McNamee and Flanagan spearhead needs assessment for coming campaign

By Amy Boyce

In preparation for the launch of Virginia Tech’s next major comprehensive fundraising campaign, Provost Mark McNamee and Vice President for Development and University Relations Elizabeth Flanagan have asked university leaders to begin identifying needs and priorities that will help President Charles Steger shape the fundraising objectives for the campaign.

The campaign, which will be guided by the university’s strategic plan, will be critical in the university’s quest for top-30 research status. The “silent phase” of the campaign is scheduled to be launched in July, 2003. Before it is launched, the university must identify its highest priorities, which will shape the overall fund-raising priorities for the campaign. Recently, McNamee and Flanagan worked with a campaign consultant from Marts & Lundy, Inc., to define a “needs-assessment” process for identifying and prioritizing these needs.

The first step in the process is to create a needs list for every unit throughout the university. According to McNamee, “The needs statements should reflect the most important and critical needs of each unit and should be designed to bring Virginia Tech to new heights of academic achievement. When the campaign is completed, we should be able to clearly show that this institution has improved in measurable ways.”

Much of the groundwork for the needs assessment was completed as the university considered budget cuts, restructuring plans, and strategic plans. The strategic-planning process defined the direction and future of the entire university. The needs assessment will identify the fundamentals of how Virginia Tech will reach its goals.

The next step will be to review the needs lists provided by all units and combine them into one prioritized university-wide needs list. To assure a comprehensive university needs assessment, McNamee and Flanagan have proposed a dual committee structure. McNamee will chair both committees.

The primary focus of the first committee will be to assess the relative merits of the needs lists provided by each unit and develop a prioritized list of needs for the entire university. The second committee will assess these priorities in terms of potential for success in raising money from private sources.

‘Empowering’ tiny reconnaissance robots is goal of Tech/NSF project

By Liz Crumbley

Imagine tiny robots snaking their way through collapsed buildings or coal mines on search and rescue missions, receiving instructions and transmitting vital image data about the location of humans trapped in rubble or mine shafts.

The National Science Foundation (NSF) has awarded a $300,000 Information Technology Research (ITR) grant to Amy Bell, an assistant professor of electrical and computer engineering, for development of technology that could make such scenarios a reality.

Robots that use wireless communications devices to receive and transmit data already exist. “In fact,” Bell said, “Robin Murphy, a University of South Florida professor, used reconnaissance robots in confined, hazardous locations at the World Trade Center site after September 11 to transmit data to rescue workers.”

However, size is a problem for mobile agents on reconnaissance missions because the transmission of images requires a hefty power source. “Small robots that can make their way into cramped spaces have to be tethered to power sources to receive and send data transmissions, and the tethers limit their range,” she said. “Larger robots can carry their own battery packs, but they can’t maneuver in small spaces.”

An expert in signal processing, Bell began working on ways to compress images when she received a NSF Faculty early Career Development Program grant in 1999. “For example, downloading an Internet site that contains several ways to compress images when she received a NSF Faculty early Career Development Program grant in 1999.

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University receives high marks in national academic rankings

By Liz Crumbley and Sookhan Ho

Virginia Tech’s undergraduate program has fared well in national rankings released recently by U.S. News & World Report and Kiplinger’s Personal Finance. The colleges of Engineering and Business also received high marks.

U.S. News & World Report’s “America’s Best Colleges 2003” survey, released September 13, placed Virginia Tech 28th among the nation’s public universities. The College of Engineering’s undergraduate program moved up to a ranking of fifteenth among all accredited engineering schools and tenth among those at public universities. Last year, the college was ranked 20th among all engineering schools.

The college shares the ranking of fifteenth with Johns Hopkins University, Pennsylvania State University, Rensselaer Polytechnic Institute and Texas A&M University. The individual college rankings are based on assessments submitted by deans and senior faculty members at peer institutions.

“The rise of the College of Engineering in the undergraduate rankings can be credited to the excellence of our faculty and to the professional reputation of our graduates,” said Malcolm McPherson, interim dean of the college. “It’s gratifying to know that our peer schools regard our program with great respect.”

“The hands-on experience, teamwork approach and integration of theory and practice commence for our undergraduates in freshman classes and continue through their time at Virginia Tech,” McPherson said. “This allows them to more easily hit the ground running when they move on to their professional lives.”

The Pamplin College of Business retains its ranking of fifteenth (J. McCormick)
**SPECTRUM** FRI., SEPTEMBER 13, 2002

**ENI**

Friday, 13
Internet2 Virtual Briefing, (http://www.internet2.edu/activities/html/briefings.html), 1 to 2:30 p.m.

Four public-forum workshops are open to staff members and instructional faculty members, all October 17, 10 a.m. to noon: M/W, 1140 Torgersen. Other speakers for the day will represent Lockheed Martin, Tyco, Science Applications International Corporation (SAIC), Xtreme Spectrum, U.S. Department of Justice, University of Maryland, and Digital Government Research Center.

A pre-conference seminar on two emerging technologies—ultra wideband and Bluetooth—will be offered on September 22. Seating will be limited for this seminar, so early registration is recommended.

The conference will be held at the Donaldson Brown Hotel and Conference Center. For more information and to register, call Judy Hood at 1-8651, e-mail jhood@vt.edu, or go to web site www.cwt.vt.edu/conferences/WOW.

**SEMINARS**

Friday, 13
MCBB, 12:20 to 1:10 p.m., Fralin Auditorium: Erin Pechersky, University of Michigan. MSAE, 3:15 p.m., Hancock auditorium: Pirouz Pirouz, Case Western Reserve.

Geology, 3:30 p.m., 4069 Derring: Ken Eriksson.

Monday, 16
Horticulture, 4 p.m., 409 Saunders: Vladimir Shulaev.

Tuesday, 17
VMRCVM, noon to 1 p.m., graduate conference room, VMRCVM: Al Philey and Sally Paulson.

Thursday, 19
Career Services, noon to 1 p.m., 219 Squares.

Friday, 20
MCBB, 12:20 to 1:10 p.m., Fralin auditorium: Eric Green, NHGRI/NIH.

Geology, 3:30 p.m., 4069 Derring: Jonathan Stiebibs, Stanford.

**ACTIVITIES**

**Faculty Development Institute workshops offered this semester**

The Faculty Development Institute has announced its fall workshop schedule starting Monday, Sept. 23 and continuing through Thursday, Oct. 31. Over 50 workshops will be offered ranging from basic desktop computing to hands-on activities. Included in this semester’s workshops are mini-series on basic tips for Desktop computing and Digital Media content creation, designed specifically for faculty members who are new to web authoring. Several other workshops will feature updated versions of familiar computer software, such as Microsoft PowerPoint, Microsoft Word, Macromedia Dreamweaver, Adobe Photoshop, Adobe Premiere, Adobe PageMaker, Apple QuickTime VR, and Blackboard. There will also be a weekly Open Lab in October for one-on-one assistance.

The timetable below lists dates, times and locations of the workshops. For more information, contact Ed Schwartz at 1-4975, ed.schwartz@vt.edu or visit the Fall 2002 workshop site. A pre-conference seminar on two emerging technologies—ultra wideband and Bluetooth—will be offered on September 22. Seating will be limited for this seminar, so early registration is recommended.

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**GLOBALIZATION, CULTURAL-DIVERSITY CONFERENCE SET**

By Sally Harris

A discussion at Virginia Tech on the impact of globalization on local cultures, from Appalachia to Africa, is open to the public.

Art critics, heritage-site curators, media professionals, and scholars will present a variety of views on global cultures during a two-day international conference to be held at the Hotel Roanoke September 20–21. The theme will be “Cultural Diversity for Sale? Global Economies of Art and Entertainment.” All sessions are free and open to the public.

The conference speakers will address a number of issues related to the status of cultural difference in today’s world media markets. While globalization might seem to promote cultural difference by bringing people into closer contact, it also threatens local cultures by exporting a mass-market culture often associated with U.S. dominance,” according to Janell Watson, conference coordinator and a faculty member in the Department of Foreign Languages and Literatures. “Must a local culture sell itself on the global market to survive?”

Four public forum sessions address topics of general interest to the community at large: filmmaking, Virginia and Appalachian culture, artistic creation, and public radio and television. On Friday evening, award-winning African filmmaker Jean-Pierre Bekolo (writer and director of Aristotle’s Plot and Quartered Mozart) will discuss the difficulties of making movies on multiple continents, showing video clips from his recent work in his native Cameroon. On Saturday afternoon, a panel of experts involved in Virginia and Appalachian culture...
Campus Update

Farm and Family Showcase attracts producers, consumers from seven states

By Netta Benton

Nearly 38,000 people from seven states attended Virginia Tech’s Second Annual Farm and Family Showcase last week. The three-day event drew people from Virginia, West Virginia, Maryland, North Carolina, Tennessee, Kentucky, Ohio, and the District of Columbia.

More than 250 exhibitors, ranging from farm equipment and supply dealers to government and state agencies, banks, nursery and landscaping companies, lawn and garden, outdoors/hunting/fishing supplies, home supplies and services, and many other home-, health-, and farm-related companies, participated. Private companies and state and federal agencies, along with student organizations, joined faculty members and Virginia Cooperative Extension (VCE) agents to present educational programs, demonstrations, and exhibits. The showcase was held at the university’s Kentland Farm in McCoy, about eight miles west of campus.

“In the crowds we saw at the showcase are a response to the educational opportunities that this event represents,” said Andy Swiger, dean of the College of Agriculture and Life Sciences. “I know there were a lot of enjoyable activities, and hope that everyone, even those events were designed to have an educational impact.”

Swiger said the essence of Virginia Tech’s agricultural program is knowledge. “Our faculty members are among the best in the world in developing new knowledge and in making scientific discoveries,” Swiger said. “They are among the best in teaching our young people about emerging knowledge. They also are among the best in passing that knowledge on to producers and processors. It is truly wonderful that we had the opportunity to showcase to 38,000 people what we do so well.”

The event was sponsored by the university’s colleges of Agriculture and Life Sciences, Human Resources and Education, and Natural Resources, the Virginia-Maryland Regional College of Veterinary Medicine, Virginia Cooperative Extension, and the Virginia Agricultural Experiment Station.

Agricultural producers viewed farm equipment in action, and were able to talk about their personal challenges and concerns with university faculty members and VCE agents. Homeowners could learn about gardening, food preparation and safety, and home repairs, among many other subjects.

“Thousands of people had a chance to get a better understanding of where their food comes from” (See FARM on 4)

GLOBALIZATION

Continued from 2

will discuss the impact of globalization on the region. They will address local heritage sites, storytelling traditions, novels, music, and stereotypes of mountain life. This session will be followed by a presentation about the work of internationally known artists who have worked at Mountain Lake and on the idea of a community spirit in the creation of art.

The final public forum will take place Saturday evening and will feature Rick Matussion, news director at WYTV Public Radio, and Frederick Thomas, consultant to the U.S. Department of Education, vice president, and general manager of MHz Networks in Washington, DC, which produces public-television programming.

A series of special focus sessions Friday and Saturday will address globalization issues of a more scholarly nature. For example, film studies scholars will explore various aspects of the international film market, social scientists will study the impact of media technologies on various cultural groups, and feminist scholars will examine gender issues around the world. The sessions are also open to the general public.

Conference sponsors include the Virginia Tech College of Arts and Sciences Humanities Symposium Award, the Virginia Foundation for the Humanities and Public Policy.

More information is available at www.vt.edu/watson/symposium, or by calling 1-9009. Advance registration is encouraged and is free of charge.

Workshops

Continued from 1

Introduction to Digital Media: Audio, Images and Video Part 2
Oct. 22, 10 a.m. to noon: Windows, 3060 Torgersen.
Oct. 16, 10 a.m. to noon: Macintosh, 1120 Torgersen.

DIGITAL CONTENT

Creating Web Graphics with Adobe Photoshop 7.0
Oct. 7, 10 a.m. to noon: M/W, 1120 Torgersen.
Creating Introduction to Streaming Audio and Video
Oct. 13, 3 to 5 p.m.: M/W, 1120 Torgersen.
Creating Macromedia Flash to create Web Interactions
Oct. 21, 10 a.m. to noon: M/W, 1120 Torgersen.
Creating Graphics with FreeHand 9
Oct. 28, 10 a.m. to noon: M/W, 1120 Torgersen.
Creating QuickTime Virtual Reality
Oct. 31, 3 to 5 p.m.: M/W, 1120 Torgersen.
Using Adobe Premier 6 and Apple QuickTime 6
Oct. 31, 3 to 5 p.m.: M/W, 1120 Torgersen.
Using Adobe PageMaker 6.5 (Part 1)
Sept. 26, 10 a.m. to noon: M/W, 1120 Torgersen.
Using Adobe PageMaker 6.5 (Part 2)
Oct. 3, 10 a.m. to noon: M/W, 1120 Torgersen.
Basic Imaging techniques with Adobe Photoshop 7.0
Sept. 25, 3 to 5 p.m.: Macintosh, 1120 Torgersen.
Sept. 26, 10 a.m. to noon: Windows, 3060 Torgersen.

Creating Digital Video for Instruction: Part 1
Oct. 10, 3 to 5 p.m.: M/W, 1120 Torgersen.
Creating Digital Video for Instruction: Part 2
Oct. 17, 3 to 5 p.m.: M/W, 3060 Torgersen.
Creating Digital Video for Instruction: Part 3
Oct. 24, 3 to 5 p.m.: M/W, 1120 Torgersen.

WEB-BASED INSTRUCTION

Designing Instructional Activities for the Web
Oct. 8, 3 to 5 p.m.: M/W, 3060 Torgersen.
Orientation for Online Instructors
Oct. 10, 10 a.m. to noon: M/W, 3060 Torgersen.
Creating Interaction at a Distance
Oct. 17, 10 a.m. to noon: M/W, 3060 Torgersen.
Electronic Library Resources for Teaching and Research
Oct. 20, 3 to 5 p.m.: M/W, Torgersen. 3310
Oct. 30, 10 a.m. to noon: M/W, Torgersen. 3310
Synchronous Online Communication
Oct. 24, 10 a.m. to noon: M/W, 3060 Torgersen.
Creating Streaming Media for Distance Courses
Oct. 31, 10 a.m. to noon: M/W, 3060 Torgersen.
Creating a Web-based Course Using Blackboard
Oct. 16, 3 to 5 p.m.: M/W, 1120 Torgersen.
Oct. 24, 9:30 a.m. to noon: M/W, 1120 Torgersen.

WEB DEVELOPMENT

Web Design Tips and Techniques
Oct. 8, 3 to 5 p.m.: M/W, 3060 Torgersen.
Web Interface Design Principles
Oct. 16, 3 to 5 p.m.: M/W, 3060 Torgersen.
Using Macromedia Dreamweaver to Create a Web Site, Part 1
Oct. 1, 10 a.m. to noon: Macintosh, 1120 Torgersen.
Sept. 25, 10 a.m. to noon: Windows, 3060 Torgersen.
Using Macromedia Dreamweaver to Create a Web Site, Part 2
Oct. 8, 10 a.m. to noon: Macintosh, 1120 Torgersen.
Oct. 2, 10 a.m. to noon: Windows, 3060 Torgersen.
Using Macromedia Dreamweaver to Create a Web Site, Part 3
Oct. 22, 10 a.m. to noon: Macintosh, 1120 Torgersen.
Oct. 16, 10 a.m. to noon: Windows, 3060 Torgersen.

EMPLOYMENT

Employee Relations Program Coordinator, 001073D, PB 5, Personnel Services, 007960F, PB 6, CDC.
Field/Laboratory Research Technician, 008016B, PB 3, Biology.
Financial Analyst, 006676Y, PB 4, OPS.
Housekeeping Worker, 007776C, PB 1, DBHCC.
Hvac Technician, 008001H, PB 3, RDP.
Pastry Sous Chef, 002712H, PB 3, RDP.
Program Support Technician, 002043M, PB 3, CVM.
Scientific Glassblower, 001267B, PB 5, Chemistry.
Service Leader, 007960H, PB 1, RDP.
Service Leader/Cashier, 000750H, PB 1, RDP.
Telefund Administrative Supervisor, 001421S, PB 3, Engineering/Northern Virginia Center.
Animal Care Technician, W022675M, PB 2, VTH.
Office Specialist, W022473H, PB 2, RDP.
Program Support Technician, W022979M, PB 2, VTH.
Program Support Technician, W023477J, PB 3, CUE.
Switchboard Operator, W020821M, PB 2, VTH.

OFF CAMPUS

4-h Enemp Program Assistant, 006379M, PB 2, VCE—City of Virginia Beach.
4-h Scence Program Assistant, 007816M, PB 2, VCE—Suffolk City.
Administrative Program Support, 007411B, PB 3, University Development.
Animal Care Technician, W022675M, PB 2, VCH.
Animal Care Technician Large Animal, W020066M, PB 2, VTH.
Application Processor, W022876G, PB 3, Undergraduate Admissions.
Assistant Student Life Coordinator, W023474J, PB 3, Athletics.
Departamental Receptionist, W023331J, PB 2, Athletics.
Fiscal Technician, W023475M, PB 3, CALLS—AEE.

One full-time food-service position available.

ICU Veterinary Technician Large Animal, W022218M, PB 2, VTH.
Large Animal Husbandry, W022155M, PB 1, VTH.
Office Specialist, W023473H, PB 2, RDP.
Program Support Technician, W022979M, PB 2, VTH.
Program Support Technician, W023477J, PB 3, CUE.
Switchboard Operator, W020821M, PB 2, VTH.

Letters to the editor and questions for “Ask Spectrum” should be addressed to the editor, 120 Media Building, Virginia Tech, Blacksburg, VA 24061.

Electronic Spectrum: spectrum.vt.edu

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Researchers invited to National Academy of Engineering symposium

By Liz Crumbley

Stefan Duma, an assistant professor of mechanical engineering, has been selected to participate in the National Academy of Engineering’s (NAE) 2000 Frontiers of Engineering Symposium, September 19 through 21, in Irvine, California. The NAE has invited only 84 engineers from throughout the U.S. to attend the symposium, and Duma is one of fewer than 40 chosen from academia. Attendees were nominated and selected through a competitive process. Those selected are engineers from 30 to 45 years of age who have made recognizable contributions to advancing the frontiers of engineering and have the potential to become future leaders among U.S. engineers.

Duma, who joined the Virginia Tech faculty in 2000, is already a nationally recognized researcher in the areas of airbag safety, eye injuries, and military restraint design. During his first year on the university’s faculty he has been collaborating since 1997 on aircraft designs for the NASA/FAA competition. “Loughborough has one of the best aerospace programs in England and Virginia Tech has one of the best in the U.S.,” Marchman said. “The collaboration is good for the students and the schools because aerospace is a global industry. We’ve found that industry is typically more interested in engineering graduates who have international study and design experience.”

Work of student, professor featured on website

By Sally Harris

An article by Philip Ball on the web site Materials Update by Nature Publishing Group, which publishes Nature magazine, features the work of a Virginia Tech undergraduate and professor.

“Fresh spin on DNA electronics” details work being done by Michael Zwolak, who was an undergraduate when the work was done, and Massimiliano Di Ventura of the Department of Physics. The work involves the potential use of molecular “wires” made of DNA as spintronic devices. “Spintronics [is] a supercharged form of electronics that makes use of electron spin to encode information,” Ball wrote. The two researchers “have looked at how electrical current flows down a DNA strand hooked up to two metal [ferromagnetic] electrodes,” Ball wrote.

Zwolak, who is now a graduate student in Di Ventura’s group, and Di Ventura are now studying possible sources of spin scattering and spin decoherence when electrons travel between the magnetic contacts, Di Ventura said.

The use of wires made of DNA could enable scientists to make magnetic-storage devices on the scale of molecules.

The researchers’ work also was featured on physicsweb, the news web site of the Institute of Physics, the European counterpart of the American Physical Society. The web site Materials Update can be found at http://www.nature.com/materials/.

STUDENTS

Continued from 1

town or city to another.

The Virginia Tech/Loughborough team’s design includes a lightweight Rand Cam rotary diesel engine, with no spark plugs or pistons, powering two ducted fans instead of propellers.

The wings are box-shaped—and removable. “The boxed shape is a way to get more aerodynamic efficiency in a short wingspan,” Marchman explained. “This wing would perform like a wing of the same area but with a 50-percent larger span. The students designed it to be removable so it would be easy to transport.”

Once in the air, Ikles would travel at a maximum cruise speed of about 160 miles per hour—as fast as most general aviation planes—Marchman said. “There are existing airplanes that can take off and land in short distances, but they can’t fly as fast as Ikles is designed to fly.”

In the 2002 NASA/FAA design competition’s 100-point scoring system, Ikles design finished just one point behind the first-place entry from the University of Virginia. Popular Science is doing an article on both designs that will appear in one of the magazine’s upcoming issues (probably in October), Marchman said.

Virginia Tech and Loughborough students have been a feasibility study among Virginia Tech alumni and faculty instructor in the Department of Chemistry, died May 5 at the age of 70.

John Murray, who taught chemistry and glassblowing at Virginia Tech from 1942 until retiring in 1971, died August 19 at the age of 93.

Murray’s specialty was physical chemistry and general chemistry. “He made many valuable contributions to the junior physical chemistry laboratory, which he taught for over 10 years,” said Larry Taylor, Department of Chemistry head.

Murray held degrees from Colgate and Johns Hopkins.

In his memory, donations can be made to the Nature Conservancy at 1233A Cedars Court, Johns Hopkins.

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continued from 1

download—we could compress those images into 10 megabytes that would download in only one-third of a minute and the compressed images would look the same as the originals.”

Bell’s goal for the NSF ITR project is to compress images in ways that will significantly reduce the power required for small, mobile agents to transmit images in wireless networks. She is working on the project with Joan Carletta, an electrical engineering professor at the University of Akron whose field is computer hardware.

“We’ve already developed a novel idea that represents a first step toward implementing our goal,” Bell said. “It’s a method of transforming images in hardware that loses very little of the data’s original quality.” Bell will develop algorithms, or mathematical procedures, for perfecting the data image compression and Carletta will devise a method for making that work in hardware.

If the researchers succeed, data transmission power requirements could be reduced so that small robots outfitted with small batteries would be able to move freely where no human can—or should—go.

But the success of Bell’s and Carletta’s NSF project could result in technology advances beyond the use of diminutive robots for search and rescue. For example, soldiers who need to transmit and receive data during field operations could be relieved of the burden of heavy battery packs, Bell said. Another potential use of the technology would be equipping “micro-air” vehicles—small reconnaissance aircraft—with image-transmission devices.

continued from 2

from and what goes into producing it,” Swiger said. “We have received many, many very positive comments on the showcase and its educational aspect.

Swiger credits the success of the event to the planning that went into it. Planning for next year’s showcase, scheduled for Thursday through Saturday, Sept. 4-6, has already begun.

“An event of this magnitude does not just happen,” Swiger said. “A great many people put in a lot of hard work. The extraordinarily high quality of the final product is a tribute to the sustained effort and countless hours that went into it.”