

## IAVS Team Develops Advanced Vehicle Design Tool

A team of IAVS faculty and students under the direction of Vivek Bhise, professor of industrial and manufacturing systems engineering, is developing a tool intended to greatly reduce the time it takes to design a new vehicle. Currently referred to as the Parametric Model for Advanced Vehicle Design, the computer model will slash from weeks to hours the time it takes to advance engineer a vehicle.

"Designing a new vehicle is an extremely challenging and complex process," says Bhise. "It usually begins with something called advance engineering, where multidisciplinary groups discuss vehicle proposals or concepts and evaluate their feasibility in order to arrive at an acceptable design concept. It requires close coordination among the various disciplines in order to develop the vehicle with the right combinations of all the attributes that will please customers, including appearance, performance, safety, ride, comfort, etc."

The advance engineering teams—consisting of industrial designers, engineers, product planners, market researchers, dealers, and manufacturing representatives—require careful and thorough evaluation of requirements, concepts, and rationales in order to finally arrive at a feasible and attractive vehicle design. It's a time-consuming process, involving the laborious computation and recomputation of multiple possible configurations.

"There is currently no comprehensive yet simple tool available to reduce the time required to undertake the advance engineering activity and to train future team members with the necessary background knowledge," says Bhise. He and his team ran into this problem while working on a project to design an SUV last year. As the project progressed, the team needed to find out if they could reuse most of the space frame and seating pattern designs created earlier for a low-mass sedan.

They began to wonder how they could quickly redo many of the analyses to verify if a number of the vehicle components could be commonized. "We decided to create a computer model that would allow us to describe the new vehicle by adjusting a number of parameters," says Bhise, "such as the wheelbase, the position of the driver, and the height of the windshield. Once completed, we would then be able to evaluate the vehicle using computer-aided-engineering models."

The team members quickly realized the application of such a tool could go far beyond their SUV project, and they began to work on a parametric model flexible enough to help advance engineer any vehicle.

"Currently," says Bhise, "the design of a new vehicle in most automotive organizations begins with the designers creating a sketch or a three-dimensional CAD representation. Simultaneously, the engineers develop a basic vehicle drawing showing key elements of the exterior and interior package dimensions and preliminary locations of major systems and components, like the powertrain, wheels, gas tank, steering column, seats, climate control unit, and so on. As the exterior design and the vehicle package drawings are developed, key engineering activities—such as body structure analyses, aerodynamics, thermal air flow capabilities, vehicle dynamics, and manufacturing capabilities—perform approximate feasibility analyses.

"Assuming availability of manpower with the appropriate level of expertise and technical sophistication," Bhise continues, "these crude



Roger Shulze, Anitha Pillai, and Vivek Bhise

analyses can take six weeks or more to complete in order to determine if the design is technically feasible. This model will reduce that time to a few hours."

Roger Shulze, director of IAVS, concurs. "With this approach," he says, "if an engineer wants to change something on the vehicle, he simply changes the necessary parameters and evaluates the new vehicle configuration. This is much quicker than the old way of designing and evaluating each variation from scratch."

Multiple student projects are contributing modules to the construction of the model, which will continue to expand indefinitely. Anitha Pillai, a graduate student in computer science, is programming the model using a graphic language called Open GL.

The model's vehicle-sizing and ergonomic modules are now nearly complete; body space frame design and exterior shell inputting modules—created by design students from the College for Creative Studies—will be completed sometime this summer.

"Once fully developed," says Bhise, "the model will be an interactive, multi-user, multidisciplinary tool that can be used by automotive OEMs and suppliers as well as by universities as an instructional and teaching aid for vehicle design. The students' creativity in developing this tool has been marvelous."

For more information on this project, contact Vivek Bhise at 313-593-0365 or vbhise@umich.edu.

### CEEP ADVISORY BOARD PROFILE:

## Arthur Adlam



Art Adlam, associate director of the engineering business group at TACOM, the U.S. Army Tank-automotive and Armaments Command

Art Adlam wants taxpayers to keep more of their money. Adlam, an associate director within research and development at TACOM (the U.S. Army Tank-automotive and Armaments Command), wants the Army to take advantage of the commercial sector's manufacturing technology and cut costs. His relationship with the College of Engineering and Computer Science at UM-Dearborn—initially as an informal organizational contact and now as TACOM's representative on the CEEP advisory board—furthers that goal.

"One of the things I want to be able to do," says Adlam, "is look at what the university is teaching in order to see where we can adopt tools to make us more competitive—to use a commercial term—so we can get technology out onto the field quicker. Commercial car companies offer product design changes for their offerings within 18 months. We'd like to be able to have that same kind of turnaround time in providing new technology to our soldiers, before it becomes obsolete. It's an approach that saves time and money for the American taxpayers, and it fulfills our mission to provide the best ground vehicle equipment possible to our soldiers."

Based in Warren, Michigan, TACOM is one of the Army's largest weapon systems research and development organizations. Adlam started out there as a temporary hire 32 years ago, immediately after earning his bachelor's degree in communication electronics from Oakland University.

"I initially just took a temporary position," he says. "I had drawn a very low number in the draft lottery, so I had a looming commitment to Uncle Sam. I didn't want to take any full-time jobs until after I'd met my military obligations."

Adlam ended up working out his service requirements through the Army National Guard while at TACOM and has remained there ever since. "I've been fortunate in that I've had a very diverse career within the command," he says. "My education has provided me with the skills to move back and forth within engineering areas."

Adlam's education didn't stop when he started at TACOM. He attended night school at Wayne State University, where he earned a master's degree in mechanical engineering. Over the years he has continued to take courses in

engineering and management from a variety of local universities, including UM-Dearborn.

"I place a lot of value on education," says Adlam. "Education gives you the foundation for the rest of your life. Learning and discovery is a never-ending process. You have to adjust your skills to the changing technologies and work environments that arise; you have to diversify. You have to keep up."

As a manager for more than 20 years, Adlam recognizes the importance of getting involved in the formation of the future workforce. "My job requires me to provide guidance to the people who work with me so that they maintain the skills we need to have," he says. "So working closely with schools and telling them our concerns and requirements becomes very important."

Adlam's advisory relationship with the college goes back about five years. At that time, he was responsible for a project that involved virtual prototyping and integrating simulation technologies into TACOM's business processes. "I spent time going to various schools to see what different technologies were being taught," he says. "I met Dean Sengupta, who briefed me on the work they were doing in their centers of excellence. That intrigued me, so I offered my services to evaluate proposals for them. I feel strongly that wherever we can, we should try to contribute, to provide the best tools to the students and workforce who follow along after us. I look at it as a public service, a way to pay back all the things I've been able to take advantage of. So when they invited me to become a member of the CEEP advisory board last fall, I said 'Absolutely.'"

True to his strong belief in the importance of continuing education, Adlam is working on a doctorate in the field of leadership research at Andrews University. "That takes up most of my spare time now," he says, though he manages to devote the occasional afternoon to wildlife photography. "It's mostly just birds in my back yard," he says, "though I've managed to capture some very colorful ones."

Adlam lives with his wife and two children in Sterling Heights. "I moved there 25 years ago," he says, "when it was just open fields and farms. The changes have been phenomenal." Adlam married his wife, a payroll administrator, 16 years ago on April 15. "That way I can pay tribute to Uncle Sam and honor my wife on the same date," he says. "I never have trouble remembering it."

## Annual Technology Day Set for June 9, 2004

The Center for Engineering Education and Practice supports relevant collaborative projects of faculty and their industrial partners. This year's poster session will highlight faculty research, much of which was carried out in collaboration with industry. The poster presentation will include current and recent research projects and will allow individual attendees to interact with faculty presenters to explore collaborative research opportunities.

The event will be held on the UM-Dearborn campus and will start at 9:00 a.m. with a presentation given in Room 179 of the Engineering Laboratory Building. The poster session and demonstrations will begin at 9:45 a.m. The project posters will be on the first floor of the Professional Education Center (PEC) and the Engineering Complex (EC). Industrial product and faculty project demonstrations will take place in the laboratories on the first floor of these buildings. Student projects will also be on display. A progressive brunch will be available in the PEC and EC during the poster session.

For more information, please contact Donna Goddard at 313-593-3403 or dgoddard@umich.edu.



Top: CECS graduate student Mahesh Kanawade with a visitor to the Rapid Prototyping Lab

Center: Assistant Professor Mahmut Eksioglu discusses his research with Tech Day guests

Left: Engineering students display their autonomous go-kart and wheelchair vehicles

## IAVS Grants 2003–2004

**A Hybrid Wireless Harness for Automotive Applications**  
Kiumi Akingbehin, professor of computer and information science

**Development of Vehicle and Systems-Level Specifications for the Low Mass Vehicle and the SUV**  
Vivek Bhise, professor of industrial and manufacturing systems engineering

**Perception of Quality in Interior Vehicle Design**  
Vivek Bhise, professor of industrial and manufacturing systems engineering

**Development of a Parametric Model for Advanced Vehicle Design**  
Vivek Bhise, professor of industrial and manufacturing systems engineering

**SUV Design at College for Creative Studies (CCS)**  
Byron Fitzpatrick, CCS chair of industrial design

**ArvinMeritor Class at College for Creative Studies**  
Clyde Foles, CCS instructor

**Structural Durability Analysis of the Low Mass Vehicle**  
Hong Tae Kang, assistant professor of mechanical engineering

**Climate Control for the Low Mass Vehicle**  
Eric Ratts, associate professor of mechanical engineering

**Powertrain Simulation for the Low Mass Vehicle**  
Keshav Varde, associate dean and professor of mechanical engineering

## CEEP to Host Education Conference

*Continued from page 1*

their classes. It should also help make them aware of the broad, cross-disciplinary complexities that must be addressed and the tradeoffs that need to be made in carrying out most engineering projects in an industrial environment."

The conference's key objective will be to facilitate an exchange of ideas among faculty from local and national universities, focusing on what they have done to introduce engineering practice into engineering education, what approaches they found to be effective, and what approaches were not effective. "We also expect to get feedback from industry on the importance they put on getting students and faculty closer to engineering practice," says Hildebrand.

Keynote speakers include John Brighton, head of the Engineering Directorate at the National Science Foundation, and Pete Staudhammer, director of the Alfred E. Mann Institute for Biomedical Engineering at the University of Southern California.

"Brighton represents the academic community from both an educational and fundamental research standpoint," says Hildebrand, "while Staudhammer brings both an academic perspective from his current position as well as a practical perspective from his tenure as vice president of science and technology for TRW Corporation. Both of their presentations should help stimulate discussion."

In addition to the main keynote speakers, the conference planning committee has solicited papers and presentations from the engineering education community nationwide. Suggested topics include the use of design projects to emulate an industrial environment, collaborative applied research with industry, and the role of industrial cooperative education and internship programs.

Complementing the speakers and presentations will be panels of faculty and practicing engineers discussing the merits of bringing engineering practice to the classroom and the approaches they have used or that they believe will work. "The combination of individual presentations and group discussions will help conference attendees gain information and ideas that they can put into practice within their own organizations," says Hildebrand.

For more information, contact Donna Goddard at 313-593-3403 or dgoddard@umich.edu.

## Interdisciplinary Class Partners Industry with Design and Engineering Students

Interdisciplinary teams have been a key to successful product development in recent decades. But few engineering schools have applied this concept to their own curriculums. John Grace, vice president of engineering and technology at ArvinMeritor, decided to change that. "I thought there might be an opportunity for truly interesting interactions," he says, "where we could bring together creative thinking, engineering calculational know-how, and industry experience. In particular, I wanted ArvinMeritor engineers to be exposed to fresh ideas from both the design and the engineering disciplines. I felt that UM-Dearborn, with its location and its contacts with industry, was ideally positioned to do this."

Last summer, Grace approached Roger Shulze, director of the College of Engineering and Computer Science's (CECS) Institute for Advanced Vehicle Systems (IAVS), with an idea for a new class that would bring together design and engineering students with ArvinMeritor engineers in a forum that would enable them to learn from each other. A core group of advisors from ArvinMeritor, CECS at UM-Dearborn, and the College for Creative

Studies (CCS) met to discuss the specific details of forming and running such a class.

Their final plan involved splitting a CCS class into four teams and assigning each team one engineering graduate student from UM-Dearborn and an engineer from ArvinMeritor. The teams would be given an assignment to design a new roof module for a lightweight or "low mass" vehicle. Each team would be responsible for the concept, design, and feasibility of its roof module, and ArvinMeritor and other industry experts would judge its efforts. The winning CCS team's designers would receive \$2,000 scholarships, and the winning engineering graduate student would receive a six-month internship at ArvinMeritor.

The project hoped to meet several goals. First, it would provide new product concepts that had high manufacturing feasibility and met customer and industry acceptance. Second, it would promote better understanding of the design process among students from different disciplines. Finally, it would provide the students with actual work experience to better prepare them for the complexities of product design in the business world and to teach them the importance of communication between designers and engineers.

The class was offered during the fall semester of 2003 and was spearheaded by Clyde Foles, CCS instructor, and Vivek Bhise, CECS professor of industrial and manufacturing systems engineering. ArvinMeritor, in its role as industry customer, gave the class its specifications: a 20-kilogram weight limit; a flexible, modular design that could be adapted to any automotive vehicle; a short design cycle; certain features (sunroof, sun shades, storage); low wind noise; watertightness; and a budget of less than \$1,000.

"Initially," says Shulze, "Vivek Bhise and I were apprehensive about ArvinMeritor's suggestion that the class design roof modules. We were concerned



UM-D/CCS teams design roof modules at College for Creative Studies

that there wasn't enough content there, that students wouldn't have much to talk about. But once the class got going, we found it to be an extremely rich topic with lots going on in the field. The students really got into it."

"The course was an eye opener regarding issues that I previously had known nothing about," says Vishnu Muralidharan, the CECS graduate student whose team eventually won the competition. "I learned about the amount of effort that's involved and how many people are behind producing a single car."

Radhakrishnan Nagarajan, another CECS graduate student who participated in the class, agrees. "It helped me to understand the product development process from the design stage to manufacturing," he says. "It was a very good opportunity to interact with designers, to see how they come up with their

concepts and how we analyze the feasibility of the concept."

The course's real value, according to Shulze, lay in the increased regard the groups held for each other at the end. "Probably the most important success arising from this course," says Shulze, "was getting each group of participants—the CCS students, the UM-Dearborn students, and the ArvinMeritor engineers—to appreciate and respect the roles, expertise, and contributions of the others in creating a product design."

The College of Engineering and Computer Science is now discussing similar courses with new corporate partners. To find out more, contact Dr. Roger Shulze at 313-593-6431 or rshulze@umich.edu.



## the Catalyst

### Editorial Board

Subrata Sengupta, Ph.D., Dean  
Keshav S. Varde, Ph.D., Associate Dean  
Editor: Kathryn Tamborino  
Assistant Editor: Phillip Snyder

The Catalyst is published for the alumni and friends of the University of Michigan-Dearborn College of Engineering and Computer Science. Send correspondence to the Editor, *The Catalyst*, 4901 Evergreen Road, Dearborn, MI 48128-1491.

### Regents of the University

David A. Brandon, Laurence B. Deitch, Olivia P. Maynard, Rebecca McGowan, Andrea Fischer Newman, Andrew C. Richner, S. Martin Taylor, Katherine E. White, Mary Sue Coleman (ex officio)

### Citizens Advisory Committee

Ismael Ahmed, Stephen T. Economy, Linda P. Kuglin, Patricia Mooradian, Timothy J. O'Brien, Jon Peiper, Michael C. Porter, Maria Leonhauer, Rosnaur, Shirley R. Stancato

### College of Engineering and Computer Science Departments

Department of Computer and Information Science  
William Grosky, Chair  
Phone: 313-593-6424  
e-mail: wgrosky@umich.edu

Department of Electrical and Computer Engineering  
Malayappan Shridhar, Chair  
Phone: 313-593-5528  
e-mail: mals@umich.edu

Department of Industrial and Manufacturing Systems Engineering  
Swatantra Kachhal, Chair  
Phone: 313-593-5361  
e-mail: kachhal@umich.edu

Department of Mechanical Engineering  
Chi L. Chow, Chair  
Phone: 313-593-5465  
e-mail: clchow@umich.edu

### Centers of Excellence

Center for Engineering Education and Practice  
Robert Hildebrand, Director  
Phone: 313-593-0941  
e-mail: rwhildeb@umich.edu

Institute for Advanced Vehicle Systems  
Roger Shulze, Director  
Phone: 313-593-6431  
e-mail: rshulze@umich.edu

Interdisciplinary Programs  
Center for Lightweight Automotive Materials and Processing  
Pankaj K. Mallick, Director  
Phone: 313-593-5119  
e-mail: pkm@umich.edu

### Center for Engineering Education and Practice Advisory Board

Hank Lenox (chair)  
Ford Motor Company (retired)  
Arthur Adlam, Jr.  
Associate Director  
Engineering Business Group  
TACOM

David Donegan  
Chief Engineer  
Materials  
ArvinMeritor, Inc.  
Stuart Frey  
TRW, Inc. (retired)

Robert Jensen  
Executive Director  
Electronics Engineering  
Johnson Controls, Inc.  
James C. Masters  
President  
Electrical Systems Division  
Lear Corporation

Roger A. McCurdy  
Director  
Advanced Product Development  
TRW, Inc.

Nirmal Singh  
Dielectric Scientist  
DTE Energy Corporation

Al Ver  
Vice President  
Advanced and Manufacturing Engineering  
Ford Motor Company

Kregg Wiggins  
Vice President  
Powertrain NA  
SiemensVDO

## Neither Rain, Nor Sleet, Nor Snow...

### Can Slow UM-Dearborn's Mini Baja Racers

Thank goodness the race didn't start earlier in the day.

If it had, the two-car University of Michigan-Dearborn team that raced in the February 21 Winter Mini Baja in Houghton would have come nowhere near posting its first and third place finishes. Plagued by nasty weather, the UM-Dearborn racers arrived at the frozen Michigan Tech University host site five hours behind schedule.

"The weather was so bad that US 2 along the southern part of the UP was completely closed and we had to take an alternative route," said James Perrin, team co-captain and an automotive systems engineering graduate student.

Undeterred, the racers dominated the eight-car field the following day, placing first and second in the event's first one-hour heat by completing 77 (Car 49) and 73 (Car 50) laps, respectively. The next closest competitor, from UM-Ann Arbor, completed 65 laps. Following a one-hour break, the Dearborn vehicles returned to the slippery track for the final heat. A broken throttle cable slowed Car 49, whose crew pulled off a speedy repair to salvage a third place overall finish with 120 total laps. Car 50 ran trouble free, completing 63 laps to secure the top spot in the competition with 140 total laps. The Ann Arbor vehicle placed second with 126 laps.

"The Houghton track was very icy, which caused a lot of cars to spin out, and it took a lot of driver finesse to keep them going in the right direction," Perrin said, noting that the cars hit top speeds of 35 miles per hour on the tricky course. "Last year, the competition was held later in the year. There was a lot of slush, and it was very cold to be sitting in it for an hour."

The squad's performance in Houghton picks up where its red-hot 2003 campaign left off—with two top-five finishes at last June's Midwest Mini Baja competition in Dayton, Ohio. Overall scores for the year earned it the Mike Schmidt Memorial Mini Baja Iron Team Award, presented to the team with



Above: 2004 team members with Cars 49 and 50

Right: Car 50 drives over the jump



the highest combined scores from the three U.S. events. The 2004 team includes Perrin, co-captain Jim Szymusiak, Pete Dolinski, Chris Howes, Brian Kuzala, Matt Schelosky, Josh Street, and Aisha Yousef.

SAE International sponsors regional East, Midwest, and West Mini Bajas each year. The events are designed to promote real-world engineering design and problem solving. Engineering college students design, build, race, and maintain their vehicles in competitions over tough terrain. Vehicles are powered by 10-horsepower engines donated by Briggs & Stratton Corporation. Other Mini Bajas such as the Houghton competition are hosted by SAE's collegiate chapters. Perrin said the UM-Dearborn team would not compete in all of the major events this year due to the extensive travel required and increased entry fees.

According to SAE, the object of the competition is to provide student members with a challenging project that involves the planning and manufacturing disciplines essential in introducing a new product to the consumer industrial market. Teams compete against one another to have their design accepted for manufacture by a fictitious firm.

## Technology at Work and Play

Fielding a vehicle for Mini Baja competition demands application of a variety of skills from design and engineering to maintenance and marketing.

In addition to its ongoing campaign for sponsors, this year's University of Michigan-Dearborn team is developing a new car that will feature a wider cockpit to provide the driver with more comfort and enhanced maneuverability, while improving safety with a larger crush zone to absorb side-impact collisions. The group is also modifying the rear drivetrain for easier race-time clutch service and air-filter maintenance. In addition, the vehicle is undergoing rigorous suspension testing to bolster its performance coming off bigger jumps. Practice and testing are routinely conducted in empty campus parking lots. Results on and off the racecourse provide ample proof of the program's value.

"The competitions require students to design something that has to be built and then be tested against other student designs," said James Perrin, noting that participation is elective and student team members receive no school credit hours for their work. "It's very rewarding to have another school look at something you've designed and give you a compliment. It's even better to see your design used on that team's car the next year."

Perrin said establishing a project budget and soliciting corporate sponsorship offer practical lessons in fiscal responsibility and occasionally leads to career opportunities.

"Overall, participation helps students in a variety of ways," he said. "Sometimes the students get internships or are hired full-time through a contact they've made while asking for sponsorship support."

## Micro Baja: Diminutive Racers Demand Big-time Design and Performance

On the Society of Automotive Engineer's Micro Baja circuit, University of Michigan-Dearborn mechanical engineering graduate student Dan Gielas is an old hand.

Competing for the fifth year in the student event, and representing UM-Dearborn's College of Engineering and Computer Science for the first time, Gielas's stock and unlimited class entries captured top design honors. His stock SUV went on to earn an honorable mention and prize money for its performance on the rigorous race course loop. Although the design results were par for the course for the previous Micro Baja champion, the performance was a disappointment.

"This year, I was very well-prepared for the design judging, but the performance of my trucks was lacking," said Gielas. He placed among the top three finishers in each of the four previous contests he entered as an undergraduate at Carnegie Mellon University and holds the fastest recorded course time. Gielas added, "Essentially, I ran out of time this year. The race itself was the first test run for my unlimited vehicle."

Held during the SAE World Congress, March 8-11 at Cobo Center in Detroit, the race included both stock model trucks, such as remote-controlled autos purchased from electronic toy retailers, and custom-built, unlimited-class vehicles. Once modified, the entries run on a 10-inch wide track bordered by four-inch high walls. The course features such hazards as hills, water, sand, rocks, twists and turns—all designed to challenge the stability, maneuverability, and speed of the racers. Vehicles can hit top speeds of about 20 m.p.h. on the course, Gielas said, which adds to the competition's excitement, particularly when one of the micro trucks jumps the track and darts off across the staging area floor. While on the course, the modified vehicles (trucks, SUVs, and vans) operate autonomously.

"You turn them on, set them on the start line, and let them take off without any remote input," said Gielas, who works at Visteon Corporation as a product design engineer specializing in steering components. The battery-operated Micro Baja racers employ programmable or variable speed control



systems and steer themselves, relying on either rigid or moveable bumpers to help guide their wheels around the tracks.

This year's competition showcased Gielas's engineering innovations, including integration of one-eighth scale buggy wheels and a new, after-market chassis for his unlimited-class racer. Gielas said he would work to develop the unlimited model's variable speed control unit for future events. It will offer the ability to run a BASIC program loaded onto an onboard chip to more effectively customize the vehicle's speed through the course.

"I'll definitely be back next year," he said.



Dan Gielas with his stock SUV and his unlimited class entry (also above left)



## From the Dean

This edition of the Catalyst is dedicated to the late Henry W. Patton II, who unexpectedly passed away last summer after a brief illness. Mr. Patton was a close friend of mine, a valuable partner for our faculty and staff, and a long-time supporter of the College of Engineering and Computer Science.

Henry was the president and chief executive officer of Acromag, Inc. of Wixom, Michigan, and a pioneer in the field of signal conditioning technology. He founded his company in Detroit in 1957 and then dedicated his career to helping it grow into a multimillion-dollar, international enterprise. The company moved to Wixom in the late 1960s.

Over the years, Mr. Patton supported our school in a variety of important ways, including hiring cooperative education students, offering guidance and advice on technical matters, recruiting our graduates, and providing financial support for various projects and facilities.

Furthermore, Henry also contributed to our college in a very unexpected way—by donating his time, talent, and expertise taking photos at important college events, including our annual Technology Day. I used to joke with him that we were the only school in the U.S. with a company CEO as its staff photographer. But, in truth, his photography was outstanding, and his personal dedication was gratifying.

As you will read, the College of Engineering and Computer Science recently received a bequest of nearly \$3.6 million from Henry's estate to provide scholarships and fellowships for students in the electrical and computer engineering department. This donation, which is the largest ever given to the College of Engineering and Computer Science, will greatly increase our college's ability to recruit and maintain high-quality students in our programs.

I was fortunate to have known Henry Patton and am pleased that his legacy will live on for many generations to come through his exceptional bequest.

Subrata Sengupta  
Dean



The University of Michigan-Dearborn  
College of Engineering and Computer Science  
4901 Evergreen Road  
Dearborn, MI 48128-1491

CHANGE SERVICE REQUESTED

# the Catalyst

News from the College of Engineering and Computer Science

### CEEP Center for Engineering Education and Practice

### IAVS Institute for Advanced Vehicle Systems

### CLAMP Center for Lightweight Automotive Materials and Processing

## HENRY WILDS PATTON II, 1926-2003 \$3.6-Million Bequest Reflects Donor's Unwavering Support

Long-time University of Michigan-Dearborn friend Henry W. Patton II's deep commitment to the College of Engineering and Computer Science has become a legacy through a \$3.6-million bequest from his estate to support student scholarships and fellowships.

The gift perpetuates Patton's remarkable years of service to the college, including generous financial contributions, technical counsel, and consistent support of its students, graduates, and faculty. In May 2003, Patton received the college's Distinguished Cooperative Education Program Advocate Award, roughly two months before his death on July 23 at age 77.

"This gift had been in his will since 2001, but he never told us about it," said Subrata Sengupta, dean of the college. "He just didn't want us to make any fuss over him. So, I am deeply satisfied that we were able to honor him with the cooperative education program award while he was still with us."

The industrial entrepreneur's work with the college's cooperative education program included hiring several UM-Dearborn students

and providing them with invaluable professional experience. Patton was also an advocate of the college's Center for Engineering Education and Practice, which works to develop mutually beneficial partnerships with industry. His expertise and guidance was shared with faculty from across the college, as well as with members of the Department of Electrical and Computer Engineering.

"Henry was a great personal friend and will be missed dearly," Sengupta said. "He was an engineer's engineer, who obviously wanted to invest in the future of our young people. He cared so much for this university."

A 1947 graduate of the University of Colorado with a bachelor of science degree in electrical engineering, Patton founded Acromag Inc. in 1957 at the age of 31. The organization relocated from Detroit to Wixom in

1966, where he directed its growth into a multi-million-dollar, international enterprise.

Kurt J. Lipsky, personal representative of Patton's estate as well as Acromag's treasurer and director of finance and personnel, said his boss had a keen appreciation for the role of

*Continued on page 3*

## CEEP to Host Education Conference October 3-5



Associate Professor Ghassan Kridli and former CEEP collaborator Peter Friedman of Ford Motor Company

How can engineering schools better prepare students for real-life situations in the workplace? The Center for Engineering Education and Practice (CEEP), which was established in 1992, has been forging relationships between industry and the college's faculty that enhance the curriculum and help to provide an answer to that question. This October 3-5, CEEP will host an education conference intended to foster discussion among engineering educators and industry representatives on the subject of integrating engineering practice into the classroom.

"Engineering students in the United States typically get the bulk of their engineering education from faculty members who are often narrowly focused researchers with little experience with engineering practice in an industrial setting," says Bob Hildebrand, director of CEEP. "Yet the vast majority of their students will eventually become practicing engineers. It is our view that engineering students can benefit greatly by incorporating aspects of engineering practice into their class work. Doing so would help keep their interest in engineering by showing the application and relevance of

*Continued on page 3*

**The Catalyst** provides news and information about the innovative projects being developed through the UM-Dearborn College of Engineering and Computer Science Centers of Excellence: Center for Engineering Education and Practice (CEEP), Institute for Advanced Vehicle Systems (IAVS), and Center for Lightweight Automotive Materials and Processing (CLAMP).

Non-Profit  
Organization  
U.S. Postage  
PAID  
Dearborn, MI  
Permit No. 684



**Annual  
Technology  
Day Set for  
June 9, 2004**

Page 3



**Can't Slow  
UM-Dearborn's  
Mini-Baja  
Racers**

Page 4