Tech researchers receive presidential awards

JEFFREY BORGGAARD

By Sally Harris

Jeffrey Borggaard, assistant professor of mathematics at Virginia Tech, whose research is sponsored by the Air Force Office of Scientific Research, will receive the prestigious Presidental Early Career Award for Scientists and Engineers (PECASE) April 12 in a ceremony at the White House.

This award is the highest honor bestowed by the U.S. government on young professionals who are at the outset of their independent research careers. The award includes a five-year, $500,000 research grant. Borggaard was one of two researchers to receive the award, which recognizes the researchers’ efforts in conducting top-quality research in areas of critical importance to the Air Force.

“These researchers have made important contributions to the science and technology needs of the Air Force,” said Joe Janis, director of the Air Force Office of Scientific Research.

“Dr. Borggaard’s work on continuous sensitivity-equation methods for non-linear partial differential equations has produced new and powerful computational tools with wide applications to the design, control, and optimization of aerospace systems,” said Marc Jacobs, professor of aerospace engineering.

Sanjay Raman

By Liz Crumbley

On April 11, President Bill Clinton presented a 1999 Presidential Early Career Award for Scientists and Engineers (PECASE) to Sanjay Raman of electrical and computer engineering.

Raman was one of only 60 researchers from throughout the nation to receive a PECASE award, which is the highest honor bestowed by the U.S. government to outstanding scientists and engineers in the early stages of their research careers. Each PECASE researcher will receive a five-year grant of $50,000 annually.

The awards, presented during the ceremony at the White House, were established by the Clinton Administration in 1996 to recognize young researchers and help maintain U.S. leadership in scientific research.

As a Ph.D. student at the University of Michigan, Raman fabricated a millimeter-wave radar receiver—including antennas and receiving circuitry—on a single integrated-circuit (IC) chip.

Now, he will attempt to develop methods of directly integrating antennas with the electronics used in wireless devices, such as cellular phones, on single IC chips. The ultimate goal of this line of research is to develop high-performance communication devices at low cost. The research is supported by the National Science Foundation.

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Women’s Network meeting open to all
On Tuesday, May 9, at noon the Women’s Network will meet in the Women’s Center conference room. The Women’s Network welcomes ideas, time, energy, leadership, and commitment toward improving women’s roles within the university community.

The Women’s Network is self-governed and self-funded. Its goals are to allocate women’s concerns, to support women’s career advancement, to assure participation in decision making, to create communication channels, and to bring together the university community.

Speaker announced for Gerontology Forum
Gerontologist Steven H. Zarit will be the guest speaker at the Gerontology Forum on Thursday, May 11 from 7 to 8 p.m. in the Wallace auditorium. The last event in this year’s series is sponsored by Sigma Phi Omega, the Gerontology Honor Society, and the Center for Gerontology. Zarit’s research focuses on caregiving for persons with Alzheimer’s disease and related memory disorders. A reception will follow this presentation. The forum will also honor graduate students receiving the Certificate for Gerontology.

Zarit is a researcher, educator and clinician whose work has focused on the mental health problems of older people and their families. He is professor of human development and assistant director of the Gerontology Center at Penn State and Adjunct Professor, Institute of Gerontology, University College of Health Sciences in Jönköping, Sweden. Zarit has conducted pioneering work on the problems faced by families of people with Alzheimer’s disease and related memory disorders, and on interventions to relieve the stresses of family caregiving.

Massey Award applications due
Applications for the P. Howard Massey Food and Nutrition Scholar Award, due by 5 p.m. today can be obtained from Sherry Saville in 338 Wallace. The Massey Award provides up to $500 to support graduate student research projects that relate to food and nutrition problems affecting individuals and households in developing countries.

Presentation to focus on homebuilding
Liza A. Bowles, president, NAHB Research Center, will make a presentation titled “Advances in Homebuilding Technology and Design” on Tuesday, April 25 from 3 to 4:30 p.m. in the Burress Building Construction Studio, Room 123B (enter Burress in the back door facing Covington Hall). This is an opportunity to learn about cutting-edge research influencing the design and construction of residential buildings. Bowles’ visit is sponsored by the College of Architecture and Urban Studies and the Department of Urban Affairs and Planning Speaker Series. For more information, contact Ted Koebel at 1-3327.

Women’s contributions to math examined
Margaret Murray, associate professor in the Department of Mathematics, will present the talk in the Donaldson Brown Hotel and Conference Center auditorium at 7 p.m. on Monday, April 24 titled “Women in Mathematics: From Hypatia to Herta Freitag.”

The presentation describes the history of women’s involvement with mathematics, emphasizing the key role that women played in mathematical research and teaching in the 20th Century, especially in the United States.

For more information, call Susan Anderson at 1-8041 or e-mail her at andersons@math.vt.edu.

American Cancer Society Grants available
The American Cancer Society has funded an Institutional Research Grant to Virginia Tech. Applications are invited from junior faculty members for two grants of $20,000 each for one year to perform studies on basic, clinical (including cancer control, health services and psychosocial/behavioral cancer research), pre-clinical, epidemiologic and health policy/outcome research. These grants are intended for new investigators within eight years of first independent academic appointment without an active nationally competitive research grant (i.e. NIH, NSF, ACS).

Details are available at www.vetmed.vt.edu/College/ fromnychef/homepage.html.

Forum focuses on homelessness
A Homelessness Forum to be held today, in the Donaldson Brown Center and Squares Old Dominion Ballroom will address the state of homelessness in the New River Valley and beyond.

For more information or to register, call the Service-Learning Center at 1-6964.

Women, minority artists, scholars lecture set
By Sally Harris
Women and Minority Artists and Scholars Lecture series will present “Answers That Lie Beyond...” a discussion by Catherine Hurl Middlecamp April 27, 4 p.m. in 4069 Derring. Middlecamp is from the University of Wisconsin-Madison. A reception will follow her talk in the Geology Museum (second-floor Derring).

In a university environment, it is all too easy to focus on answers, such those involved with homework problems, test questions, or even doctoral exams. Answers are important, and the person who knows answers to a wide variety of questions has one of the tools needed for success in any field. However, questions and answers are more rightly viewed as two equal sides of an intellectual coinage. As such, both need careful attention.

Creating an environment where learners (faculty members and students alike) can pose their own questions is more challenging than some may think. This seminar will explore questions as one aspect of feminist pedagogy. It is intended to raise more questions than answers and to provide interactive exercises that demonstrate the complexities of both question and the questioner.

The seminar is sponsored by the Women and Minority Artists and Scholars Lecture Series (Provost’s Office), the Organization of Women Faculty, the Center for Excellence in Undergraduate Teaching, the Department of Chemistry and the Department of Biology, the Center for Interdisciplinary Studies, the Center for Science and Technology Studies, the College of Arts and Sciences, Instructional Services, and Women’s Studies.

For more information, contact Mariel Lederman at 1-5702, 1-9307 (fax) or e-mail lederman@vt.edu.
Eleven named, honored as multicultural fellows

By Clara B. Cox

Eleven members of the faculty, staff, and administration have been selected to serve Virginia Tech in the role of multicultural fellows, comprising the second class of fellows named to focus on diversity issues at the university. The multicultural fellows are Jerrold P. Allen, commandant of cadets; Kimberly S. Brown, director of the Academic Advising Center; Stella R. Clark, assistant coordinator of athletic academic enrichment; Mary Comerly, assistant professor of management; Mahmood A. Kaza, director of hospitality and tourism management; Ann Kilkelly, associate professor of theatre arts and women’s studies; James C. Klinger, associate professor of political science; Martha Laster Mullin, foreign national tax specialist; Raymond V. Plaza, residence director for Pitchford Hall; Sharon Shown, assistant director of the Women’s Center; and Tony A. Soplin, financial aid counselor.

The first class of fellows, selected a year ago, worked on a communications project that resulted in creation of The Virginia Tech Conductor, a periodic newsletter that focuses on current diversity issues and serves as a forum for sharing ideas and strategies for addressing climate issues and concerns about the status of people of color, women, and other under-represented groups in the university environment. The fellows were selected a year ago, worked on a communications project that resulted in creation of The Virginia Tech Conductor, a periodic newsletter that focuses on current diversity issues and serves as a forum for sharing ideas and strategies for addressing climate issues and concerns about the status of people of color, women, and other under-represented groups in the university environment.

The fellows program is an initiative of the Dean of Students Office, Political Science Department, and the Office of the Vice President for Multicultural Affairs. It was initiated in late 1998 to provide a formal mechanism for faculty and staff members and administrators to contribute to the university’s mission of fostering a welcoming community for all people. The program was also designed to recognize and encourage the activities of individuals who regularly contribute to multicultural and diversity programs.

Among the criteria for selection are a demonstrated commitment to diversity at the university and an interest in developing projects that contribute to diversity.

The new fellows were honored by the sponsors of the program at a reception on April 12. Joining them were members of the first class of fellows and members of the Virginia Tech community.

New on-line calendar now available on campus

Over the past few months, University Relations has been working with Virginia Tech’s Web Application Research and Development on a new electronic calendar located at http://www.calendar.vt.edu. The web-based calendar is officially registered at Virginia Tech and sponsors events that are open to the university community can apply for authorization to directly input event information into the calendar. Authorization can be obtained by contacting calendar coordinator Julke Knoe in the Office of University Relations at 7593J. Authorized organizations will receive a user ID and a password. All event submissions will be reviewed by the calendar coordinator before they are posted. Consequently, it is important to submit items at least two days in advance of the event.

During the review process, submissions will be checked to see if they are appropriate for posting and edited for clarity and conciseness. If a submission is rejected, an e-mail will be sent to the sponsor to update the entry. The interface is simple and information can be cut and pasted into the on-line calendar.

Calendar event information that is entered into the VT event calendar can also be exported to other areas calendars, such as FedEx Party. Saving event sponsors the trouble of re-keying information.

Events that are sponsored by commercial entities are prohibited, as are events that are not open to the general university community. Technical suggestions or questions should be directed to vict@vt.edu. Questions regarding content and authorization to post events should be directed to calendar@vt.edu.
The College of Engineering and the administration have made it clear that more than 10 individuals will be inducted as members of the Academy of Engineering Excellence annually. This selection is made from some 40,000 living alumni of the College of Engineering and the members of the individuals follow.

BORGGAARD

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program manager in AFSOES’s Directorate of Mathematics and Space Sciences. "For the Air Force, this work provides the foundation for new technologies that will reduce design-cycle times from years to weeks. The payoffs are exciting applications to the design of aerospace vehicles, optimization of propulsion systems, and the control of aerodynamic flows." Borggaard, who received his doctorate in mathematics from Virginia Tech in 1995, studies problems such as how to develop wind tunnels to test aircraft engines for safety and performance under flight conditions. Wind tunnels simulate these conditions by directing air flow toward the engine. Borggaard’s mathematical "shape optimization" work helps make the wind-tunnel simulation as close to the real thing as possible.

Borggaard will use the PECASE award for his research called “Control and Optimization Tools for Systems Governed by Nonlinear Partial Differential Equations.” He will look at ways to control turbulent flows, which could be used to reduce the drag force on planes. A potential benefit would be that planes may fly at higher speed, allowing them to travel farther and use less fuel.

These presidential awards, established by Clinton in 1996, embody the high priority the administration places on producing outstanding scientists and engineers and nurturing their continued development. Eight federal departments join together annually to nominate the most meritorious young scientists and engineers who will advance science and technology that will be of the greatest benefit to the participating government agencies.

Borggaard received a B.S. and M.S. in mechanical engineering and a M.S. in applied mathematics, all from Worcester Polytechnic Institute, before coming to Virginia Tech to earn his Ph.D. He has served as a teaching assistant and engineer with the Naval Underwater Systems Center, a research assistant professor at Virginia Tech, and an NSF post-doctoral associate at Cornell University.

Raman joined the Langley Aeronautical Laboratory of the National Advisory Committee for Aeronautics (NACA), the precursor of NASA. In October 1958, Kraft was selected as one of the original members of the Space Task Group, the organization established to manage the Project Mercury. He personally served as the flight director for all of the Mercury missions and many of the Gemini missions. Kraftretiredfrom NASA in 1982.

Tanner is the retired president and chief operating officer of General Dynamics Corp., a member of the National Academy of Engineering, and the current warden of Virginia Tech’s Board of Visitors. Tanner spent more than 40 years associated with the naval nuclear shipbuilding and commercial nuclear power projects and his work earned him the 1999 Fleet Admiral Chester W. Nimitz Award from the Navy League of the U.S. The award is given annually to a person who has made a major contribution to the U.S. maritime strength.

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how it has helped him to become the person he is. “I want to challenge the graduates to take a chance on others, because they never know exactly whose lives they will impact the most,” Mays said.

Mays earned the NSF fellowship while a master’s degree student at Tech and elected to remain here to continue studying under Ray Plunt. Many students are directed at structural control for earthquake mitigation. His ambition is to develop systems for retrofitting structures that already exist along a fault line against earthquake damage. Mays also will speak at the University Commencement on Saturday morning.

RAMAN

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put all of the components of wireless technology on single-chip systems.

"Some day, the equivalent of a cell phone will be the size of a dress button or a small piece of jewelry,” Raman said.

Last year, he received a National Science Foundation (NSF/Faculty Early Career Development Program award, a four-year grant worth about $200,000. CAREER awards are presented annually by the NSF to a select roster of faculty members nationwide who have demonstrated early in their careers the potential to make significant contributions to engineering research and instruction. Raman was one of 20 1999 CAREER award recipients selected for the PECASE award.

The single IC chip technology Raman is developing will have a myriad of applications aside from use in personal communications systems. Environmental sensors on chips could be placed easily and inexpensively throughout buildings to monitor temperature and other conditions and radio messages back to a central control computer. These wired distributed sensors would be particularly useful on military ships and aircraft, freeing personnel from having to make manual checks and equipment condition. Raman knows a great deal about the potential benefits for the military; he spent more than three years as an officer on a U.S. Navy nuclear submarine. He also foresees medical applications. "Chips could be embedded in at-risk individuals to monitor for impending heart attacks and alert medical personnel via wireless communications before an attack actually occurs.”

Raman also imagines a wireless “DNA lab on a chip” with one section of the device testing samples at a crime scene for DNA while another radios a central database for possible identification of the perpetrator.

The educational component of Raman’s work includes developing a graduate course in radio frequency integrated circuit design. With this added component, he said, Virginia Tech will offer one of the most comprehensive communications technology curriculums in the world.

WARNER

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For eight years, 1987-1995, Warner served on the Senate Intelligence Committee. The last two years, from 1993-1995, he was vice chairmanship of the Committee.

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