter is the largest engineering society of campus, with approximately 200 undergraduate and graduate members. The officers are:

Jerri Long	President
Andy Sandford	Executive VP
Mark Herman	VP Programs
Mimi Yang	VP Communications
Glenda Gibbons	VP Finance
Frank Watts	VP Membership
Dave Davis	VP Chapter Development
Brett Larson &	
Mike Penn	VP Fundraising
Gilberto Larach	VP Luncheon

The chapter sponsors luncheons with speakers from various industries, plant tours, social activities and student projects. (If any alumni are interested in speaking at a luncheon, their participation is welcome.) This past year, IIE began taking more plant tours around the Metro Detroit area. The group toured GMF, General Motors joint venture with Fanuc of Japan, as well as General Motors' Lake Orion assembly plant. This was an especially exciting tour as the Lake Orion plant is considered to be one of the most highly automated plants in the world.

Every year the chapter presents an award to an industrial engineering student who has made an outstanding contribution to the profession. This year's recipient of the Walton M. Hancock Award was Mimi Yang.

## Groundwork Laid for New MBA/MSIOE Joint Degree

A new Masters program is under development which will allow students to get both an MBA and an MSIOE within 2-3 years. Currently, IOE loses many students to the business school who are torn between an engineering Masters and an MBA. The combination of an undergraduate degree in engineering and an MBA has been a winning combination in the job market. But there is evidence that that is changing. With rapidly changing technology, there is growing demand for engineers with advanced technical training who also understand business systems.

The joint program will require substantially fewer credit hours than the total combined credits of both degrees (currently 90 credits). This will be done by double-counting electives toward both degree programs. The specific details of the program have not yet been approved by Rackham. We will keep you apprised as the program develops.

## Alumni Support

Is the University of Michigan a public or private institution? Certainly we have all known it to be a public institution but the manner in which our University is funded makes it look very much like a private institution. In the past, the state has paid approximately 80% of a student's tuition. Today the state pays only 30% with the rest paid for by alumni and other private supporters. As a result, the University of Michigan can be considered a private institution such as Yale, Harvard, or Stanford. Annual gifts to the College of Engineering have grown rapidly in recent years. Annual gifts were one million dollars last year where they were only \$300,000 four years ago. While this news is encouraging, there is a big difference between these other great schools and our own. These private institutions generally receive routine gifts from about 70% of their alumni. The University of Michigan, on the other hand, only receives routine gifts from about 15% of its alumni. This problem stems from a lack of awareness. The general public as well as our alumni are unaware that Michigan is increasingly privately funded. They are unaware of the importance of private support in determining the strength of the University.

There are two levels of support. The first level consists of alumni who make regular contributions to the University. The second level consists of one-time gifts. These gifts are generally large and can come from individuals or corporations. Alumni need to be aware of the importance of their regular contributions on the first level and that they should use their influence within their professional community to support the University on the second level. If one looks about the country at the most successful examples of industry-University relationships, they inevitably have grown out of a strong involvement and influence of key alumni within individual companies. For example, the alumni networks of MIT and Purdue have been a powerful factor in building the tight bonds which exist between these institutions and industry. Yet, the University of Michigan has been considerably less successful than these peer institutions in building these linkages through alumni. Certainly the problem does not stem from numbers, the College of Engineering ranks third in the nation with over 50,000 graduates. A lack of awareness of the importance of alumni support and involvement may be where the problem lies.

If you think that you might have an interest in supporting the College we certainly encourage you. Although we try

our best to initiate contacts we depend more frequently on direct contacts from alumni to initiate relationships. For this reason we have set up a number of points of contact within the College for further inquiry and coordination:

Dan Atkins	Associate Dean for Research (313) 764-2174
Brad Canale	Director of Development (313) 763-2160
Robert Schneider	Director of Corporate Relations (313) 763-5630

Donations can be designated for the University as a whole, the College of Engineering or the IOE department. You can even specify exactly what the funds are to be used for. If you think you might have interest in supporting IOE, call:

Steve Pollock	Chairman, IOE (313) 764-9403
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## IOE Alumni Academy Forming

To better connect alumni with the evolution of IOE, a new Alumni Academy is being formed. The purpose of the Academy is to help the IOE department fulfill its joint mission of teaching and research by providing alumni input and helping to connect IOE with the business community. A group of five alumni have been meeting to develop a charter for the Academy and each has been charged with recruiting additional Academy members. We have been working on such preliminary issues as how big is the right size for the Academy and how should the Academy communicate with alumni. If you are interested in learning more about the Alumni Academy, contact Jeffrey Liker, Assistant Professor, 313/763-0166.

## ALUMNI NEWS

JOHN A. BATCHIK (IOE '80) is Sr. Plant Engineer at Cadillac Motor Car Div. - GMC. John writes "I work in Livonia so we're able to get back to Ann Arbor often. While I'm kind of sorry to see Engineering moving to North Campus, it's good to see progress in motion."

DAVID GRAU (IOE '84) started working for General Motors in July 1984 as an Industrial Engineer. He lives in Lansing, MI.

JANET LIM SIMONS (IOE '77) received an MBA in finance from Wharton Graduate School of the U. of Pennsylvania. She is a Financial/Business Analyst for Union Carbide Corporation-Silicones and Urethane Intermediates Division. Janet was married on April 7, 1984, to Joe Simons, also a graduate of Wharton. Maid of Honor was KATHY SHEARS (AOS '77).

ROGER M. TRIPLETT (IOE '76) was recently named Director of Operations, Prober Systems, Eaton Corporation and transferred from cold Cleveland to sunny San Francisco. PAMELA (HARRISON) TRIPLETT (CHEM '76) has given up her position with Diamond Shamrock Corp. to raise their new "Wolverine", Nathan, born in October 1983.

### Call for Alumni News:

Please tell us what you are doing so we can include it in next year's alumni news. Write to:

Jeffrey Liker  
IOE  
University of Michigan  
Ann Arbor, MI 48109