

11/9/0/2

IMSE STUDENTS WIN NATIONAL COMPETITION

Three industrial engineering seniors from Iowa State University captured the \$5,000 first prize in a national academic contest to create a recycling system for automobile bumpers, sponsored by leaders of the U.S. plastics and automotive industries. Dr. David Rea of Du Pont Automotive Products recognized the team at a special luncheon during the 1992 Environmental Management Forum at the Society of Plastic Engineers' annual meeting. The award was presented in a ceremony that followed the presentation of their paper to judges in a technical session at the Society of Automotive Engineers International Congress.

The competition challenged undergraduate engineering students across the U.S. to apply the concept of "life-cycle management" to automobiles by devising an environmentally and economically sound recycling system for the materials in automobile bumpers, including plastics, composite materials, metals, paints, and adhesives. The program was sponsored by the Council for Solid Waste Solutions, an environmental task force of the plastics industry, and the Michigan Materials and Processing Institute, an association of automobile manufacturers, polymer composite materials companies and research universities.

The winning entry, "A Polymer Saved is a Polymer Earned," submitted by Jim Fraise, (Donnellson, Iowa), Heather Foley (Montrose, Iowa) and Greg Kent (Aurelia, Iowa), outlined the design of a facility that would produce two marketable primary materials from recovered automobile bumpers: thermoplastic pellets and thermoset powders. Their facility was designed to easily assimilate current manufacturing systems while having minimum impact on the surrounding environment.



The winning team. Pictured from left to right are: Dr. David Rea, DuPont Automotive Products, Heather Foley, Greg Kent, James Fraise, and Dr. Jerry Fosnaugh, Dow Chemical Company. (photo courtesy of SAE International Congress & Exposition)

"It was a tough choice, but our judges felt the Iowa State team showed the most extensive research and innovative use of currently available technology," said Mike Fisher, Durables Program Director for the Council of Solid Waste Solutions. "We were universally impressed with the quality of the final presentations, the students' creativity, and the overall professionalism of the competition entries."

Judges for the competition included Carol Lindquist, Chrysler Motors Corp.; John Von Wald, Du Pont; Sandy Labana, Ford Motor Co.; Marty Forman, Poly-Anna Plastic Products, Inc.; Irvin Poston, General Motors

Corp.; Stuart Natof, U.S. Dept. of Energy; David Cole, Transportation Research Institute, University of Michigan; and Robert H. Burnett, The Vinyl Institute, a division of The Society of the Plastics Industry, Inc.

OUTSTANDING INDUSTRIAL ENGINEERING DESIGN AWARD

During the spring semester, 1992, students in the senior capstone design course worked with Bazooka/Farmstar, Inc., a manufacturer of grain-moving systems and liquid manure systems, to improve facility design at the Granger, Iowa, plant. The design teams competed for the best design judged on originality, feasibility, thoroughness, and written and oral presentation. The award was sponsored by Bazooka/Farmstar, and the winning team members' names have been placed on a plaque displayed in the IMSE Department. This spring's winning team members were Audrey Bielawa (Cicero, IL), Joe Joe Chacko (Storm Lake, IA), Jennifer

Leng (Primghar, IA), and Kenneth White (Hopkinton, IA). The department and Bazooka/Farmstar congratulate these students on their excellent design effort.

The senior capstone design course was changed in 1989 to a format where the student teams work directly with an industrial partner on existing design problems. Since this change in format was implemented, students in the department have worked on design projects for Ford Motor Company, John Deere, IBM, Fisher Controls, and Bazooka/Farmstar. We look forward to working with additional industrial partners in the future.

'92 IMSE BANQUET

A big crowd and corporate and individual sponsorship made the 1992 IMSE Student/Faculty/Parent Banquet a great success. The annual banquet, held April 23, attracted 165 people.

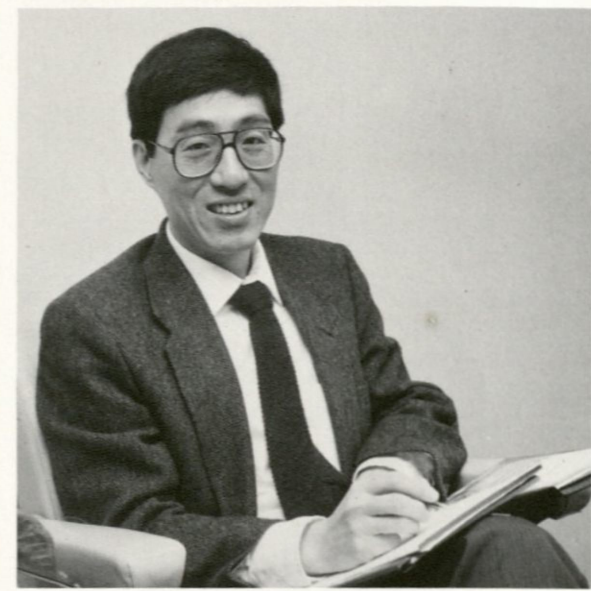
At the banquet, faculty members and students were recognized for their achievements. Twenty-eight student scholarships totaling \$32,506 were announced, and several faculty members received recognition for their teaching and research accomplishments.

Because of generous donations by individual and corporate sponsors, students were able to purchase tickets for the event at a reduced cost. The IMSE Department wishes to thank and recognize the following friends for their generosity to the IMSE Banquet:

Alcoa
Allen-Bradley Co.
Alpha Pi Mu
Amana, Inc.
Collins Rockwell International
James River Corporation
Pella Rolscreen

FULBRIGHT SCHOLAR

Though his assignment was near the beach in Lisbon, Portugal, Dr. Way Kuo, had little time to enjoy the view during his five months as a visiting Fulbright scholar in the Industrial Production Engineering Program at the Universidade Nova De Lisboa. For the 1991-1992 academic year, the Fulbright American



Scholar Program, operated by the Washington, D.C. based Council for International Exchange of Scholars, awarded 958 Fulbrights to American scholars. Dr. Kuo was the only Industrial Engineering Senior Fulbright Scholar for the 1991-1992 year.

The assignment, officially known as a Fulbright Lecture/Research Award, was hosted by the Industrial Engineering Department in conjunction with the Computer Science Department of the Universidade Nova De Lisboa, Portugal. Kuo, who left for Portugal in late September, taught two courses, an undergraduate course in quality control, and a graduate course in quality/reliability. He continued his research in reliability design, collaborating with others at Lisboa. In addition, he was an invited lecturer on "Software Reliability" and "Principles and Practices of Design for Reliability" at the University of Birmingham, School of Mechanical and Manufacturing Engineering; German Aerospace Research Estab-

lishment in Munich; and the University of Strathclyde in Scotland. Kuo also delivered a keynote speech at a European Seminar in Glasgow. Finally, he offered an extension short course in SPC applications for fifty-five industrial practitioners from the greater Lisbon area.

"This has been a busy yet productive assignment," Dr. Kuo said. "In addition to working for the program, I have benefitted tremendously from this opportunity by witnessing how industrial engineering is practiced in major European institutes. I also hope that Iowa State University has been well represented by my participation in the Fulbright program."

As a result of this assignment, Dr. Kuo is invited to be the keynote speaker at the IASTED International Conference on Quality Control, Reliability, and Risk Analysis to be held in Washington D.C., November, 1992.

ADVISORY COUNCIL MEETING

The 1992 IMSE Industry Advisory Council Meeting was held on April 23 and 24 on the ISU campus. Those present included Lynne Arneson, Bob Boeke, Al Coe, Rich Colgan, Lynn Franco, Bill Galloway, Bill Golomski, Keith Jessen, Dave Johnson, Roy King, Way Kuo, Kevin Lenz, and Joe Velez.

The focus of the meeting was support of the IMSE laboratories, which are on a much needed continuous improvement path. The Advisory Council was asked by Dr. Kuo not only to provide the normal critique of department management and curriculum issues but also to 1) provide recommendations on the development and operation of IMSE Laboratories, and 2) develop an action plan for securing the needed lab resources to make them "world class."

Among many valuable suggestions, the Council developed the basics of a multifaceted proposal for securing needed resources for the IMSE lab development. The goal is \$1 million in resources. The first step is to select target areas for alumni contact. A regional fund-raising conference will be held soon.

The initial target area to hold the Fall 1992 Conference is San Francisco with the contact person being Al Coe. Other target areas to hold the regional conference include Chicago, Cedar Rapids, New York, and Dallas.

The Advisory Council report will be discussed with faculty in early Fall, 1992. After that, a response from faculty will be reported to the Council members.



Pictured are the council members who finished their term this year, along with Keith Jessen, who will chair next year's Advisory Council, Dean Kao, and Professor Kuo. Left to right: front, William A. Golomski, Keith Jessen, William D. Galloway; back, Way Kuo, David T. Kao, and Robert Boeke. Not pictured but ending their term are Dave Johnson, James Kaster and John Gault.

IMSE ADVISORY COUNCIL MEMBERS

Name	Company	Duration of Service on Advisory Council
Bob Boeke	Retired (Deere & Company)	1990-1992
Bill Galloway	Maytag Company	1990-1992
John Gault	Deere & Company	1990-1992
Bill Golomski	W. A. Golomski & Associates	1990-1992
Dave Johnson	3M	1990-1992
Jim Kaster	3M	1990-1992
Keith Jessen	Rockwell International	1990-1993
Lynne Arneson	3M	1992-1994
Al Coe	Silicon Graphics	1992-1994
Rich Colgan	Procter and Gamble	1992-1994
Rudy Herrmann	Rotary Lift	1992-1994
Roy King	Booz, Allen & Hamilton	1992-1994
Joe Velez	ALCOA	1992-1994

SPOTLIGHT ON NEW FACULTY: LIN-LIN CHEN AND DOUG MCBETH

Dr. Lin-Lin Chen joined the Department of Industrial and Manufacturing Systems Engineering in January 1992. After receiving her B.S. degree in Industrial Design from the National Cheng-Kung University at Tainan, Taiwan, in 1984, she worked as a design engineer at the Sampo Corporation, one of the largest home appliance manufacturers in Taiwan. She went to the University of Michigan at Ann Arbor in 1986 to pursue an advanced degree in industrial engineering. From 1987 to 1989, while in the Ph.D. program, she worked as a half-time computer programmer in the CAD/CAM Department at Ford Motor Company,



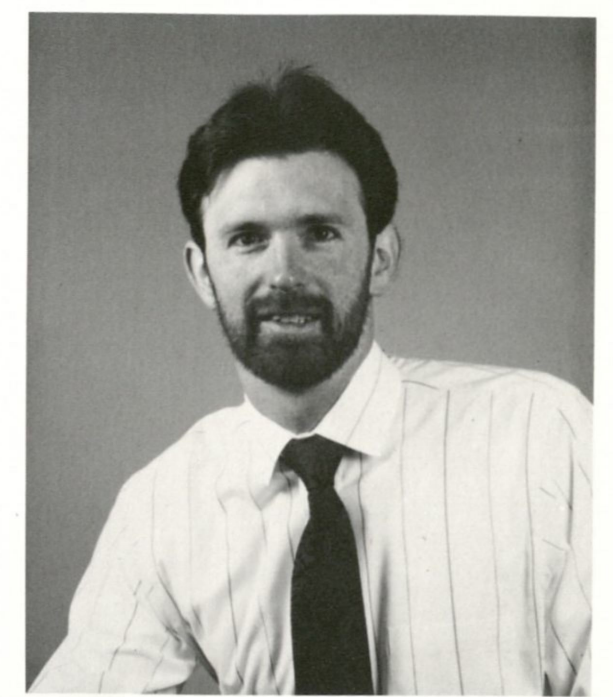
which is responsible for developing and maintaining Ford's CAD/CAM software. During the summer of 1990 at the Manufacturing Research Department at the IBM T. J. Watson Research Center, she designed and implemented algorithms required for simulating and analyzing silicon chips' manufacturing processes. She won a Distinguished Achievement Award as outstand-

ing graduate student in 1991, and earned a Ph.D. degree in Industrial and Operations Engineering in 1992.

Dr. Chen's research centers on CAD/CAM and computational geometry. As a Carver Faculty Fellow at the Iowa Center for Emerging Manufacturing Technology, ISU, she has been developing efficient geometric algorithms for analyzing the manufacturability of a design for numerically controlled machining, injection molding, and die casting. Currently, she is developing algorithms for determining parting directions and parting surfaces in mold and die design under a research initiative grant from SME Manufacturing Engineering Education Foundation. She is also engaged in design and implementation of visualization tools for generating and verifying assembly plans under a URI Research Initiation grant from the Office of Naval Research.

Dr. Chen taught IE 341 Production and Project Control in the Spring, 1992. She has developed a new course on Solid Modeling, being offered in Fall, 1992.

Dr. Doug McBeth joined the Department of Industrial and Manufacturing Systems Engineering in January 1992. After graduating summa cum laude with a bachelors degree in Applied Mathematics from U.C. Berkeley in 1987, he went to the school of Operations Research and Industrial Engineering at Cornell University to pursue an advanced degree in Operations Research. From 1987 to 1990 he was a National Science Foundation Fellow and also the recipient of an A.D. White Fellowship from Cornell University. In 1990 he earned an M.S. in



Operations Research, and he received his Ph.D. in 1991. In the fall of 1991 he served as a visiting professor at Cornell.

Dr. McBeth's area of research is applied stochastic processes. He is currently working on determining an appropriate class of processes to serve as models for the prices in a financial market (such as a stock or bond market). In financial markets a "free lunch" is the opportunity to make a profit without an initial investment, or in other words "to get something for nothing." In order for a process to serve as a reasonable model for prices, it must not allow any free lunches, although it is often hard to verify that a process does not. He is also engaged in studying optimal routing policies for cyclic queues.

In Spring, 1992, Dr. McBeth taught IE 313, Stochastic Analysis. He is currently developing software to be used in teaching stochastic processes.

INTERNATIONAL CONFERENCE ON QUALITY

Dr. Way Kuo is part of the international committee organizing a conference on "Quality through Engineering Design" to be held in Bangalore, India, in January. A part of the P. C. Mahalanobis Centenary program, it is sponsored by the National Institute of Standards and Technology, the National Science Foundation, the Army Research Office, the Union of Japanese Scientists and Engineers, and the Indian Statistical Institute.

With a focus on advanced materials and parts manufacture, the conference aims to foster understanding and collaboration among scientists and engineers from India, Japan, and North America in the fields of engineering design, computational approaches in design, statistical design and analysis, reliability, and quality control. Dr. Kuo is also one of the invited speakers and editor of the proceedings, *Quality through Engineering Design*.

We want to hear about your career moves and personal news for our alumni news page. We need your help, too, with donations to scholarship funds, lab facilities, and student groups. If you're making a contribu-

tion to your alma mater, please consider designating it for the Department of Industrial and Manufacturing Systems Engineering. The form below will make it easy for you.

Name _____

Address _____

City, State, Zip _____

Year of graduation _____

I want to tell you about: _____

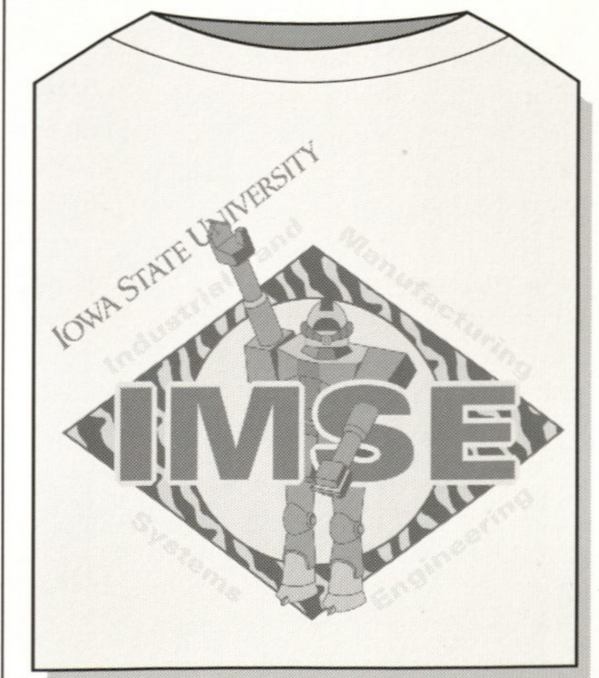
I want to help the department with a contribution to:

- ☐ New laboratories development fund
☐ Scholarships
☐ General department use
☐ Other: _____

IMSE T-shirt available

The department is offering 100% cotton T-shirts and cotton-poly sweatshirts for sale this fall sporting the unique IMSE design illustrated here on light grey fabric.

To order, send a check or money order by **November 15** to the Department of Industrial and Manufacturing Systems Engineering, 205 Engineering Annex, ISU, Ames, Iowa 50011-2070. Specify quantity and T-shirt adult size(s) S, M, L, or XL. T-shirts cost \$10 and sweatshirts \$20.



A · L · U · M · S

1970

Lt. Col. James H. Larsen, EOp, 3445 Spinnaker Drive, Anchorage, AK 99516, received MBA, University of Utah in 1974 and now working at Alascom, Inc., a telecommunications company in Anchorage, Alaska.

1985

Patsy A. Schmitt, IE, 3428 Acadia Ct., Bloomington, IN 47401. Employed as a Product Engineer, General Electric Appliances, Bloomington, MN.

1986

Amanda M. Schrader, IE, 7706 Irish Ave. S., Cottage Grove, MN 55016

1990

Kim Wagner, IE, 995 Valentine Drive, Dubuque, IA 52003

1991

Scott D. Pauley, IE, 3201 W. Loop 289, #79, Lubbock, TX 79407. Just starting Air Force Undergraduate Pilot Training.

60-YEAR ALUM WRITES . . .

"The interest in research and development, as reported in Vol. 3 No. 1 of the IMSE Newsletter, is truly remarkable and most encouraging. During most of my career I observed the little amount of understanding regarding production or the actual manufacturing division of industry. There was usually general understanding of sales, accounting,

engineering (design). Production was just accepted as "the shop." Articles regarding reports of business and industry in our country surely indicate need for your research. I am now retired sixteen years but retain interest in economics and industry."

Francis D. Nelson, 1932

SCHOLARSHIP RECIPIENTS AND CRITERIA

Industrial Scholarships

Andersen Consulting Company, Jill Hodson and Marguerite Pazderka, \$1000 each
General Motors, Amy Van Dyke, \$7856
John Deere Foundation, Karen Borgeson, \$2500
Maytag Company, Kellene Philipp, \$500
Minnesota Mining & Manufacturing (3M), Angela Sefert, Cynthia Snyder, Ryan Wells, and Angela Woolery, \$1000 each

Professional Organizations Scholarships

Central Iowa American Institute of Plant Engineers, Victoria Patterson, \$500
Institute of Industrial Engineers, Daniel Toft, \$350
Material Handling Institute, Mark Taylor and Todd Koellner, \$2500 each and Jill Hodson, \$1500

Endowment and Memorial Scholarships

Marston Club Scholarship is funded through the College of Engineering for incoming freshmen or current engineering students, Jason Hosch and Kent McDonald, \$1000 each; Ryan Halldorson, \$750

Don Grant Incentive Award was established in Don's name at the time of his retirement from the IMSE Department in 1988. Wendi Harris and Angela Woolery, \$300 each

Hempstead-Walkup Scholarship was established for IE students in 1974 by Professors Hempstead and Walkup. Jean C. Hempstead was on the ISU-IE faculty for a period totaling 26 years, retiring in 1974. Professor Joseph K. Walkup was Chairman of the Department of Industrial Engineering at ISU from 1942 until 1973, retiring in 1974. Bradley Reinders, \$650.

Industrial Engineering & Health Care Scholarship was set up by Dr. Keith L. McRoberts at the time of his retirement in 1989 for a student in industrial engineering who is interested in the service sector, preferably health care. Elizabeth Erb, \$200.

Kleinschmidt-Squires Scholarship was established in 1976 for IE students at the time of the professors' retirements from the Industrial Engineering Department. Dr. Arthur C. Kleinschmidt was on the Iowa State faculty for a total of 20 years and Professor Richard Squires was on the faculty for 17 years. Angela Grunig, \$200

Paul Emerson Morgan Scholarship was established in 1988, at the time of his retirement, for women and minority engineering students. Tammie Galles and Jennifer Kollbaum, \$1000 each

Donald Kaser Memorial Scholarship was established in his name by his wife at the time of his death in 1969 to be awarded yearly to an engineering student. Mr. Kaser was an ISU/Civil Engineering graduate in 1937. Daniel Toft, \$1000

Frank H. Ricker Scholarship was set up in his honor after his death. He graduated in 1905 in Mechanical Engineering. Chi-Wah Chow, \$500

George W. Catt Scholarship is one of the oldest of such funds at Iowa State University. George W. Catt was a distinguished engineer and a graduate of Iowa State College in the class of 1882. Kara Maytag, \$500

James McKean Scholarship was set up in his honor in 1969 by his wife for College of Engineering students. Professor McKean was a member of the ISU faculty for a total of 18 years. Ryan Halldorson, \$150

Walter J. Lyons Memorial Scholarship was established by family and friends in memory of Professor Lyons. He served the profession of Industrial Engineering for 34 years including four years on the ISU faculty of Industrial Engineering prior to his death in 1987. Cynthia Lasell, \$500.

IMSE

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