seas news

School of Engineering and Applied Sciences
University at Buffalo *The State University of New York*

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IN THIS ISSUE...

Alumni Celebration of Excellence Awards

Stone and Ruckenstein Honored by UB Alumni Association

The UB Alumni Association's Celebration of Excellence Awards Ceremony is held each year to honor the most distinguished members of the UB community. It was on this occasion that the Samuel P. Capen Award, the alumni association's most prestigious award, was awarded to Henry Stone, BS ME '49 and Eli Ruckenstein was awarded the Walter P. Cooke Award, the highest honor given to non-alumni. The Samuel P. Capen Award recognizes notable and meritorious contributions to the university and its family, such as contributions influencing the growth and improvement of the university and stimulating others to give their active interest and material support. The Walter P. Cooke Award is presented for notable and meritorious contributions to the university and its family, such as contributions influencing the growth and improvement of the university.

Henry Stone is a retired vice president of General Electric Co. and a loyal UB alumnus. He has given the engineering school a gift to benefit an engineering student who is a member of a minority group, or who is an immigrant like himself.

Stone emigrated with his parents from Germany, working while earning a high school diploma in night school. He joined the U.S. Army Corps of Engineers and served in the South Pacific during World War II.

After the war, he used the GI Bill to enroll in the then-private University of Buffalo, where he graduated summa cum laude in mechanical engineering. Unable to attend his UB commencement ceremony because he was working at the General Electric facility in Lynn, Massachusetts, Stone was later transferred to the GE plant in Schenectady, and in 1950 was assigned to the new GE affiliate,

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Eli Ruckenstein, SUNY Distinguished Professor of Chemical Engineering, is known as one of the world's leading scientists in the field of chemical engineering. He was cited for his prolific career and the far reaching affect he has had in bringing honor and attention to the department of chemical engineering, SEAS and UB thus adding prestige to the entire academic community.

Ruckenstein was the recipient of the United States' highest honor for scientific achievement, the National Medal of Science for his pioneering theories and experimental achievements in colloidal and surface phenomena, catalysis, and advanced materials. He is also a member of the National Academy of Engineering. Dr. Ruckenstein has been a faculty member at the University at Buffalo since 1973.

Distinguished Astronaut Honored

This year, **Joseph P. Allen**, Chairman of the Board of Veridian Corporation, was a recipient of an honorary Doctor of Science from the Trustees of the State University of New York. The honorary doctorate degree is the highest form of recognition offered by the Trustees to persons of exceptional distinction. It is awarded to recognize excellence in the fields of public affairs, the sciences, humanities and the arts, scholarship and education, business and philanthropy, and social services that exemplify the mission and purposes of the State University of New York; honor meritorious and outstanding service to the University, the State of New York, the United States, or to humanity at large; and recognize persons whose lives serve as examples of the University's aspirations for its students.

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Hadi Makarechian recipient of Dean's Award

The highest honor granted by SEAS, the Dean's award, was given to **Hadi Makarechian,** BS CIE '72. The Dean's award is given yearly to someone who has made a substantial contribution to the practice of engineering or the applied sciences and/or has had an exceptional professional career.

To say that Hadi Makarechian's career has been exceptional seems something of an understatement. Since his graduation from UB with an engineering degree as well as a BA in economics, Mr. Makarechian has become one of the top builders in the US real estate industry, having built more than 27,000

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Engineer of the Year Award

Maria Lehman, BS CIE '81, the Commissioner of Public Works for Erie County, was awarded the UB Engineering Alumni Association's Engineer of the Year Award for 2002–03. As commissioner, Lehman is responsible for an annual capital program

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ALUMNI NEWS

Dear SEAS Alumni,

The 2002–2003 school year was a great one to be the UBEAA president.

Your Board of Directors has successfully completed another year implementing a quality program.

In the Spring 2003 semester we continued our tradition of the annual UBEAA/SEAS at UB basketball in February. At the Dean's Scholarship reception, held March 21st, the UBEAA awarded scholarships to four worthy and talented engineering students to continue their studies at UB. For the first time, the SEAS and EAA combined the Order of the Engineer and the Alumni Engineer of the Year Award ceremony on April 22nd and the participants all agreed that it is an honor and pleasure to provide engineering services to the world at large. Maria Lehman, Erie County Public Works Director, was given the Alumni award based upon her numerous contributions to the field of engineering and continued effort to improve our engineers, who will continue to develop new products and will be instrumental at rebuilding those portions of our infrastructure that require modifications and maintenance to increase overall longevity and functionality.

Alumni time and financial resources make our program go. Please help us make the remainder of this school year a success. I ask your consideration to:

Join us as a paying member of your EAA for 2003 – your dues will go toward sponsoring events and assisting SEAS student clubs;

Help us help current students by contributing to our special scholarship fund;

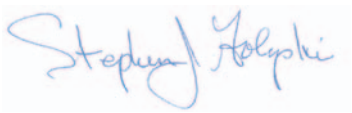
Come to our events.

The EAA wishes to extend a "THANK YOU AND GOOD LUCK" to Maria Drozda, who helped considerably with EAA correspondence and membership, as she leaves the SEAS office.

The Board of Directors continues to extend an invitation to UBEAA members to join us in accomplishing our programs. If you are interested in joining the Board, please contact Robert Barnes, at the Engineering School, with a short resume addressing your engineering field and interests in joining the Board. All applications submitted will be reviewed by the UBEAA Board members and new members will receive an invitation to join us in time for the new school year.

Together, we can make a positive contribution to our School and enjoy our UB.

Yours truly,



Stephen J. Golyski, P.E., CIE BS '73, MS '81

UBEAA President

EAA Board of Directors

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SEAS Liaison

Robert E. Barnes

UBEAA President Stephen Golyski presents a check from the Engineering Alumni Association to Dean Mark Karwan. Also pictured are Michelle Rhodes and Craig Forget.

A Slide Down Memory Lane

While some may still relish the simple beauty and non-threatening functionality of the abacus, there are those who have made the transition to more challenging computing gadgets—many who, in fact, still remember giving up the slide rule for Texas Instrument's scientific calculator back in the early 1970s.

If you count yourself one among those who think fondly of those days, the Science and Engineering Library's exhibit, "Go Figure! Slide Rules and other Calculating Curiosities," just might be your thing. The exhibit featured more than 50 slide rules, abacuses and other mechanical contraptions belonging to UB faculty and staff, and offered a glimpse into number-crunching before the advent of the electronic calculator, said Nancy Schiller, engineering librarian in the Arts and Sciences Libraries and exhibition coordinator.

Slide rules date back to the 1630s but came into prominent use during the 19th century and especially during the Cold War era, when the U.S. sought to strengthen public school-based math and science programs. Now they are highly prized as collector's items—some are valued in the thousands of dollars. There even are Web sites devoted to the lore of these elegant instruments, and MIT offers a one-hour mini-course during winter break on how to use one.

Apparently, some tried to diminish the "geek factor" of carrying slide rules. Schiller says that, according to Richard Shaw, professor emeritus in the School of Engineering and Applied Sciences, "mathematicians preferred to carry their slide rules in their pockets and not on their belts, like the engineers."

Some of the slide rules in the exhibit were provided by members of the SEAS community, including alumnus Steve Vekich, BS ME '50, professors Joe Atkinson (CSEE), Deborah Chung (MAE), Bill Rapaport (CSE), and Dick Shaw (Emeritus, CSEE), and EE undergraduate Aleksandr Yarovinskiy.

Distinguished Alumni

John Schneider, BS PhD EE '80 '90, President and CTO of Ultra-Scan, a Buffalo-based company that is a pioneer in the development of high-accuracy ultrasonic fingerprint identification technology, was awarded the Entrepreneur of the Year award from Business First Magazine along with Ultra-Scan's CEO Terren Dunlap. Schneider worked at Buffalo-based Calspan (now Veridian) after graduating from UB where he wrote the first Automatic Fingerprint System in the world (which is now housed in the Smithsonian). It was this experience that led him to found Ultra-Scan and gave him the desire to have "the ability to make a difference in providing solutions for real world problems that were unable to be solved until Ultra-Scan came along. Scientists simply explain the facts that are governed by nature. Engineers apply those facts to create something new, something that has never been created before."

Steven H. Voldman's, BS EE '79, resume is a veritable checklist of success in the computer industry. In his two decades of work in the field of electrostatic discharge in the US semiconductor industry, Voldman has been recognized multiple times as an IBM Top Inventor: he holds 109 patents issued and has 20 pending. He was the top inventor at the IBM Burlington facility for the last four years, and he has been awarded the 35th Plateau IBM Invention Award.

Honored Alumnus Gives Seminar

Henry Stone (BS ME '49), this year's recipient of the Capen Award, the highest honor awarded by the UB Alumni, gave a seminar to faculty and students on his concept of 'project management and value added.' Stone remark-ed that 'added value' as an approach to professional life begins with the question: "What value have I added to-day?" Speaking of the impact which UB has on the surrounding communities, Stone concluded that through the ever-increasing flow of students moving through the university's halls, this "value" will "multiply in a geometric fashion. This is an enviable opportunity."

Alumnus is China's New Education Minister

Zhou Ji, (MS, PhD ME '78 '81) a distinguished researcher and scholar has been named minister of education of the People's Republic of China. The appointment was announced during the tenth National People's Congress (NPC) in Beijing, at which 3,000 deputies of the NPC elected China's new leadership under President Hu Jintao and Premier Wen Jinbao.

In his new position, Zhou will oversee the largest system of education in the world, serving more than 250 million students in the primary and secondary levels, and more than 13 million students in higher education--25 percent of the world's students on one percent of the world's education budget.

In 1999, Zhou was presented a Distinguished Alumni Award by the UB Alumni Association for contributing his knowledge, talent and creativity to higher education in China. At the time, he was president of Huazhong University of Science and Technology, one of China's top universities.

UB President William R. Greiner said the university "is delighted that one of our distinguished alumni has been appointed to such a prominent and influential position in the Chinese government, with responsibility for the world's largest educational system.

"Dr. Zhou's appointment," he added, "is a very meaningful one for our entire UB community, especially for his mentors and colleagues at UB, including SUNY Distinguished Professor Roger Mayne, his doctoral advisor in the Department of Mechanical and Aerospace Engineering. We are all immensely proud of Dr. Zhou, and we are very pleased to see him receiving such well-earned recognition."

Stephen C. Dunnett, UB vice provost for international education, noted that Zhou "is one of a great many outstanding Chinese students who have completed advanced degrees at UB and gone on to highly successful careers back home.

"It is a tribute to UB's early and extensive involvement in China, beginning in the late 1970s, that UB has attracted so many excellent students from that country," Dunnett noted. "Few U.S. institutions can boast as many graduates in China, now rising to prominent positions of authority and responsibility."

A distinguished researcher and prolific scholar, Zhou was elected to the Chinese Academy of Sciences in 1999. He is the former mayor of Wuhan, a major industrial city in Southern China and had served since last August as China's vice minister of education.

Pictured are: Brad Sendlack, Steve Golyski, Steve Buechi, and Richard Rink of the American Society of Civil Engineers at Engineer's Night.

Engineers at UB Basketball

The UB Engineering Alumni Association celebrated there 16th Annual Engineers at Basketball event as part of Engineer's Week 2003. While the UB Bulls lost to Miami, the event was well-attended by alumni, students, and faculty and fun was had by all. The half-time entertainment was provided by Bird Zerk and a local studio of Irish dancers and the game time festivities were bookended by good food. Before the games, UB Athletics offered free chicken wings and after the game EAA gave a pizza party for all SEASers in attendance.

The EAA is pleased to announce that this year's winner of the Engineering Spirit Award went to the UB chapter of the American Society of Civil Engineers. The group received a check for $100 and had its name engraved on a plaque that hangs in 415 Bonner Hall.

Class Notes

Todd M. Rossi, EE BS MS '86 '88 founding member of Field Diagnostic Services, Inc., worked to develop the Honeywell HVAC Service Assistant, a product that was awarded the most innovative "Instrument, tool, and software" award at the 2003 AHR Expo.

Stanley R. Rosen, BS ME '51, the Society of Manufacturing Engineers published his book "Thermoforming Improving Process Performance," a handbook for the industry on equipment molds and dies based on over 50 years in designing and building these components.

Peter J. Buechi, BS MS CIE '68 '70 former EAA president and board member retired from the NYS Department of Environmental Conservation in March 2003 after over 33 years of service.

John R. Ast, BS EE '70, is currently Operations Director and Site Manager for LSI Logic Storage Systems, Inc., managing customer order fulfillment, supply chain management, manufacturing engineering, manufacturing and facilities.

Anthony J. Chimera, BS EE '52, MS EE '59, has retired for the third time, this time from Lockheed Aerosystem where he was participating in the 722 program as a principal avionics engineer.

James W. Harris, BS CE 1990, married Jeanette Kohlstedt on January 18, 2003 in Palatine, Illinois.

EAA Scholarship Winners

Students join Dean Karwan and EAA Board members Michelle Rhodes, Steve Golyski, Craig Forget and Jonathan Kolber for the UBEAA scholarship presentation.

D. Richard Ferguson

D. Richard Ferguson, BS EE '84, died January 17, 2003 in his Williamsville home after a nine-year battle with a brain tumor. A Western New York native, Ferguson worked for Jenny Systems where he developed a method to address the cost of leased phone lines. After leaving Jenny Systems, he became a programmer at Applied Sciences Group. Survivors include his parents, Donald and Elfriede; sister, Erika Stillman of Clarence; and a grandfather, Max Ilsanker of Williamsville.

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CIE 535 Geoenvironmental Engineering
CIE 550 Hydrologic Engineering
CIE 565 Biological Principles of Environmental Engineering
CIE 591 Construction Estimating
CIE 592 Construction Planning and Scheduling

Computer Science and Engineering
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CSE 530 Computer Communications
CSE 542 Software Engineering Concepts
CSE 597 Introduction to VLSI Electronics

Electrical Engineering
EE 519 Industrial Control Systems
EE 529 Introduction to Electromagnetic Compatibility
EE 540 Energy Conservation in Motor Drive Systems

Industrial Engineering
IE 505 Production, Planning and Control
IE 507Design and Analysis of Experiments I
IE 508 Quality Assurance
IE 530 Introduction to Human Factors
IE 533 Sociotechnical Systems
IE 541 Human Factors in Safety

Mechanical and Aerospace Engineering
MAE 500 IT in Engineering Design
MAE 543 Continuous Control System
MAE 550 Optimization in Engineering Design
MAE 558 Tribology
MAE 672 Optimal Control Systems

School of Engineering and Applied Sciences
EAS 480/580 Technical Communications for Engineers
EAS 521 Principles of Engineering Management I

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STUDENT NEWS

On (Not) Making Omelettes

The UB Engineering Council held its fourth annual "Egg Drop" contest, open to all students, as part of National Engineers Week. Forty-one people on 15 teams competed in the contest, which involved the construction of a device that could safely transport an egg from the third level of the Student Union to the ground floor, 36 feet below. The egg's vehicle could be constructed only out of the foam insulation, tape, string and paper provided by the organizers. The designs ranged from parachutes to foam containers of various shapes and sizes.

Egg transport designs were judged on three criteria: weight (the lighter the better), how close the egg landed to the target area on the floor of the Student Union, and whether the egg remained intact. Teams had four chances to drop their device and were allowed to modify the design between drops.

"Team Lightning," composed of National Society of Black Engineers members **Terik Gaines,** a senior mechanical engineering major, and **Christopher Regent,** a freshman mechanical and aerospace engineering major, captured first prize. Their egg transport weighed four grams and was shaped like a cup, with the egg nestled in a cushion of bubble wrap and sent down to the floor of the Union attached to a parachute. "It felt wonderful," Regent said. "It was good to know you can build something that is actually a winner." According to one of the organizers, the egg drop contest has been gaining popularity. "It's such a fun event, because it's so competitive," he said. "It becomes more and more popular, and we get more and more sponsors each year."

Students Honored

Murali Dodla, a graduate student in industrial engineering, received an award from the leadership development center for being among the top ten outstanding student leaders for 2002-3. The award was given to 10 graduate and undergraduate students in recognition of their efforts and outstanding commitment to the mission of the leadership development center.

Samuela Franceschini, a doctoral candidate in civil, structural, and environmental engineering, was awarded the National Science Foundation Graduate Research Fellowship. The fellowship offers recognition and three years of support for graduate students who demonstrated extraordinary scholarly credentials and the ability to effective integrate research and education at all levels, encourage diversity, broaden opportunities, and enhance scientific and technical understanding.

Daniel Kaputa, a doctoral student in electrical engineering, is a member of one of the final teams in this year's Panasci Entrepreneurial Awards Competition sponsored by the School of Management's Center for Entrepreneurial Leadership. Awards of $25,000 and $15,000 will be given to the finalists who devise and present the best business plan for launch of a viable business in Western New York. The competition was created with a $1 million endowment from UB Pharmacy alumnus Henry Panasci, Jr. chairman of Cygnus Management Group and past chairman and CEO of Fay's Inc.

Edward Kasprzak, a graduate student in the department of mechanical and aerospace engineering, received this year's Graduate Student Excellence in Teaching Award. The Graduate School and the Graduate Student Association established the award to recognize graduate students who have developed and demonstrated exceptional competence in teaching.

Kannan Nagarajan, a graduate student in civil engineering, received the 2002 Young Engineer of the Year Award presented by the National Society of Professional Engineers (NSPE). The award, rarely given to student engineers, is given "to recognize a professional engineer 35 years of age or less who has made an outstanding contribution to the goals of the society by means of educational, collegiate and engineering achievements, professional society, technical society, civic and humanitarian activities, and displayed continuing competence."

Philip Ventura, a full-time lecturer and doctoral candidate in the department of computer science and engineering, placed third in the ACM SIGNCSE Student Research Competition with his paper "On the Origins of Programmers: Identifying Predictors of Success for an Objects-First CS1." Sponsored by Microsoft Research, the ACM Student Research Competition is an internationally recognized venue for undergraduate and graduate researchers and the award carries with it a small cash prize, a plaque, and a two-year ACM membership, as well as entry into the national ACM Student Research Competition. Ventura was the only individual of the 3 finalists whose research was computer science education based.

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Robot Battles

Sounds of whirring blades and crashing metal filled the Student Union as 10 student-designed robots squared off against one another in a fight to the scrapheap.

As part of Engineering Week, the Student Association Engineering Council and Clubs held its annual "UB Bot Wars"—modeled after Comedy Central's "Battle Bots"—in which students design and build robots that compete to dismantle each other.

The Society of Automotive Engineers took top honors with a robot named "Drill Sergeant." The UB Robotics Club's robot, "George," was the runner-up.

Event Coordinator **James Ambrose,** a senior majoring in mechanical and aerospace engineering, served as the announcer and said UB Bot Wars surpassed his expectations.

The crowd roared when the robots smashed into the wall. The event, which lasted throughout the afternoon, drew throngs of people who stood and watched as the bots tried to tear each other apart. For onlookers, who stood in around the ring with wide eyes and jaws slightly opened, it may have been sheer fascination that kept them watching.

Civil Engineering Students Receive Honors

CSE undergraduate **Colleen O'Connell** and CSE graduate student **Joshua Repp** were awarded the Julian Snyder Endowment Fund Scholarship. Julian Snyder, for whom the scholarship is named, has a long and distinguished history with the Buffalo Section of the American Society of Civil Engineers. He is the only member to hold the position of president twice; first in 1977 and again in 1981. After working as a principal in local engineering firms, Snyder now serves as an adjunct professor at UB and holds nine state engineering registrations.

Diego Lopez-Garcia received the Graduate Student Association's "Most Outstanding Student" Award. The award is given by the GSA and winners are nominated by another graduate student and reviewed by a GSA appointed committe.

Tau Beta Pi Graduates New York Nu Chapter

Ray Cooley
Jeffrey Coles
Dan Corbett
Wesley Drake
Robert Dressing
John Fritz
David Gawelo
Brian Haas
Alexander Heiss
Christopher Iacovella
Christopher Jackson
Neexon Khoo
Nga-Leung Law
Jonathan Leahy
William Louisos
Matthew Mandiak
Joseph McManaman
David Meehan
Kate Nowicki
Adebimpe Ogunade
Jon Tae Park
Dave Reynolds
Luis Serfaty
John Shultz
John Smead
Nathaniel Stenz
Joseph Tanski
Maren Taylor
Amy Turner
Adit Vaidya
Jesse Wagner
Glenn White
Jia-Lock Wong
Jennifer Wong
Brian Wrazen
Robert Zmitrewicz

Clean Snowmobiles, Quiet Snowmobiles

Matt Wetzel, a junior mechanical engineering major, is one of the proud group of students who get to take a spin on UB's "clean" snowmobile, an environmentally friendly model designed by Wetzel and other engineering students. The students competed in the Society of Automotive Engineers' Annual Clean Snowmobile Challenge, which was held at Keweenaw Research Center at Michigan Technical University in Houghton, MI. UB's machine, a 1999 V-Max Yamaha, features a 500cc intercooled, four-stroke, fuel-injected engine and a three-way catalytic converter designed to significantly reduce, if not make negligible, the amounts of hydrocarbon emissions and other pollutants released into the environment. The snowmobile also features a custom-designed silencer, aimed at reducing engine noise.

Poster Contest Asks the Tough Questions

The student chapter of the National Society of Professional Engineers (NSPE), hosted its annual "Why Engineering?" poster contest as part of EAA's Engineer's Week. The posters attempted to render graphically the questions and possibilities facing the contemporary professional and student engineer. The contest was judged by **John Frandina** BS ME '86, president of the local chapter of NSPE, **Michael Ryan,** professor of chemical engineering and associate dean of undergraduate education, and Gino Forte, local PE.

Allen: Honorary Doctorate

(continued from page 1)

Veridian is an advanced information technology company specializing in decision support and knowledge management, information systems and communications, modeling and simulation, systems integration, and engineering and analysis. A public company (NYSE: VNX) with annual revenues in excess of $1 billion, Veridian leverages its capabilities in five sectors: information, space, aeronautics, transportation, and life sciences. Veridian's nearly 8,000 employees serve their customers at more than 60 locations in the U.S. and overseas.

Prior to his responsibility with Veridian, Allen served as a guest research associate at Brookhaven National Laboratory, then as a member of the physics faculty at the University of Washington in Seattle, Washington. In 1967, NASA selected Allen as a member of its class of Scientist-Astronauts, a position he held until 1985. While at NASA, Allen served as a mission controller for Apollo 15, Apollo 17 and Space Shuttle flight STS-1. He later flew as an astronaut aboard "Columbia" (STS-5), the first space shuttle mission to carry cargo to orbit, and then aboard "Discovery" (STS-14), the only mission to date to salvage cargo from orbit.

During his NASA career, Allen also served as Assistant Administrator of NASA from 1975-1978 and as Director of Astronaut Training and Operations in the early 1980s.

Allen holds a M.S. and Ph.D. in Physics from Yale University and an undergraduate degree in mathematics and physics from DePauw University. He is the author of Entering Space: An Astronaut's Odyssey, a personal account of the space flight experience, and he has published widely in the fields of physics and space research. In addition to his responsibilities with Veridian Corporation, Allen is a multi-term member of SEAS' Dean's Council where he has been its chair. He also serves as director of United Space Alliance, Houston, Texas; director of Actioneer, Inc., Boston, Massachusetts; trustee of National Outdoor Leadership School, Lander, Wyoming, and as the Chairman of the Challenger Center, a charitable organization sponsoring Space Science Education projects in North America and England.

A Fulbright Scholar, Allen's awards include the NASA Exceptional Scientific Achievement Medal, the NASA Exceptional Service Medal, the Wilber Cross Medal from Yale University, the Walter P. Cooke Award from the University at Buffalo and the Lloyd's of London Silver Medal for Meritorious Services. He was also inducted into the U. S. National Wrestling Hall of Fame in Stillwater, Oklahoma.

This year's Order of the Engineer ceremony again pledged graduating senior engineering students to the highest standards of the profession. Each of the engineers pledged to "practice integrity and fair dealing, tolerance and respect; and to uphold devotion to the standards and the dignity of my profession, conscious always that my skill carries with it an obligation to serve humanity by making the best use of Earth's precious wealth." The ceremony is sponsored by the Engineering Alumni Association and the SEAS Office of Student Services.

Edible Constructions, or, Building a Lunch

When parents told them not to play with their food, engineers apparently weren't listening.

Engineering Week, sponsored by the Student Association Engineering Council, continued in style as nine teams of engineers competed in the "Consumable Tower" event to build the highest tower made entirely from edible materials.

Then, the competitors are challenged to put their engineering skills where their mouths are — literally — by eating their creations.

"You take something very common, like food, and you take the structural aspect of it and put it to good use," said **James Ambrose,** SA Engineering Clubs Coordinator and organizer of Friday's competition. "Like other Engineering Week activities, you use creativity and engineering design skills."

Teams could only use the food products provided by organizers: carrots, celery, pretzel rods, graham crackers, peanut butter and Fluff, a marshmallow spread.

"They're all structural foods," said Ambrose.

A three-person team from UB's chapter of the American Institute for Aeronautics and Astronautics took first place with a 49-inch structure, which had a base of carrots and a tower of celery. The victorious AIAA team members, **Dayle Hodge,** a sophomore mechanical and aerospace engineering major, **Nicholas Leone,** a senior aerospace engineering major and **Denis Murdov,** a junior aerospace engineering major, said they took a different approach to the design than other groups by not using excessive amounts of peanut butter and Fluff as adhesives for their tower.

Teams had 30 minutes to construct their towers. Those who were able to consume their edible structure within 10 minutes after building was completed earned extra points.

"The hardest part of the competition is the time limit," Ambrose said. "If they had two or three hours, you'd see some insane designs."

Student Poster Competition

In a joint presentation from the department of mechanical and aerospace engineering and the graduate student association, students had a chance to present their work to the larger UB community in the 2003 graduate poster session. The posters were judged by a jury and the best posters were honored with prizes. Following the presentation, the organizers hosted a faculty-student mixer complete with the requisite finger-foods.

Student Honors
(continued from page 5)

Dan Zhao, a doctoral candidate in computer science and engineering won the Best Student Paper Award in the 12th IEEE North Atlantic Test Workshop in Montauk, NY. The title of the paper is: "A New Distributed Test Control Architecture with Multihop Wireless Test Connectivity and Communication for GigaHertz System-on-Chips" and was co-authored with **Shambhu Upadhyaya,** associate professor of computer science and engineering and **Martin Margala**.

SEAS ANNUAL SCH

1. Allied Signal Scholarship Award
Adebimpe Ogunade CE

2. Robert P. Apmann Award
Lisa Gwiazdowski CSEE

3. American Society of Civil Engineers
Outstanding Scholar Award
Daniel Fenz CSEE

4. Michael J. Bauda Scholarship Award
Danelle Schrader MAE

5. Beth Cheshire Moran Award
Atusa Madnia CSE

6. Chuang Family Scholarship
Mohammad Imran CSE

7. Civil, Structural and Environmental Engineering Chair's Graduate and Undergraduate Recognition Award
Graduate: Samuela Franceschini CSEE, Hua Ye CSEE
Undergraduate: Robert Dressing CSEE, John Story CSEE

8. Richard E. Dollinger Energy Systems Institute Undergraduate Scholarship
Adam Halstead EE, Evan Halstead EE, Jason Jones EE, Herick Nelson EE

9. E&WG Foundation Graduate Fellowship
Jason Buneo EE

10. Energy Systems Institute Undergraduate and Graduate Scholarship
Undergraduate: Jason Cohen EE, James Harper EE, Shola Olabisi EE
Graduate: James Kirkland EE

11. Engineering Undergraduate Fellowship
Daniel Britt CSE, Adriana Crippen MAE, Folarin Erogbogbo CE, Emmanuel Fernandez CSE, Sara Forde MAE, Darryl McCune II EE, Lisa Murowski IE, Jennifer Penfield MAE, Lavone Rodolph CSE, Jennifer Taranto MAE

12. Matthew Grappone Book Award
Eric Buckley CSE, Jason Lehman CSE, Koji Noguchi MAE, Benjamin Paratore CSE, Aditya Sachan MAE

13. Gregory B. Jarvis Scholarship
Kent Collier CSEE, Jeffrey Czyz CSE, Christopher Dolen CSE, Zhao Heng Fang CE, Joseph Marcella, Jr. MAE, Robert Miller CSE, Matthew Sweeney CSE

14. Daniel Kaegebein Bird Electronics / TXRX-SYSTEMS Scholarship
Kevin Balys EE, Robert Seymour EE, Amy Turner EE

15. Dr. Sophokles E. Logiadis Prize
Eleni Pavlou CSEE, Panayiotis Roussis CSEE, Gordon Warn CSEE

16. Joseph Markle Dinner Memorial #4 Scholarship
Zhao Heng Fang CE


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OLARSHIP AWARDS

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22a


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22b


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17. James W. and Nancy A. McLernon Superior Student Award
Michael Dray CE, Michael Szymanski MAE, Michael Virdone EE, Matthew Walters IE, Matthew Watkins CSE and EE, Michael Zaccheo MAE

18. Sherwood P. Prawel Award
Daniel Fenz CSEE

19. Praxair Fellowship Award
Rainee Van Natter CE

20. Ralph R. Rumer Award
Kent Collier CSEE

21. Arthur A. Schomburg Fellowship
Karen Holness IE

22a-c. Senior Scholar Awards Sponsored by Applied Sciences Group, EMC2 Corporation, Motorola and SEAS
Applied Sciences Group: Glenn White MAE
EMC2 Corporation: Harish Ganapathy EE, Leonard Kayembe EE
SEAS: Matthew Cole CE, Jeffrey Coles MAE, Wesley Drake IE, Adam Fosbury MAE, Geoffrey Genesky CE, Robert Grillo IE, Brian Haas MAE, Jeffrey Hager CE, Alexander Heiss EE, Christopher Iacovella CE, Jeremy Malik MAE, Joseph McManaman MAE, Jon Tae Park MAE, Nicholas Presciutti CSEE, David Reynolds MAE, Amy Turner EE, Jialock Wong EE

23. Irving H. Shames Outstanding Teaching Assistant Award
Karl Bandilla CSEE

24. Richard P. Shaw Award
Joseph Tanski CSEE

25. Henry Stone Graduate Assistantship Award
Emmanuel Jacques CE, James Kirkland EE

26. Frederick Thomas Award
Lisa Murowski IE

27. Elbridge N. and Stephana R. Townsend Scholarship
Demissie Wolde-Gabriel MAE

28. John Zahorjan Memorial Scholarship
Morris Green, Jr. IE, Pierre M. Saint Louis IE

29. Gustav and Greta Zimmer Research Scholar Award
Adam Fosbury MAE, David Howe MAE, Rajaey Kased MAE, Nicolas Mills MAE, Jon Tae Park MAE, Matthew Wetzel MAE

Awardees Not Present

Association of Old Crows Scholarship
Brian Anger CSE, Aaron Beechler CSE, Robert Laveck CSE, Jeffrey Till CSE

Energy Systems Institute Joan G. Bennet Undergraduate Book Scholarship
Synia Mixon EE

Energy Systems Institute Undergraduate Improvement Scholarship
Herick Nelson EE

SUNY Honors SEAS Inventors

SEAS faculty members were among those honored for their research by SUNY Chancellor Robert L. King, who presided over the second annual State University Dinner Honoring Innovation, Creation and Discovery, held in Albany.

The awards given acknowledged research and scholarship by faculty that spans a variety of disciplines, ranging from biology, chemistry, and physics to medicine, education, materials science and engineering. Awards were in three categories: Excellence in the Pursuit of Knowledge, First Patent, and Promising Inventors.

Paras Prasad received special recognition from SUNY for his "singular contribution to scholarship and the reputation of the University." Prasad, executive director of the Institute for Lasers, Photonics and Biophotonics, and SUNY Distinguished Professor in chemistry and professor in electrical engineering, received an Excellence in the Pursuit of Knowledge Award. A 1997 recipient of a Guggenheim Fellowship, Prasad is a fellow of the Optical Society of America and the American Physical Society. He has published more than 425 papers and co-edited six major books in the field of photonics materials.

Two SEAS faculty members received First Patent Awards and were honored for receiving patents in 2002 and for helping to place SUNY in the top 10 of patent-generating institutions. They were:

Michael C. Constantinou, professor and chair, Department of Civil, Structural and Environmental Engineering, for patent 6,438,905—Highly effective seismic energy-dissipation apparatus. Constantinou developed a new energy dissipation technology that uses an unusual configuration, called Scissor-Jack Energy Dissipation System, to dissipate much of the earthquake-induced energy when installed in structural systems.

Peter Scott, associate professor, Department of Computer Science and Engineering, for patent 6,455,831—CMOS foveal image sensor chip. Used in foveal vision systems, this invention allows automatic target-recognition systems and robots to see the same way as humans. **Cesar Bandera** EE BS PhD '82 '90, formerly with Amherst Systems; **Ramalingam Sridhar,** associate professor of computer science and engineering; and Shu Xia, former doctoral candidate in computer science and engineering are co-inventors.

In addition, two faculty members received Promising Inventor Awards in recognition of submitting their first invention disclosures in 2002:

Mark T. Swihart, assistant professor, Department of Chemical Engineering, for "Process for Producing Luminescent Silicon Naonoparticles";

Eliot Winer, deputy director, New York State Center for Engineering Design and Industrial Innovation, for "Geographic Independent Virtual Environment (GIVE)" and "Graph Morphing."

Promotions

Cheryl Runk to Secretary I

Margaret Evans and **Martha (Marty) Fye** to Keyboard Specialist II

Greetings & Farewells

SEAS would like to welcome:

Civil, Structural and Environmental

Christine Human as Lecturer

Cheryl Robbins as Keyboard Specialist II

Science and Engineering Node Services

Molly Brower as Instructional Support Specialist

Center for Excellence in Document Analysis and Recognition

Mary Jane Gallo as Project Administrative Officer

SEAS would like to say goodbye to:

Debra Hanley, retired from Center for Bioengineering

Kurt Winter, from NEES project to Oral Biology

April Stahl, from SEAS Student Services to Oral Biology

Susan Batt, from Mechanical and Aerospace to the Center for Computational Research

Faculty Receive Exceptional Scholar Awards

Established by the university to recognize faculty for their outstanding research, the Exceptional Scholar Awards were given to three SEAS professors at the annual awards ceremony. This year's recipients were:

Venugopal Govindaraju, professor of computer science and engineering, and **Aidong Zhang,** professor of computer science and engineering and adjunct professor of electrical engineering, each received the Exceptional Scholar—Sustained Achievement Award. This award, now in its second year, recognizes long-term contribution to science and engineering. **Stelios Andreadis,** assistant professor of chemical engineering received the Exceptional Scholar—Young Investigator Award.

Jensen Named Director of Teaching Center

James N. Jensen, associate professor in the Department of Civil, Structural and Environmental Engineering, has been named director of the UB Center for Teaching and Learning Resources.

The Center for Teaching and Learning Resources (CTLR) is an office at UB dedicated to promoting and sustaining the highest quality of teaching. Established in 2001, it provides services, workshops and teaching resources to faculty and teaching assistants. Staff members work with newly minted faculty to jump-start their teaching career, and with experienced professors who want to improve classroom instruction.

"I improved my own teaching through a tortuously slow process of trial-and-error," said Jensen, a recipient of the SUNY Chancellor's Award for Excellence in Teaching in 1995. "By serving as the director of the CTLR, I hope to help faculty and teaching assistants reach their teaching goals more easily."

A UB faculty member since 1988, Jensen's research interests include wastewater treatment, drinking-water treatment, disinfection and chemical oxidation. He has also received the Honor Award for Excellence in Environmental Engineering from the American Academy of Environmental Engineers.

Course Redesign Shows Results

Beginning in 1999 a group including: **Deborah Walters,** associate dean of the College of Arts and Sciences and associate professor, computer science and engineering; **Helene Kershner,** assistant chair and lecturer in computer science and engineering; **Debra Burhans, Carl Alphonce,** teaching assistant professor in computer science and engineering; and later **Barbara Sherman,** teaching assistant professor in computer science and engineering wrote a proposal to redesign the CSE 101 computer literacy course. The proposal was one of ten nationwide to be awarded a $200,000 Round I grant through the Pew Grant Program in Course Redesign. And now, after four years the changes are beginning to show results.

The redesign resulted in a marked increase in the percentage of students who earned an A- or higher, moving from 37 to 56 percent. In addition, the redesign called for employment of undergraduate learning assistants (ULAs) instead of graduate teaching assistants (GTAs) They found that ULAs turned out to be better at assisting their peers than GTAs because of their understanding of the course content, their superior communication skills and their awareness of the common misconceptions about computers held by the students. Similarly, they found that by replacing more expensive GTAs with relatively inexpensive ULAs increased the person-hours devoted to the course while cutting costs.

Professor Heads Global Engineering Program

D. Joseph Mook, assistant dean for International Education and professor of mechanical and aerospace engineering, was unanimously elected Chair of the Executive Committee of Global Engineering Education Exchange (Global E^3). Global E^3 is an international exchange program designed specifically for engineering students and administered by the Institute of International Education on behalf of participating universities.

The Global E^3 program provides opportunities for students at member institutions to receive academic credit for courses taken at overseas institutions and practical training in a foreign setting for a summer, semester, or academic year. Students pay regular tuition to and maintain regular student status at their home campus.

Students are able to study in any country overseas where there is a participating Global E^3 university. More than 50 universities are currently participating in most world regions and new member institutions in new countries are continuing to join the program. Some universities offer courses in English and students are also able to study in French, German, Spanish, and other languages. Language and culture preparation courses are available for some countries.

Errington Awarded NSF Career Award

Jeffrey Errington, assistant professor of chemical engineering, received a National Science Foundation Career award. A graduate of SEAS who earned his doctorate at Cornell University, Errington's research focuses on the properties of materials and chemical systems from a microscopic perspective. He models interactions between molecules in complex fluids and biological systems to better understand their behavior.

Chemical Engineering Department Recognized for Service

The chemical engineering department has won a Service Excellence Award for their efforts at maintaining a high level of safety. There were 42 projects recognized for their efforts as the award was given at the UB Service Excellence Celebration at the student union.

New IE Chair

UB Distinguished Professor Colin G. Drury is the incoming chair for the department of industrial engineering. Drury's work concentrates on the application of human factors techniques to manufacturing and maintenance processes.

Formerly Manager of Ergonomics at Pilkington Glass, he has over 200 publications on topics in industrial process control, quality control, aviation maintenance and safety. He was the founding Executive Director of UB's The Center for Industrial Effectiveness, which works with regional industries to improve competitiveness and has been credited with creating and saving thousands of jobs in the region.

Drury is currently head the FAA Research Group at UB and a Fellow of the Institute of Industrial Engineers, the Ergonomics Society and the Human Factors Ergonomics Society. He received the Bartlett medal of the Ergonomics Society and the Fitts Award of the Human Factors Ergonomics Society.

The outgoing chair is **Rajan Batta,** a professor of industrial engineering whose research interests include operations research and production systems.

Professor Paul Ehrlich, 1923–2003

Paul Ehrlich, professor emeritus of chemical engineering, died at the age of 80 on February 18th while cross-country skiing in New Hampshire. An Austrian refugee who arrived in the U.S. with his mother, Ehrlich served in the army during WWII and, upon returning home, completed his Ph.D. at the University of Wisconsin and a post-doc at Harvard. He joined the chemical engineering faculty at UB in 1967 and remained in Buffalo until his retirement in 1990. Survivors include his wife of 52 years, three sons, two daughters and nine grandchildren.

Faculty Awards and Honors

Deborah Chung, Niagara Mohawk Professor of Material Engineering, has a new book titled Composite Materials: Functional Materials for Modern Technologies coming out from Springer.

Barbara Sherman, alumna and teaching assistant professor of computer science and engineering, was a winner of the 2003 Milton Plesur Award. The award— named after a UB history professor who died in 1987 — is given to undergraduate instructors "who have inspired, excited or had a positive and memorable effect" on their students. Each year, undergraduates can nominate a professor who they feel has had a positive impact on their academic experience at UB. An SA committee chooses the final winners.

Mark Swihart, assistant professor in the department of chemical engineering, was awarded the 2003 J. Bruce Wagner Award. This national award is presented by the Electrochemical Society every two years to a young investigator in the area of high-temperature-materials.

Makarechian: Dean's Award

(continued from page 1)

homes since 1975 and having been involved in many other large scale development and construction projects. This success was apparent from the start of his career when, as a builder in Florida, he revolutionized the way in which beach-front condominiums and hotels were constructed by repositioning the structures so as to maximize the number of units with ocean-views.

After his time in Florida, Makarechian developed high-rise projects in Maryland and then moved on to the West Coast where he was to achieve his greatest successes. He is presently Chairman of the Board, Chief Executive Officer and President of Capital Pacific Holdings, Inc., a diversified real estate company with operations in California and across the southwestern U.S. Makarechian's company was recently named as one of the fastest growing companies in Southern California. Its subsidiaries build, furnish, and landscape model homes for each project and maintain on-site sales offices. The projects range from $350,000 entry-level homes on up to multi-million dollar mansions.

It is for these furnished, lifestyle-focused mansions in the Oceanfront development in Rancho Palos Verdes that the company has received a good deal of media attention from publications such as Newsweek, The New Yorker, CNN and Forbes to name a few. The project takes on the unexpected downside of the longest real estate boom in history: a shortage of unaffordable housing… But Makarechian's vision doesn't just include a beautiful house with an awe-inspiring view—the homes in Oceanfront are fully equipped with furniture, dishes, linens, objects d'art, and a state-of-the-art IBM Home Center controlling everything from adjusting the temperature in the wine cellar, to switching lights on and off, turning on the jacuzzi, and setting music selections on the home audio system.

In addition to his successful work in the real-estate community, Makarechian is also a committed UB alumnus, both with his time and finances. He is a member of the School of Engineering and Applied Sciences Dean's Council as well as contributing member of the school's Delta Society. Chapman University, ranked thirteenth among Western Comprehensive Universities according to U.S. World News, honored Makarechian as Corporate Citizen of the Year for 2002. He also serves on Chapman University's Board of Governors, as well as its Real Estate and Finance and Administration Committees.

He currently lives in Corona del Mar, California with his wife Barbara Makarechian. Together they have two sons, Paul and Cyrus. Both sons are currently involved in various real estate projects through Makar Properties.

Tau Beta Pi Names Professor and TAs of the Year

The New York Nu chapter of Tau Beta Pi, the national engineering honor society, awarded **Kemper Lewis, Scott Fergeson** and **Dirk Tenne** at a reception in May of 2003. Lewis, associate professor of mechanical and aerospace engineering, and Fergeson and Tenne, both graduate students in the department of mechanical and aerospace engineering, were named "Professor of the Year" and "Teaching Assistants of the Year" respectively.

A SEAS Send Off

From everyone here at SEAS News, we want to bid **Maria Drozda,** our colleague and friend, a fond farewell. She has been an indispensable part of the SEAS community both professionally and personally and we wish her all the best in her future endeavors.

Engineer of the Year

(continued from page 1)

of over $900 million, over 500 employees, 1200 road miles, and numerous bridges, buildings and facilities across Erie County. She is the first female and first private sector engineer to hold this post.

In her more than twenty-two years of experience, Lehman has received many honors and awards, including a Fellow of the ASCE, the 2002 Governor's Award for Women for Excellence in Business, 2002 Western New York Branch of the American Public Works Association Leader of the Year, and many others. She is also active in various professional societies and is a visiting lecturer for the UB SEAS Summer Engineering Career Institute.

Professor Honored by *Forbes* Magazine

Research conducted by **Harsh Chopra,** associate professor of mechanical and aerospace engineering, was selected by as one of the top five nanotechnology breakthroughs of 2002 by Forbes magazine. Chopra, with Susan Hua, has developed an extremely sensitive nanoscale device that could shrink ultra-high-density storage devices to record sizes. The list was the result of research conducted by a team at the Forbes/Wolfe Nanotech Report who surveyed leading investors, scientists, corporate executives and high-ranking government officials to pinpoint the top achievers in nanotech.

AIChE Awards

According to **Zack Fowler,** current president of UB's Student Chapter of the American Institute of Chemical Engineers (AIChE), CE student **Nathan Putnam** was selected as AIChE's Student of the Year and **Carl Lund**, professor and chair of the department of chemical engineering, AIChE's Professor of the Year. According to the students who helped select the award recipients, "Dr. Lund made classes worth going to, and Nathan made the long hours in the library pass by easier."

RESEARCH NEWS

Translating the Future of the Internet

So, you think searching for things in English on the Internet is frustrating? Well, try searching for documents written in ancient Sanskrit, modern Hindi and any of dozens of Indian and South Asian languages that are based on the beautiful, intricate symbols of the Devanagari script.

The ability to put this valuable content online from printed sources in Devanagari, requires optical character recognition (OCR), the tool necessary to turn any text document into a digital one.

"The lack of a good OCR for Devanagari has made it very difficult to make available on the Web the vast majority of Devanagari documents," said **Venu Govindaraju,** associate director of the University at Buffalo's Center of Excellence in Document Analysis and Recognition (CEDAR) and UB professor of computer science and engineering. Now, with NSF funding, Govindaraju and his UB colleagues are taking a major step toward boosting online access to these documents.

The UB researchers happen to share not only expertise in machine-print and handwriting recognition, but also a rare passion for—and fluency in—Sanskrit and other Indian languages.

Their project, funded under a $487,000 grant from the National Science Foundation's International Digital Libraries initiative, endeavors to make Devanagari documents, ranging from ancient Sanskrit masterpieces, such as the Bhagavadgita and the Vedas, to contemporary documents in Hindu, Marathi and other Indian languages, easily accessible on the Web.

The researchers, based at CEDAR, have created a software tool that is the first step in developing OCR for Devanagari, which will ultimately allow documents in these scripts to be widely searchable on the Web.

The project, which involves collaboration with the Indian Statistical Institute in Kolkata, one of India's premier research institutions, takes an important step toward bridging the digital divide between the developed world and some developing nations, according to the UB researchers.

"The half-billion people around the world whose main language is Hindi, or based on Devanagari, are totally missing out on the 'information revolution,'" said Govindaraju. "In IT, the native languages all have taken a back seat."

While Sanskrit has been considered a "dead" language, he noted that in his native India a movement to revive it both in written and spoken forms has been gaining ground and in certain regions schools are including Sanskrit in their curricula. He and his UB colleagues on the project are among those in the U.S. who have rediscovered the language; they teach Sanskrit to their own children and hold classes in it at the Hindu Cultural Society of Western New York.

About 15 years ago, UB's CEDAR, the largest research center in the world devoted to developing new technologies that can recognize and read handwriting, developed the first comprehensive OCR for handwritten documents in English. That turned out to be a milestone, spurring numerous new research projects into handwriting recognition that led to some of the applications now taken for granted, such as personal digital assistants. "Similarly, we are expecting that the development of benchmarked OCR for Devanagari will trigger a groundswell of research in machine-reading technologies for these Indian languages," said Govindaraju.

To develop benchmarked OCRs, the UB researchers have constructed a dataset of 400 pages of Hindi and Sanskrit documents from books and periodicals, both ancient and contemporary, that is representative of the huge variety of documents available in these languages.

In the future, the UB researchers plan to extend the scope of this tool to include OCR evaluation for other Indian languages such as Kannada, Malayalam, Tamil and Telugu that do not use the Devanagari script, as well for as Arabic and Urdu.

Developing Technologies to Assist Drivers

To prevent your car from spinning out on an icy roadway, is it better to turn the steering wheel toward or away from the direction of a skid?

MAE researchers—using a virtual-reality driving simulator and human subjects—are addressing this annual winter-weather question and are developing new technologies that one day may help drivers proceed safely in bad weather.

"The goal is to create tools and strategies that enhance the ability of a driver to cope with inclement conditions," says **Tarunraj Singh,** associate professor of mechanical and aerospace engineering. "Technology can supplement the natural instincts of drivers, helping them take corrective action and stabilize their cars in worst-case scenarios."

Singh points out that many drivers instinctively know that turning the steering wheel toward a skid can help prevent a spinout, but the real trick to stabilizing a car is knowing how much and how fast to turn the wheel and when to turn the wheel back. The car's speed, road conditions, the type of tires used and the car's weight are important factors when stabilizing a skidding car.

It's nearly impossible for drivers to know how to react safely in every situation, given all these variables, Singh says. But in the safety of UB's Virtual Reality Laboratory, drivers at the wheel of the simulator are confronted with various driving conditions that, together or alone, might lead to a spinout, such as icy roads, poor visibility, inappropriate speed and locked brakes. A controller developed by Singh and fellow researchers monitors the vehicle's slip angle, as well as the driver's reactions to various driving conditions.

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Abbreviations Used in *SEAS News*

CE, Chemical Engineering

CSE, Computer Science and Engineering

CSEE, Civil, Structural and Environmental Engineering

CIE, Civil

EE, Electrical Engineering

IE, Industrial Engineering

MAE, Mechanical and Aerospace Engineering

AE, Aerospace

ME, Mechanical

CCR's Miller is One of 'Top People to Watch' in Global High-Performance Computing

HPCwire, the top Web publication dedicated to news in high-performance computing, has named **Russ Miller,** UB Distinguished Professor in the department of computer science and engineering as one of its 2003 "top people to watch" in the field. The list is a veritable "who's who" of the key players in high-performance computing in private industry, government laboratories and academic institutions from across the globe.

Miller directs UB's supercomputing center, the Center for Computational Research, which HPCwire cited as having "carved out a very nice niche in supporting computation and visualization."

"Dr. Miller was very strongly recommended to us by a high-ranking National Science Foundation official for doing phenomenal stuff in scientific computing and visualization," said Thomas Tabor, HPCwire publisher. In November, the much-heralded top 500 list, the gold standard of supercomputer rankings, ranked UB's newest, general-purpose Pentium4-based Dell cluster as the 22nd fastest individual supercomputer in the world.

Last fall, UB received the first Dell Centers for Research Excellence Award from Michael Dell, chairman and CEO of Dell Computer Corp., who came to CCR to announce a second Dell cluster, one of the world's largest clusters of Linux servers, a 4000+-processor PentiumIII-based system installed in the CCR.

The tremendous computational power available through CCR is focused primarily on activities in Western New York, benefiting research at UB, as well as corporate and institutional partners. The resources are used to support the UB Center of Excellence in Bioinformatics, which is merging high-end technologies such as supercomputing with expertise in genomics, proteomics, bioimaging and pharmaceutical sciences to foster advances in science and health care.

"The Center for Computational Research supports nearly 100 projects at UB, as well as dozens of projects with our institutional and industrial partners," explained Miller. "CCR's users, who are located predominantly in Western New York, have access to world-class computational resources in terms of hardware, software and support infrastructure," he said.

"The UB administration has been tremendously supportive of high-end computational research, which provides an opportunity for Buffalo's scientific community to perform world-class research and helps to retain top-notch scientists in Western New York, recruit more world-class scientists to the area and attract increased levels of funding and higher quality students, all of which further enhances the caliber of research at UB and throughout Western New York."

Bioinformatics Seminar Kickoff Unites Researchers

Stelios Andreadis, assistant professor of chemical engineering, presented a seminar initiated by the Buffalo Center of Excellence in Bioinformatics. The seminar included poster presentations by SEAS faculty who are engaged in bio-related research and covered a wide range of topics. The event was hosted by **Andres Soom,** professor of mechanical & aerospace engineering and associate dean for research and graduate education; coordinated by **Carl Lund,** professor and chair of chemical engineering; and arranged by **Linda Bovino,** assistant to the dean of SEAS.

Virtual Museum a Real News Item

UB's virtual museum and archaeological site project, a multi-user, multi-media, real-time virtual environment which creates historically accurate and complex simulations of various ancient sites was featured on CNN Headline News and CNN International News. The project is directed by classics professor Samuel Paley and MAE associate professor and director of the UB Virtual Reality Lab **Thenkurussi Kesavadas** and involves archaeologists, architects and engineers from across the globe.

It's a Small(er) World

A simpler and more reliable manufacturing method has allowed two materials researchers to produce nanoscale magnetic sensors that could increase the storage capacity of hard disk drives by a factor of 1,000.

Building on results obtained last summer, the new sensors are up to 100 times more sensitive than any current alternative technology, according to researchers **Harsh Deep Chopra,** UB associate professor of mechanical and aerospace engineering, and Susan Hua, director of UB's Bio-Micro-Electro-Mechanical-Systems Facility and adjunct professor of mechanical and aerospace engineering.

The breakthrough could impact significantly the multi-billion-dollar storage industry. Their work is supported by the National Science Foundation (NSF). As reported in Physical Review B, Hua and Chopra's latest experiments with nanoscale sensors produce, at room temperature, unusually large electrical resistance changes in the presence of small magnetic fields.

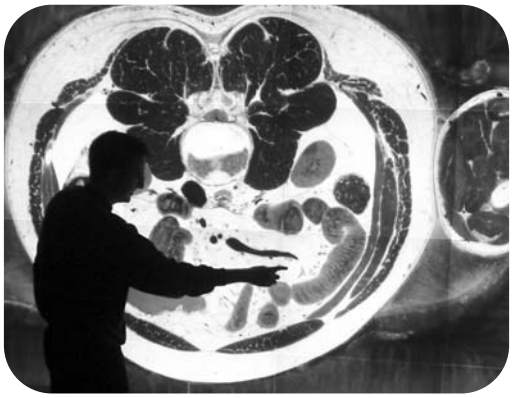
"We first saw a large effect of over 3,000 percent resistance change in small magnetic fields last July," Chopra explains. "These latest results show that what we reported at the time was just the tip of the iceberg, pointing to beautiful science that remains to be discovered."

The largest signal they have seen is 33 times larger than the effect they reported last summer, which corresponds to a 100,000 percent change in resistance, the researchers say. As stored "bits" of data get smaller, their magnetic fields get weaker, which makes individual bits harder to detect and "read." Packing more bits onto the surface of a disk, therefore, requires reliable sensors that are smaller, yet more sensitive to the bit's magnetic field.

Hua and Chopra's nanoscale sensors seem to be ideally suited to the task. The sensors produce much more distinct and reliable signals than current technologies do, which would enable the bit size to be shrunk dramatically. These sensors have another advantage over other experimental techniques: Because of the sensors' high sensitivity at room temperature, they could be adapted more easily to work with existing hard-disk drive technologies used by the $25 billion data storage industry. Chopra predicts that their sensors would permit disk capacities on the order of terabits (trillions of bits) per square inch.

Hua and Chopra's creative work with magnetic sensors already has attracted industry interest. The Forbes/Wolfe Nanotech Report cited their research as one of the top five nanotechnology breakthroughs of 2002, and Industry Week selected Hua and Chopra as one of the 21 top research and development stars of 2002. An additional article on this research can be found on page 12.

CCR Offers 15 Million Pixels, a Wall-Sized Screen and a New Way Around the World



UB Researchers now are able to "meet" with colleagues across the state or across the globe without ever leaving campus using a new Access Grid node—the first such facility at an academic institution in New York State—in UB's Center for Computational Research (CCR).

The Access Grid node, or simply the AG node, is a system of multiple computers, cameras, microphones and three ceiling-mounted projectors displaying conferencing streams on a 12-foot display screen permitting individuals in the facility to communicate in real-time with participants at other similarly equipped sites around the world.

CCR recently assembled a new tiled-display wall, measuring 88 square feet, and displaying visual information at 20 times the resolution of conventional large-format display screens and permitting scientific visualizations in larger-than-life proportions. The two systems were assembled using readily available commodity equipment, such as personal computers and portable projectors, to keep acquisition and maintenance costs to a fraction of what they would be for custom-built systems.

UB is one of a few locations in the world where an AG node and a tiled-display wall are located in the same room. The glass-enclosed facility is attracting its share of gawking students and passersby. UB's AG node also has attracted the attention of other institutions around the state, including representatives from Cornell University, which is considering deploying its own AG node, and Corning Glass.

"UB is an early adopter of this technology," explained **Russ Miller,** CCR director and UB Distinguished Professor of Computer Science and Engineering, who already has used the access grid to "attend" academic workshops in other cities without leaving campus. "It's a far cry from videoconferencing when a large number of sites and people are involved," he noted. "You're not looking for cameras or leaning over to talk into a microphone. Except for the fact that you can't shake someone's hand or talk in the hallway, it's just like being in the same room."

"The Access Grid node was installed in CCR in order to help our user base collaborate with many of the big supercomputing centers around the world," said Jeffrey Tilson, CCR computational scientist. He added that it exploits UB's Internet2 connection, which is a national consortium of research universities working to develop next-generation Internet technologies.

UB's AG node is one of about 120 in the world, most of which are located in supercomputing centers and large scientific facilities. Efforts are under way to use the high-end, low-cost technology to connect government agencies, said Miller. For example, he said, if officials in Washington needed to collaborate with those in numerous states simultaneously (particularly in situations where eye contact and body language were important) the access grid technology offers a cost-effective solution.

"By simultaneously coordinating many dozens of audio and video signals, the access grid, which is the infrastructure that makes this possible, allows all participants to feel as though they are an integral part of the session," said Tilson.

The AG node features a 12-foot-by-7-foot projection screen on which each participating site appears in a separate window. Video equipment from Hauppauge and Sony, combined with Dell computers and wall-mounted and tripod-mounted cameras, captures the images of UB participants, broadcasts them to the access grid and displays similar streams for all other participants.

Powered by 20 personal computers and 20 commodity NEC projectors, the tiled-display wall provides a way for teams of scientists to view high-resolution images and animations not effectively viewed on conventional, large-size display systems. As the ability to generate scientific data has increased exponentially, Miller explained, so has the need to accurately display it.

He said CCR made the investment in the wall to facilitate leading-edge science in such fields as bioinformatics, computational chemistry, environmental engineering and fluid dynamics. CCR scientists also are beginning to work with UB physicians and surgeons to use the tiled-display wall to examine and discuss CT and MRI data from a variety of patients and diseases.

New Power for Rural Customers

In June of 2002, a Batavia, NY farmer at My-T Acres converted his diesel-powered irrigation pump to a more efficient, quieter, non-polluting electric pump. While this sounds like a routine, and even banal, procedure, the power supply to rural energy-intensive farms such as My-T is limited by the electric distribution facilities serving the area.

In an effort to make greater power supplies available to rural areas, **Mohammed Safiuddin,** Advanced Technology Applications professor, who works with UB's Energy Systems Institute and Niagara Mohawk's Technology Transfer and Consumer relations departments teamed up to seek energy alternatives.

One solution that the team developed was "written pole motor technology," which combines a soft start with the higher efficiency of a constant-speed synchronous motor and the high starting torque of an induction motor. These types of motors are easy to install, self-monitoring and highly efficient, however they can only be applied in motors up to 75-horsepower using a single-phase powerline.

During the search for a solution to this rural power problem, the team identified commercially available semiconductor technology capable of handling high levels of power at high voltages. From this discovery, they went on to develop a motor and pump which rectifies alternating current to produce a higher voltage direct current system that matched the efficiency of the "written pole" system with the power levels necessitated by the farming application.

Stone: Celebration of Excellence

(continued from page 1)

Henry Stone with UB President William Greiner and UB Alumni Association President Dr. Margaret W. Paroski

Knolls Atomic Power Laboratory (KAPL) in Niskayuna, where nuclear power plants were designed, built and tested for the U.S. Navy.

In 1968, he was appointed KAPL general manager and in 1974 was sent to GE's San Jose commercial operation as its engineering manager. He was later named a vice president at the facility.

Stone was elected to the prestigious National Academy of Engineering in 1981; he is also a member of Tau Beta Pi, the national engineering honor society, and the American Nuclear Society. He is a fellow of the American Society of Mechanical Engineers.

Since his retirement, Stone has been a consultant with the U.S. Department of Energy and various utility companies, working primarily with commercial nuclear power plants.

Alexandridis Delivers Sigma Xi Seminar

Paschalis Alexandridis, a professor of chemical engineering, presented a special seminar sponsored by the Society of Sigma Xi and SEAS. The title of his presentation was "Nanoscale Organization Via Self-Assembly and Directed Assembly." Alexandridis, a recipient of the prestigious 2002 Sigma Xi Young Investigator Award, conducts research which utilizes molecules and particles as building blocks to develop advanced materials at the nanoscale. The results of his research end up in products ranging from paints to contact lenses.

Alexandridis, also a recipient of the National Science Foundation's Faculty Early Career Development Award, is an expert in tuning chemical systems to fully exploit the properties of amphiphilic block copolymers—long molecules made by combining molecules that have affinities for different media, such as hydrophobic versus hydrophilic—to develop useful products.

Alexandridis also recently was funded by NSF to develop a research and education program on the self-organization of amphiphilic block copolymers for the preparation of highly ordered materials. This project also involves the novel use of non-uniform electric fields for directing the two- and three-dimensional organization of nanoparticles.

Since coming to UB in 1997, Alexandridis has received over $1 million in research grants. He has authored or co-authored more than 90 scientific papers and given more than 90 lectures at scientific conferences. He is a recipient of the Dow Outstanding New Faculty Award from the American Society for Engineering Education and a lectureship award from the Japan Research Institute of Material Technology.

Discussing Carbon and the Environment

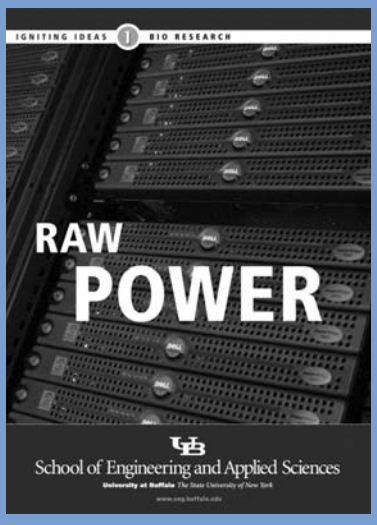
The departments of mechanical and aerospace engineering; civil, environmental and structural engineering; and chemical engineering teamed up to host a the American Carbon Society's 2002/2003 George D. Graffin Lecture in Carbon Science and Engineering. The speaker was Timothy D. Burchell, leader of the Carbon Materials Technology Group at Oak Ridge National Laboratory. Burchell delivered a lecture entitled "Carbon and the Environment: Friend or Foe?"

Assisting Drivers

(continued from page 13)

Singh and his fellow researchers also plan to use the virtual-reality driving simulator to test the dangers of cell-phone use while driving, and they are working on a driver-education system to prepare new drivers for the perils of driving in inclement weather.

Contributing to the research are **Thenkurussi Kesavadas,** associate professor of mechanical and aerospace engineering and director of UB's Virtual Reality Lab; **Roger Mayne,** SUNY Distinguished Teaching Professor of mechanical and aerospace engineering; and **Ann Bisantz,** assistant professor of industrial engineering.



Announcing the Igniting Ideas National Series

In early 2002, SEAS published the first issue of *Igniting Ideas.* This brochure was an overview of the school's strategic objectives, primary research areas, etc..

Beginning in 2003, a six-part series—each dealing with a primary research area—takes the initial articulation of the school's research focus areas and details specific faculty achievements.

These new publications focus on bio-research; infrastructure and environment; photonics, micro-electronics and materials; information technology and computing; visualization, simulation and modeling; and energy, flows, and materials processing.

To access issues as they become available, visit:
www.eng.buffalo.edu/IgnitingIdeas/

DEVELOPMENT NEWS

SEAS Campaign Heads Toward Finish Line

At the time of this writing, the School of Engineering and Applied Sciences comprehensive campaign total is at 97.5% of its goal of $18 million. The campaign will end this summer. Several major gifts are presently being structured that will push our total beyond the goal. Thanks to the efforts of our campaign chair **Jim McLernon** BS IE '50; **Dean Mark H. Karwan;** the SEAS Development group; and of course our esteemed Alumni, friends, corporate partners, faculty and staff, the campaign's success is assured.

Some highlights of the campaign as we move toward its successful completion: our Annual Fund calling program raised the highest amount ever in any single year. More Alumni participated in generating flexible funds, which are critical to our continued growth and are a factor in national rankings. Support from an "army of engineers" has been truly remarkable. SEAS takes immense pride in the numbers of our Alumni who have "stepped up" in such an impressive fashion. We also received a gift from the UB Engineering Alumni Association on behalf of its members. Our Delta Society, a giving club of supporters who commit more than $1000.00 annually has enjoyed a steady growth. The funds this society and the Annual Fund provide unrestricted to the Dean gives him the discretion of directing funds where they are needed most. As previously mentioned, the SEAS faculty and staff have donated close to $3 million to our goal, the largest amount donated by a school's faculty and staff on this campus. Several of our most prestigious alumni have provided financial gifts, lead the effort to grow the roster of corporate supporters and dedicated their time and talents on behalf of their school. This campaign has enabled us to engage many Alumni who have developed a new and strong connection to the school, critical to our future success.

It is important that we again reiterate that there is still time to get on board if you have not had the opportunity. Pledges made prior to the end of the campaign can be counted toward the total even though the pledges are fulfilled after the campaign close. Every gift in any amount is important. We also encourage alumni and friends to consider planned giving options, which can be a wonderful way to support your Alma Mater. For example, current rates on charitable gift annuities can pay donors up to 8.5% annually on a fixed payout for life. With falling interest rates and market uncertainty, this can be a great way to increase the yield on your investments while helping your school and university. Should you have any interest in donating or learning more about planned giving please contact **Tim Siderakis,** Assistant Dean and Director of Development (645-2133 x 1129), or **Mike Madonia,** Assistant Director of Development (645-2133 x 1122) and they will be glad to assist you. Once again, a heartfelt thanks to all of our donors who have made this campaign such a triumphant success. In the future we will provide a final tally of this successful campaign. A plan was developed and successfully completed, could anything else be expected from those connected to SEAS? Thank You!

Friends Honoring A Friend

The Matthew R. Grappone Memorial Scholarship Fun

Matthew R. Grappone BS AE '92, BS ME '97 (1968-1998)

A friend who is far away is sometimes much nearer than one who is at hand. Is not the mountain far more awe-inspiring and more clearly visible to one passing through the valley than to those who inhibit the mountain?

—Kahil Gibran

Recently established by close friends and family of Matthew R. Grappone, this Scholarship Fund will be used to aid in the educational pursuits of students of the School of Engineering and Applied Sciences. Lead by the efforts of Matt's close friend **Kevin Shortt,** BS CS '02 friends and family of Matt have currently raised approximately 80 percent of the goal needed to endow the scholarship. Endowing the scholarship will ensure that it will live on forever. Consideration will be given to students who work in Computer Information Technology (CIT) here at UB. Both SEAS and CIT held very special places in Matt's heart. Matt spent 12 of his 30 years connected to these two areas on campus. The amount of support in such a short time has served as an amazing living tribute to Matt. The fact that friends and family have come together to make this happen has been truly inspiring.

Student Excellence Initiative and Student Labs Get Boost from Campaign Chair

Thanks to generous additional major gifts from **Jim McLernon,** BS IE 1950, two critical areas of the School of Engineering and Applied Sciences will receive much needed support. Assisted is the Student Excellence Initiative that exists to help SEAS retain undergraduates during the difficult early stages of their study. The program constitutes the school's strategic effort to recast the undergraduate experience in SEAS and lend a supportive hand in keeping attrition rates lower. Retention provides a powerful focal point for programmatic improvement, although it is not the defining mission. Curricular rigor and student quality are not to be compromised, and neither is the best interest of the student. The broad aim is to develop an environment attuned to the needs of the underclassmen, in which they continue to thrive and find their way to academic success.

Another area generously funded by Jim McLernon, the SEAS Campaign Chair, is the improvement of student laboratories at both the undergraduate and graduate levels. Developing and maintaining quality student laboratories is an area of high importance for SEAS. Integral to training for engineering students is the practical "hands on" experience that technologically current labs can provide. All connected to SEAS offer deepest appreciation to Jim McLernon for his leadership and example in this campaign.

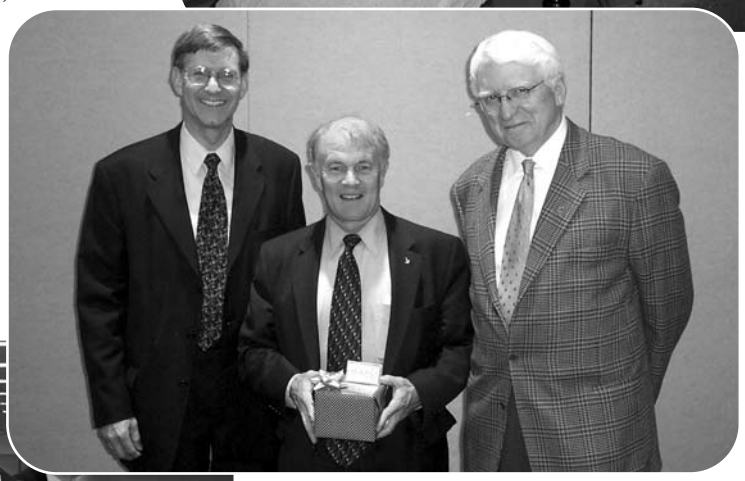
The Dean's Council Convenes its Spring Meeting

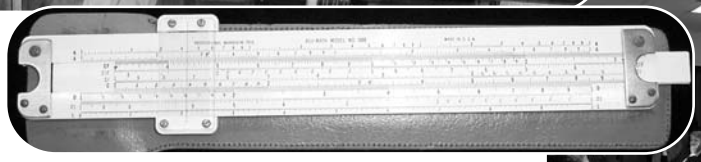
This April, for their semi-annual meeting, the Dean's Council arrived in Buffalo to discuss current topics in academia and industry, visit students and conduct their agenda.

The council listened to, and participated in presentations and discussions that dealt with various aspects of SEAS bio research. The attendees were given a talk by **Venu Govindaraju,** professor of computer science and engineering; **Albert Titus,** assistant professor of electrical engineering; and **John Schneider,** president and CTO of Ultra-Scan Corporation.

Other presenters and their topics were: **Abani Patra,** associate professor of mechanical and aerospace engineering, "Realistic and Highly Accurate Simulation of Complex Bio-Mechanical Systems"; **Stelios Andreadis,** assistant professor of chemical engineering, "Gene Therapy and Genomics in Tissue Engineering"; **Mattheos Koffas,** assistant professor of chemical engineering, "Global Transcription Profiling and Protein Engineering: Challenges and Applications in Metabolic Engineering"; **Sriram Neelamegham,** co-director of the Center for Bioengineering, "Getting to the Bottom of Select Blood Disorders"; **Paschalis Alexandridis** associate professor of chemical engineering, "Biomedical Applications of Self-Assembling Macromolecules and Nanoparticles"; **Thenkurussi Kesavadas,** associate professor of mechanical and aerospace engineering, "Virtual Tools for Neurosurgeons."

The second day featured a presentation by **Aidong Zhang,** professor of computer science and engineering, on data mining and bioinformatics.





From top to bottom: Dean's Council members talk with undergraduates; Joe Allen receives a thank you gift as outgoing chair of the council; council members Wilson Greatbatch and Ramji Gupta at the library's slide rule exhibit; and the council members at a presentation in Bonner Hall.

The council members also visited the Slide Rule Exhibit in the Science and Engineering Library and met with undergraduates to discuss issues of engineering, education and industry.

After their executive session, the council then set off, planning to meet again in October.

BEAM

Buffalo-Area Engineering Awareness for Minorities

BEAM, headquartered at SEAS, is a cooperative educational enrichment program that prepares inner city, minority, female and other under-represented students for careers in science, engineering, and technology.

The program held its annual breakfast in February. The guest speaker was Buffalo Superintendent of Schools Marion Canedo, who spoke on the importance of BEAM volunteers to the success and education of Buffalo Public School Children. At the breakfast, seven individuals were honored for their contributions to BEAM or for their success after participating in the BEAM program. The awards and recipients were as follows:

Charles Campbell, Sr. Outstanding Service Award: **Arthur J. McKinnon, Jr.,** General Motors Powertrain

Educational Achievement Award: **Roberta Gainer,** United Auto Workers Local 774

Special Achievement Award: **Irvine Reinig, P.E.,** Technical Societies Council President and "Engineering Opportunities" founder

Industry Award: **Wendel Duchscherer**

Technical Advisor Award: **Dana Noud,** Seneca Vocational High School

Faculty Advisor Award: **James Mazza,** Grand Island High School

Tony Campagna Memorial Award: **Karen Hartnett,** URS Corporation

Forty minority students participated in the BEAM SEAS Saturday Science and Technology Academy.

BEAM's middle school students competed in the "Future Cities" Competition held in the UB Student Union, and in a home design contest. Volunteer engineers from the U.S. Army Corps of Engineers and General Motors Powertrain worked with the students on their projects and also giving career advice on their particular field of expertise.

BEAM's high school students worked under the supervision of **Morris Green Jr.** who is a graduate student enrolled via the UB Industrial Engineering Department. Likewise, volunteers from the UB Chapter of the National Society of Black Engineers (NSBE) assisted with implementing activities for the participants. The students were provided with basic instruction to familiarize them with the AUTO CAD 2000 software program. In addition, students built an AM/FM crystal radio with the assistance of **James Kirkland** who is Electrical Engineering graduate student. Furthermore, the students attended the "Engineering Opportunities Seminar and Exhibition for High School Students". The program concluded with a "Career Day Program" organized by NSBE members.

BEAM summer programs for students from the post 7th grade through the post 12th grade will begin on July 9, 2003 at Daemen College, Canisius College, Erie Community College, Buffalo State College with the culmination at the University at Buffalo.

A golf tournament fund-raiser established to support the BEAM summer programs will be held on Tuesday, August 5, 2003 at Chestnut Hills Country Club.

Information on the BEAM programs may be obtained through Marilyn Helenbrook, Executive Director, BEAM 206 Fronczak Hall, (716)645-3066.

MATH IS EVERYWHERE

Hundreds of students from Western New York elementary and middle schools competed in "Math is Everywhere," a math-based contest initiated to raise student awareness about the many applications of math to their every-day lives. This event, sponsored by Sweet Home Schools, was held on UB's Amherst Campus, and was divided into three areas of competition: individual test, where students solve written math problems individually; the team test where students solve written math problems in teams; and a presentation where students are presented with situational problems prior to the days of the contest and utilize math, working in teams, to derive creative solutions to the given problems. Math is Everywhere is co-sponsored by SEAS and Cavan Dudzinski and Associates, Inc..

SEAS Calendar

UB This Summer, UB has a comprehensive set of offerings for the summer announced on ubthissummer.net.

SEAS Opening Day for Freshmen, Sunday, August 24, 2003

Honors Employment Dinner, Wednesday, October 8, 2003

UB Tech Fair, Thursday, October 9, 2003

For more information contact SEAS External Affairs at 716/645-2768 or ub-seas@eng.buffalo.edu

Spring Picnic 2003

Students, alumni, faculty, and staff came out in droves to enjoy hot-dogs, music, and good conversation at this year's Spring Picnic, sponsored by the Engineering Alumni Association, the Engineering Student Association, and SEAS.

This is a publication of the School of Engineering and Applied Sciences—External Affairs and the Engineering Alumni Association, University at Buffalo. Robert E. Barnes, editor; Nicholas Laudadio, associate editor; Maria Drozda, assistant editor. Other contributors: the *Spectrum*, the *UB Reporter* and the UB Office of Publications. Anyone wishing further information on the articles contained herein may call External Affairs at (716) 645-2768 x1110, fax (716) 645-2495, or e-mail ub-seas@eng.buffalo.edu.

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