

Systems Signals

The newsletter of the Institute for Systems Research

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DARPA awards Nau contract for AcT

Professor **Dana Nau** (CS/ISR) has been awarded a \$1.4 million, four-year research contract by the Defense Advanced Research Projects Agency (DARPA).

DARPA's Active Templates (AcT) Program will develop an easy-to-use planning tool for Special Operations Forces (SOF) personnel, based on a spreadsheet user interface for template manipulation. One of AcT's key challenges is to develop inferencing techniques that allow plans (represented as spreadsheets) to be easily specified and proactively completed.

Nau's group will develop template retrieval and elaboration techniques to adapt stored templates for incremental spreadsheet plan construction. They will use proactive information gathering to assist with situation assessment, working with partially specified conditions and verifying the inferencing techniques' state assumptions.

Additional work includes developing monitoring sentinels to provide mixed-initiative activation of relevant problem-solving tools in response to changes in the spreadsheet, and researching explanation techniques to communicate AcT's inferencing and decision-making rationale.

They also will develop template management techniques that will minimize the effort needed to acquire and maintain defaults, constraints, and templates.

For more information, contact Jeff Coriale, coriale@isr.umd.edu.

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Farvardin is new College of Engineering dean



Nariman Farvardin (ECE/ISR), Professor and former chair of the Electrical and Computer Engineering Department, is the new dean of the A. James Clark School of Engineering.

In making the announcement, Gregory L. Geoffroy, Senior Vice President for Academic Affairs and Provost for the University of Maryland, said, "Dr. Farvardin

has a record as an outstanding administrator with the energy, vision, and skill to lead the Clark School to a new level of excellence."

Farvardin, who holds a joint appointment with ECE and ISR, came to Maryland in 1984 and was the chair of ECE from 1994 to 2000. He has been widely praised for his accomplishments in developing innovative educational programs, reorganizing the departmental infrastructure to improve service, and developing a strong public relations drive to communicate the strengths and accomplishments of the department to its many constituencies.

Geoffroy said, "Dr. Farvardin has been especially successful in recruiting faculty and students of high academic excellence and diversity. His emphasis on programs and research of the highest quality has won recognition from industry and resulted in new partnerships and greatly expanded support."

A Fellow of IEEE, Farvardin is a widely-respected researcher in communi-
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NASA Ames awards NEXTOR, Ball contract to support air traffic management research

The University of Maryland, the National Center of Excellence for Aviation Operations Research (NEXTOR) and Professor **Michael Ball** (Robert H. Smith School of Business/ISR) are part of the Computer Sciences Corporation team chosen as one of the two winning contractors on the "Air Traffic Management System, Development and Integration" solicitation recently awarded by the NASA Ames Research Center.

The CSC team includes three of NEXTOR's industry partners: Boeing, Honeywell/Allied Signal and the Logistics Management Institute.

Collaborative Decision Making (CDM) is one of the three designated research

areas for the contract. CDM is a NEXTOR research area led by Ball's team that improves air traffic management by applying the principles of information sharing and distributed decision making. CDM has created decision support tools and a communications infrastructure that allows airline operational control centers to share traffic flow management and resource allocation responsibilities with Federal Aviation Administration traffic flow managers.

Work on the NASA project will proceed through specific performance-based task orders. The total value of all work is not to exceed \$150 million.

For more information, contact Jeff Coriale, coriale@isr.umd.edu.

Director's Corner

Gary M. Hubloff



It is exciting to be able to share with you some of ISR's developments in several important dimensions.

Our **research** is thriving, growing across ISR's diverse portfolio. The three major DARPA awards we spotlight in this issue of *Systems Signals* are indicative. On our cover is a story about an award supporting development of tools for deploying Dana Nau's methodologies of artificial intelligence planning for special operations. This signifies an increased application for cutting-edge fundamental research which has already delivered value in other domains such as manufacturing systems.

Another award (*see page 3*) will extend the work of Shihab Shamma et. al. in ISR's Center for Auditory and Acoustic Research (CAAR) for processing acoustic signals from spatially distributed arrays of MEMS (microelectromechanical systems) devices. The growth of CAAR suggests a synergy with ISR's growing investment and presence in MEMS-based research.

In the third (*see page 3*), John Baras et. al. will develop new methods for information security where the membership of groups needing to share information changes dynamically.

Our **interactions with industry** are more exciting than ever. Our industry news sec-

tion (*see page 5*) elaborates on the new relationships ISR is exploring and developing with Toshiba, Xerox, Honda, Motorola, and America Online (AOL).

Last year we initiated a continuing program in which early career Honda engineers spend a year at ISR, collaborating with ISR faculty and students and experiencing American culture. A new AOL fellowship will support that company's interest in human-computer interactions and recognize the long-time leadership of the Human-Computer Interaction Lab (HCIL) in this field. And Dr. Charles Duke's role on ISR's Strategic Advisory Council has led to visits by and interactions with other Xerox engineers and managers to explore different areas of interest.

We also continue to work very closely with existing key partners such as Lockheed Martin and Northrop Grumman. Jeff Coriale, ISR Assistant Director, and his external relations staff provide a highly effective and critical link to establish and facilitate the research and workforce benefits ISR offers to its industry partners.

The **intellectual property** aspect of our research is growing. Christopher Davis has won a University of Maryland Invention of the Year award (*see page 4*), and other ISR researchers were finalists. As demonstrated by patent activity and research, such as

Dana Nau's DARPA award or the licensing and worldwide use of André Tits' FSQP optimization tools, ISR continues to encourage and pursue the application and utilization of its research for use by industry, government, and society.

ISR reached a milestone in **education** this spring with the graduation of the first Gemstone class (*see page 6*).

Attracting the best and brightest undergraduates to collaborate in cross-disciplinary research over four years, ISR's Gemstone program has been nationally recognized for its innovative approach in bringing together students from diverse disciplines to work on important problems of society and technology and produce a team thesis. These students develop an extensive appreciation of systems perspectives and diverse skills and approaches in solving difficult and complex problems.

Nariman Farvardin, long-time ISR faculty member and former chair of Electrical and Computer Engineering (ECE), is the new dean of the Clark School of Engineering (*see page 1*). He will surely stimulate the college's growth and impact. The appointment of former ISR Director Steve Marcus as acting chair of ECE will bring his skills and insight to the close partnership ISR and ECE have long maintained. Steve has also been honored as a 2000-2001 Distinguished Scholar-Teacher.

Finally, there are an array of **awards and honors** to ISR faculty (*see page 7*). Don DeVoe is one of only 20 recipients nationwide of the 1999 Presidential Early Career Awards for Scientists and Engineers. This highest honor for young researchers given by the federal government was presented in a White House ceremony. Among a list of other awards, S.K. Gupta received an Office of Naval Research Young Investigator award, and Tony Ephremides and Bill Levine were selected as recipients of the IEEE Third Millennium Medal.

With so much happening, I encourage you to frequently visit our web site, www.isr.umd.edu, where news appears literally as it happens. You may also subscribe to our ENews e-mail news service at www.isr.umd.edu/ISR/industry/ENewsform.html.

ISR recognizes Ephremides, Vossen, Vigil

On May 16, ISR presented awards for outstanding service.

Outstanding Faculty Award

Professor **Anthony Ephremides** (ECE/ISR) is one of the founders of ISR and a co-founder and co-director of the Center for Satellite and Hybrid Communication Networks. He also played a key role in putting together the Advanced Telecommunications and Information Distribution Research Program. Ephremides' work has helped make ISR's networking group internationally recognized, with research results transferred to both government and industry.

Throughout his career he has worked in the strongly cross-disciplinary area of networking and demonstrated its unique systems aspects.

George Harhalakis Outstanding Systems Engineering Graduate Student Award

Thomas Vossen is a College of Business and Management Ph.D. candidate working with Professor Michael Ball on NEXTOR's Collaborative Decision Making project and Professor Dana Nau in research applying integer programming techniques to artificial intelligence planning problems.

Outstanding Staff Award

Tina Vigil's contributions to ISR have been exceptional. She is highly organized, handles multiple tasks simultaneously, produces tremendous output with proficiency, and meets a stressful and demanding schedule.

Shamma, Horiuchi, Baras, Krishnaprasad, Moss awarded DARPA contract for ‘Intelligent and Noise-Robust Interfaces for MEMS Acoustic Sensors’

Professor **Shihab Shamma** (ECE/ISR), Assistant Professor **Timothy Horiuchi** (ECE/ISR), Professor **John Baras** (ECE/ISR), Professor **P.S. Krishnaprasad** (ECE/ISR), and Associate Professor **Cynthia Moss** (Psychology), are part of a \$2.2 million, three-year DARPA contract for “Intelligent and Noise-Robust Interfaces for MEMS Acoustic Sensors.”

Air-coupled acoustic MEMS offer exciting opportunities for a wide range of applications for robust sound detection, analysis, and recognition in noisy environments. The most important advance these sensors offer is the potential for fabricating and utilizing miniature, low-power, and intelligent sensor elements and arrays. In particular, MEMS make it possible for the first time to conceive of applications that employ arrays of interacting micro-sensors, creating in effect spatially distributed sensory fields. To achieve this potential, however, it is essential that these sensors be coupled to signal conditioning and processing circuitry that can tolerate their inherent noise and environmental sensitivity without sacrificing the unique advantages of compactness and efficiency.

The group will address the fundamental challenge critical to any real application of MEMS sensors: how to formulate, design, and implement signal processing systems and technology that can adapt, control, and use noisy MEMS sensor signals.

More specifically, they will focus technology transition efforts on developing a smart microphone, suitable for outdoor acoustic surveillance on robotic vehicles. This smart microphone will incorporate MEMS sensors for acoustic sensing, wind noise flow turbulence sensing, platform vibration sensing, and a VLSI-based (analog very large scale integration) adaptive noise-reduction circuitry.

These intelligent and noise robust interface capabilities will enable a new class of effective air-coupled surveillance sensors, small enough to be mounted on future robots. The interfaces will consume less power than current systems. By including silicon cochlea based detection, classifica-

tion and localization processing, these sensors can perform end-to-end acoustic surveillance. The resulting smart microphone technology will be very power efficient, enabling a networked array of autonomous sensors that can be air-dropped, integrated in miniaturized robots, or deployed by hand.

The ISR faculty are part of a research group that includes Johns Hopkins University, the University of Sydney (Australia), and Signal Systems Corp. (Severna Park, Md.). The project is part of DARPA’s Air-Coupled Acoustic Microsensor Technology program.

For more information, contact Jeff Coriale, coriale@isr.umd.edu.

Baras, Gligor, Poovendran awarded DARPA contract for ‘Integrated Security Services for Dynamic Coalition Management’

Professor **John Baras** (ECE/ISR), Professor **Virgil Gligor** (ECE) and Assistant Research Scientist **Radha Poovendran** (ISR) have been awarded a \$2 million, three-year DARPA contract for “Integrated Security Services for Dynamic Coalition Management.” The goal is to realize the vision of an integrated access control, authentication, and secure group communication architecture to support dynamic coalitions consisting of varied members with diverse interests and multiple administrative domains.

The contract has been awarded under DARPA’s program on Information Assurance and Survivability, Dynamic Coalitions section. The project will provide an integrated set of security policies and services for different system platforms, network infrastructures, and group communication applications; and demonstrate new, practical security technologies.

Currently, there is an inability to represent, negotiate, and enforce a consistent security policy across multiple system platforms and public-key infrastructures (PKI). There also is a lack of secure group-communication services and products, particularly efficient key management and security policies that enable large-scale management of group access rights within tight time constraints. Finally, there are no visual tools for human-readable security policy definition and enforcement.



The University of Maryland team believes that the ability to create coalitions with diverse and rapidly changing membership is an important enabler for a multitude of applications in national defense, business and commerce.

To address the dynamic coalition problem, the team will analyze fundamental properties of, and provide tools and servers for, security policy representation, negotiation, and enforcement in different system platforms, PKI, and group-communication applications, including large-scale, frequent distribution, review, and revocation of certificates and access rights.

The team also will analyze fundamental properties of secure group-communication including scalable key generation and efficient and robust re-keying for frequent coalition member joins and departures. They also will develop a testbed for the integration, demonstration, and evaluation of the research results and products.

For more information, contact Jeff Coriale, coriale@isr.umd.edu.

Four new US patents issued to ISR faculty

Professor **Christopher Davis** (ECE/ISR) was awarded three patents in the past year. The most recent is US Patent 6,103,535, awarded Aug. 15, 2000, for an optical fiber evanescent field excited fluorosensor and the method of its manufacture. Davis collaborated on this device with Saeed Pilevar, Alexander Fielding and Frank Portugal. Last November, Davis was awarded US 5,982,174 for an external cavity fiber Fabry-Perot magnetometer, invented with Richard Wagreich. That same month, he was awarded US 5,990,474 for a near field optical probe. Davis collaborated with Walid Atia and Saeed Pilevar.

Professor **Anthony Ephremides** (ECE/ISR) and Dimitrios Stamatielos were awarded US Patent 5,987,328 on Nov. 16, 1999 for a method and device for placement of transmitters in wireless networks.

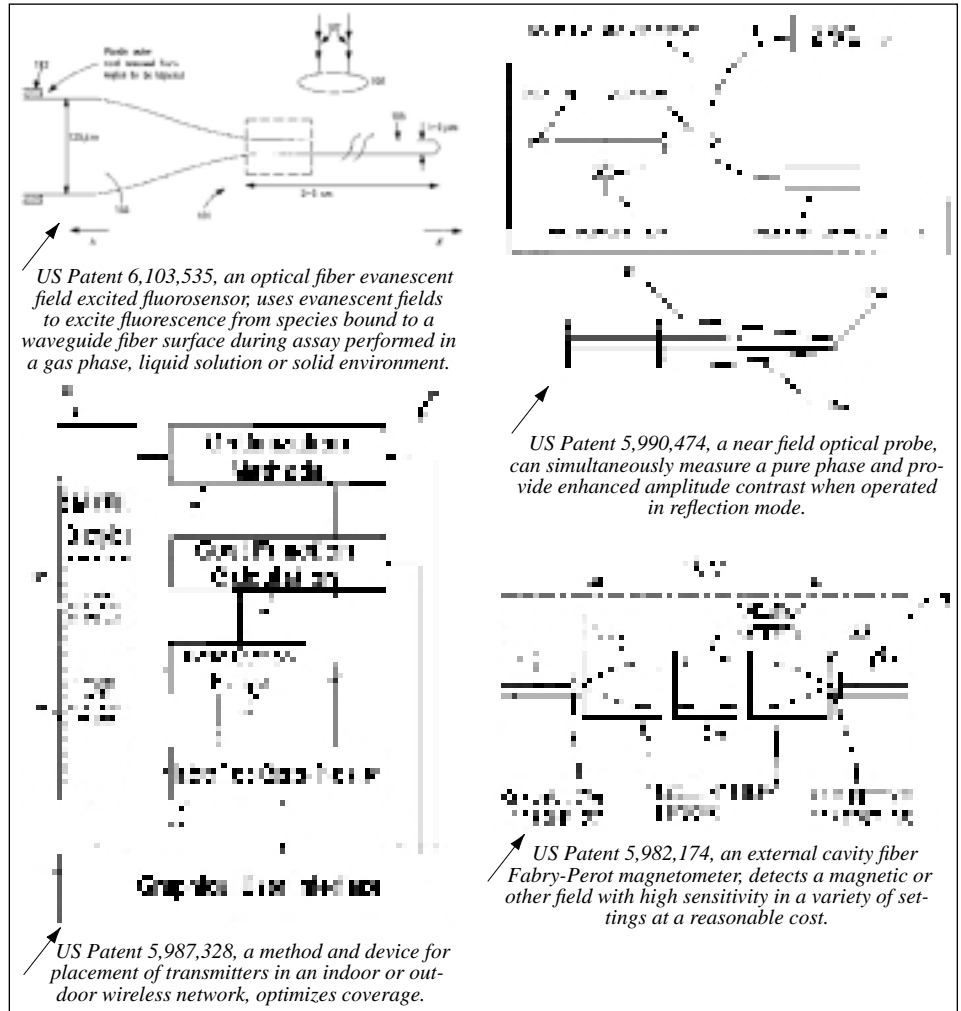
Davis wins 'Invention of the Year' award; Shneiderman and Hendler are finalists



Professor **Christopher Davis** (ECE/ISR) has won the university's Invention of the Year award in Information Science. The award is presented by the

Office of Technology Liaison. Davis developed a delayed diversity communications scheme to reduce the problem of fading and improve the performance of optical wireless communications systems.

Two other inventions by ISR faculty members were finalists for the award: **Ben Shneiderman's** (CS/ISR) "Direct Annotation For Digital Images" and "IMPACT Agent Development System," developed by **V.S. Subrahmanian** (CS/ISR), Carolyn Gasarch, Fatma Ozcan, Robert Ross, Jason Ernst, Thomas Eiter, Sarit Kraus, Juergen Dix, Timothy Rogers, Mustafa Tikir and Anatoliu Levkov.



US Patent 6,103,535, an optical fiber evanescent field excited fluorosensor, uses evanescent fields to excite fluorescence from species bound to a waveguide fiber surface during assay performed in a gas phase, liquid solution or solid environment.

US Patent 5,990,474, a near field optical probe, can simultaneously measure a pure phase and provide enhanced amplitude contrast when operated in reflection mode.

US Patent 5,982,174, an external cavity fiber Fabry-Perot magnetometer, detects a magnetic or other field with high sensitivity in a variety of settings at a reasonable cost.

US Patent 5,987,328, a method and device for placement of transmitters in an indoor or outdoor wireless network, optimizes coverage.

Diagrams from four new ISR patents are shown above. Complete information about ISR patents is available at www.isr.umd.edu/ISR/research/patents.html.

Baras-Frantzeskakis paper selected for SPIE CD-ROM

The 1991 paper "Bayesian Matching Techniques for Detecting Simple Objects in Heavily Noisy Environment," by Professor **John S. Baras** (ECE/ISR) and Emmanuel Frantzeskakis (an ECE Ph.D. student of Professor Baras at the time) has been included in the new Selected SPIE Papers on CD-ROM series, Vol. 8: *Mathematical Imaging and Vision*.

Published in December 1999 by SPIE, the CD-ROM includes key papers from SPIE journals and SPIE proceedings literature on mathematical imaging and vision.

This paper was originally published in the *Proceedings of the SPIE 1991 International Symposium on Stochastic and Neural Methods in Signal Processing, Image Processing, and Computer Vision*, Vol. 1569, pp. 341-353, San Diego, California, July 1991.

All papers in the CD are presented in the PDF format, and the disk is fully searchable by title, keyword and author name. Full-text searching of the abstract and body of each paper is also available. For more information: spie.org/web/abstracts/pdfs/MIVCover.pdf.

Industry news

Research Review Day



More than 150 high-level representatives from industry attended Research Review Day 2000 on Friday, May 12. This on-campus event showcased the research of ISR, the Department of Electrical and Computer Engineering, the Institute for Advanced Computer Studies, and the Department of Computer Science.

Toshiba's Kinoshita visits

On July 17, ISR welcomed Masaharu Kinoshita, senior fellow at Toshiba's Corporate Manufacturing Engineering Center in Japan. Dr. Kinoshita met with university officials, learned about ISR-related research activities, and gave a talk on Toshiba's manufacturing engineering directions.



Xerox's Duke presents colloquium

On March 13, ISR welcomed Charles Duke, vice president and senior research fellow at Xerox's Wilson Center for Research and Technology. Dr. Duke presented a special colloquium on "Applications of Control Systems Principles in Xerox Businesses" and met with ISR faculty during his visit.



Honda visitors program

On July 19, Honda Visiting Scientists Yuichi Kato (top), a motorcycle engineer; and Naritomo Higuchi (bottom), an automotive engineer, presented the results of their research work at ISR. The two Honda R&D Japan engineers concluded a 14-month visit, during which they collaborated with ISR faculty and students.



Eiji Adachi, a motorcycle engineer, arrived at ISR in July. He will work with faculty and students here for 14 months on dynamic analysis of a motorcycle structure via modeling and simulation.

Motorola information exchange

The University of Maryland and Motorola held an information exchange on campus April 25. Motorola representatives met with professors from Maryland's high tech units and with university officials.



Fellowship news

The Human Computer Interaction Lab, the College of Computer, Mathematical and Physical Sciences, and ISR are pleased to report the creation of a new fellowship, the **America Online Fellowship in Human Computer Interaction**.

In other America Online (AOL) news, Matthew Koll visited the university in April. Koll, an AOL Fellow, spoke on "Search Engines: At the Intersection of Science and Business" at an ISR Special Colloquium. Koll also spent time meeting with University of Maryland computer science and engineering faculty.



On June 2, **Lockheed Martin's** Roger Mancuso presented ISR and CSHCN with a check for the Lockheed Martin Global Telecommunications Fellowship in Communication Networking.

On August 28, **Northrop Grumman's** Director of University-Industry Programs



George Reynolds (third from left), presented a check to Clark School of Engineering Dean Nariman Farvardin (second from left). Part of the money is used to help support two ISR/Northrop Grumman Fellowships. Also attending were ISR Director Gary W. Rubloff (left) and ISR Assistant Director for External Affairs Jeff Coriale (right).

Farvardin is new dean

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cations and information theory. He has been awarded the National Science Foundation Presidential Young Investigator Award; the George Corcoran Award for Outstanding Contributions to Electrical Engineering Education; and the Invention of the Year Award (Information Sciences), from the University of Maryland.

ISR director Gary Rubloff served on the search committee for the position. Professor Steven I. Marcus (ECE/ISR) is now the Acting Chair of the Department of Electrical and Computer Engineering. Marcus is a former director of ISR.

Gemstone graduates first class; holds Team Thesis Conference

On April 7 and 8, the Gemstone Team Thesis Conference showcased the theses of the very first class of Gemstone students. The graduating seniors presented the results of four years of teamwork.

Presentations:

- E-Commerce, Security and Privacy
- Global Positioning in Public Transportation
- Genetic Testing: Balancing the Conflicting Interests from a Stakeholder Perspective
- Extra-Terrestrial Technologies, Inc.: An enterprise developed by the Gemstone Space Team
- Nutrients and their Effects on the Chesapeake Bay
- Flexible Manufacturing
- The Future of Emergency Telemedicine

Additional information is available at Gemstone's web site, www.gemstone.umd.edu.

Gemstone U.K. exchange programs

Gemstone Assistant Director Vickie Claffin and Mark Dale, lecturer in continuing education and a resident director at the University of Nottingham, U.K. are exchanging positions for the fall semester. The exchange is creating a comparative study of the Gemstone living/learning program and the residential college system in Great Britain. This exchange will enable both Claffin and Dale to gain an international perspective and develop innovative programming that will enhance their respective institutions.

The University of Nottingham also is the location for Gemstone's new winter term course, "Science, Technology, and Traditional Societies," which will be offered in January 2001. Student projects

will concentrate on technological growth and its effects on the environment and social traditions. Students will interview public officials and city planners and engage in a forum with other Nottingham students who are involved in science, technology and society projects.

Gemstone student named NSF Graduate Research Fellow

Gemstone Electrical Engineering graduate Matthew Guyton is one of 850 students nationwide to receive a National Science Foundation Graduate Research Fellowship. Guyton is continuing his graduate education at the University of Maryland.

The graduate fellowship program is one of NSF's oldest, with roots in its original 1950 charter, offering support for graduate study in all scientific disciplines, according to Susan Duby, director of NSF's graduate education division.

NSF graduate fellows are promising young mathematicians, scientists and engineers who are expected to pursue lifelong careers marked by significant contributions to research, teaching and industrial applications.

"Eighteen former fellows have won Nobel Prizes," Duby says. "Historically, the recipients of these fellowships have completed their Ph.D.s at a higher rate than other graduate students, have moved on to top-notch departments, and have won more postdoctoral appointments, research grants, prestigious awards and other honors."

More than 15,000 applications were submitted nationwide.

NSF also designated 946 individuals to receive honorable mentions in this annual graduate fellowship competition. Two other Gemstone students, Computer Science senior Adam Bargeil and Math senior Timothy Darling, received these honorable mentions.

Those students, in addition to the 850 awardees, are eligible to use supercomputer resources provided by the NSF-sponsored Partnerships for Advanced Computational Infrastructure.

Nuclear Waste Disposal Group wows ACS convention

Members of the Gemstone Nuclear Waste Disposal Research Group were "smash hits" at the 220th meeting of the American Chemical Society, August 21 in Washington, D.C., according to University of Maryland Chemistry Professor Bill Walters.

Gemstone students Bob Kucner, Peter Schwartz, John Starr and James Hsu presented a paper titled, *Transportation of Radioactive Materials: Mobile Chernobyl*. The team's faculty advisor is Chemistry Professor Alice Mignerey.

"The paper drew a large crowd, and much discussion afterwards," Walters reported. "At the business meeting of the Division of Nuclear Chemistry and Technology, one Berkeley faculty member made a completely spontaneous motion of commendation for Alice and these students, and then a second Berkeley professor, Darleane Hoffman, current Priestly Medalist, rose and said that she, personally, was going to nominate the students for best paper by a new member!"

For the second year in a row this team made headlines at the ACS convention. The group made a similar presentation on the Yucca Mountain Nuclear Waste Repository in 1999.

Download a PowerPoint file of the presentation at www.wam.umd.edu/~hsu/ACS2000oral2.ppt.

ISR administers Gemstone, an interdisciplinary undergraduate honors program.



Faculty news

Awards

On April 11, President Clinton named Assistant Professor **Don DeVoe** (ME/ISR) as one of just 20 recipients of the 1999 Presidential Early Career Award for Scientists and Engineers (PECASE). The PECASE is the highest honor bestowed by the U.S. government on outstanding scientists and engineers who are in the early stages of establishing their independent research careers.

DeVoe's award is for developing a novel approach to fabricate six-DOF micromechanisms, and for innovative educational activities that nurture capable MEMS researchers of the future. www.nsf.gov/pubs/2000/pr0022/pr0022.txt

The American Vacuum Society (AVS) has presented ISR Director **Gary W. Rubloff** (MNE/ISR) with its 2000 Gaede-Langmuir Award. This award is given to recognize Dr. Rubloff's inventive application of surface science and vacuum technology to the semiconductor industry, and for fostering an effective bridge between AVS research and manufacturing. It is one of the premier honors bestowed by AVS.

Professor **William S. Levine** (ECE/ISR) and Professor **Anthony Ephremides** (ECE/ISR) were selected as recipients of the IEEE Third Millennium Medal. IEEE members are selected for this award by their peers for their outstanding contributions in their field.

Assistant Professor **S.K. Gupta** (ME/ISR) received a Young Investigator award from the Office of Naval Research. Gupta will investigate ways of making casting and molding of ceramic parts an affordable fabrication process by combining machining and layer manufacturing to create complex parts of large size with very small features. www.onr.navy.mil/onr/newsrel/nr000201.htm

The University of Maryland selected Professor **Steven I. Marcus** (ECE/ISR) as a 2000-2001 Distinguished Scholar-Teacher. The honor includes public presentations, activities for the university and funds to support professional activities. The program honors a small number of faculty members who have demonstrated notable success in both scholarship and teaching. It is sponsored by the Office of Academic Affairs and administered by the Associate Provost for Faculty Affairs.

Assistant Professor **David B. Stewart** (ECE) was selected as one of five winners in the "Real-Time Architecture Challenge" held at the 10th Annual Embedded Systems Conference this year. The challenge was a real-time design problem with 10 possible scenarios.

Professor **James Hendler** (CS/ISR) has been awarded the very first AAAI Effective Expository Writing Award. This award was established to honor the author(s) of a high quality, effective piece of writing, accessible to the general public or to a broad AI audience. Hendler received the award for his article, "Is There an Intelligent Agent in Your Future?" It appeared in *Nature* on March 11, 1999.

The Bodossaki Foundation, Greece, awarded Associate Professor **Leandros Tassioulas** (ECE/ISR) its prize in Theories, Technologies and Applications of Parallel and Distributed Computing Systems.

Ball appointment

Professor **Michael Ball** (Robert H. Smith School of Business/ISR) has been appointed director of research and acting director of the business school's Center for Knowledge and Information Management. The center focuses on research dealing with the transformation of business practices through information technology, and the creation, management, and deployment of knowledge and information.

Newsmakers

Professor **Michael Ball** was a guest on National Public Radio's August 18 *Science Friday* show on air traffic control. Ball is associate director of the National Center of Excellence for Aviation Operations Research (NEXTOR).

Professor **Ben Shneiderman** (CS/ISR) was featured March 1 on National Public Radio's *All Things Considered*. The 7-minute segment, called "The Future of Computing," covered what the rapid adoption of computers in daily life might tell us about the next 10 years as the digital revolution matures.

Professor **James Hendler** (CS/ISR) was interviewed by *PC Week* about work he is doing with DARPA on DAML (DARPA Agent Markup Language), a new web language that addresses an important, unmet need—making websites

understandable to programs and nontraditional browsing devices.

Assistant Professor **Allison Druin**'s (EDU/UMIACS/ISR) research with children's technology was profiled in the June 20, 2000 *Pittsburgh News-Gazette*. In addition, HCIL Director Ben Bederson's work on zoomable user interfaces, specifically Jazz and Fisheye menus, was profiled in *ComputerWorld's* June 26, 2000 issue.

Professor **Ben Shneiderman** (CS/ISR) was featured in an April 9 *Washington Post* story about how the evolving use of computers, including the new practice of using virtual reality rooms, is changing the way universities teach.

Publications

Professor **Michael Fu** (Robert H. Smith School of Business/ISR) has been named Simulation Area Editor for the journal *Operations Research*.

Professor **William Levine** (ECE) is the series editor of Birkhauser's new Control Engineering books. The first book in the series, *Robust Kalman Filtering for Signals and Systems with Large Uncertainties* by Ian Petersen and Andrey Savkin, has just been published. In addition, CRC Press has repackaged parts of Professor Levine's *The Control Handbook* into two new publications: *Control System Applications* and *Control System Fundamentals*.

New faculty members

ISR welcomed five new faculty members this year. Assistant Professor **Rajeev Barua** is a joint appointment with the Electrical and Computer Engineering Department (ECE). His research interests are in compilers and computer architecture, particularly how aggressive compiler techniques will influence next generation architectural designs for general-purpose, multimedia and embedded computation.

Assistant Professor **Reza Ghodssi**, another new joint appointment with ECE, specializes in microelectromechanical systems (MEMS) for use in VLSI-based microsystems, optical communications, micro-fluidic systems, bio-medical micro-devices, automobile and aeronautics sensors and actuators.

Assistant Professor **Allison Druin** (Dept. of Human Development, College

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Faculty news

of Education) is a new affiliate faculty member. She is affiliated with UMIACS and the Human-Computer Interaction Laboratory. Her research concentrates in children and technology; specific projects include PETS, KidStory and Digital Libraries for Children.

Associate Professor **Cynthia Moss** (Psych) researches auditory information processing and sensorimotor integration in

vertebrates, using the echolocating bat as a model. Professor **Ramamoorthy Ramesh** (MNE) has research interests in ferroelectrics and metal oxides, thin film materials, and wide bandgap semiconductors.

Zhang chairs conference

From June 26-28, Associate Professor **Guangming Zhang** (ME/ISR) chaired FAIM 2000, the international Flexible

Automation and Intelligent Manufacturing Conference. About 150 engineers from around the world attended this conference at the University of Maryland's Inn and Conference Center.



Short takes

FSQP now in 58 countries

With the addition of a site in Jordan, FSQP optimization software—developed by an ISR/ECE research group headed by Professor André Tits (ECE/ISR)—is now being used in 58 countries around the world. FSQP is in use at more than 800 sites worldwide.

MSSE grads

Brian Todd Woodard, Chun-Ying Ko and Krishnakumar Venkatesan graduated from the Masters of Science in Systems Engineering (MSSE) program May 25.

Woodard, a system manager for PECO Energy Company in Delta, Pa., completed a thesis, *An Electronic Service Records Document Management System*. It proposes a hybrid system for managing military service records based on an existing system for managing records on paper.

The objective was to establish a new structure that is fully capable of organizing documents in digital data formats while minimizing the effort of converting existing documents into electronic forms.

TV crew visits ISL

A television production crew from A.H. Belo Corp., the parent company of 15 broadcasting stations, visited the Intelligent Servosystems Lab on June 2

to film a segment on the binaural robot. This mobile robot can detect and track sound and move towards the sound's source.



SSL project to ride on shuttle

Ranger TSX, a neutral buoyancy robot designed to repair satellites and assist astronauts during EVA excursions, will be a Space Shuttle payload in late 2001. Ranger is a long-term project of the Space Systems Lab, headed by Associate Professor **David Akin** (AE/ISR).



The Institute for Systems Research is a permanent state-supported institute of the University of Maryland, within the A. James Clark School of Engineering and the Glenn L. Martin School of Technology. ISR has a continuing affiliation as a National Science Foundation Engineering Research Center.

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