The SECOND WAVE of Wireless

How Tech's world-class researchers are forging the future of the field

Diploma-Driven
Hokie student-athletes have their eyes on the prize

College Rankings
What you should know about interpreting the numbers
Earlier this year, Virginia Tech received the 2011 Gold Award for Environmental Excellence from Virginia Gov. Bob McDonnell. For the third time in the past four years, Tech has received kudos from the state government for sustainability and environmental excellence. We also are pleased to see several years of improving and strong scores on the sustainability “report card” issued by the Sustainable Endowments Institute, most recently garnering a “B+.”

The university has made steady progress toward goals enumerated in the Virginia Tech Climate Action Commitment and Sustainability Plan adopted in 2009. Improving the environmental stewardship and reducing the carbon footprint of this enterprise—equivalent to a small city—is no small task.

At Virginia Tech, we pride ourselves on student involvement and developing leadership by “doing.” The new generation of students is hyper-focused on raising the environmental antennae of the campus community while helping to lighten the environmental footprint of campus operations. Working hand in hand with university administrators, these young Hokies are suggesting, analyzing, and evaluating options. This year, the Office of Energy and Sustainability nurtured 28 student volunteers in unpaid internships, providing hands-on learning, research, and analysis. This is particularly gratifying for me because I helped organize the nation’s first Earth Day celebration in 1970.

As I look across the figurative and literal campus landscape, I see many actions, large and small, making an impact. Ranging from complex energy load management programs to the use of energy-efficient light bulbs (thousands of them), the energy use per square foot of building space dropped 10 percent during the past four years. All campus buildings are now built to LEED (Leadership in Energy and Environmental Design) Silver standards or higher. But even new buildings create electrical and HVAC demands. How will we support campus expansion in an environmentally and cost-conscious fashion?

The campus food service gets high marks for sustainable operations. [Editor’s note: See the article about dining in the spring 2011 issue of Virginia Tech Magazine.] Under our Farms and Fields Project, we buy food from 25 local farms, as well as our own Kentland Farm. Trayless food lines have reduced food waste by about 35 percent in dining halls. Other food scraps and waste are collected by a local firm and converted to compost, diverting as much as 2.5 tons of food waste per week from the local landfill. With so many successes in university dining, The Inn at Virginia Tech is studying possible changes to its program.

While many of you may remember Blacksburg as a rural hamlet, the university’s parking and transportation problems are looking more urban. (Montgomery County is now Virginia’s second-largest county west of Richmond.) Innovative alternative-transportation solutions notched us one of those Governor’s Environmental Excellence Awards and designation as a Best Commuter Workplace by the Environmental Protection Agency. Support for vanpooling; the Smart Way Bus (Roanoke-to-Blacksburg commuters); the Bike, Bus, & Walk program; the U Car Share “instant car rental”; and the university’s prescient decision to help create the Blacksburg Transit three decades ago all contribute to reducing automotive impact on southwestern Virginia’s sylvan landscape.

With all these successes, hard decisions still remain in our future. As the campus expands, we also must consider future campus-heating solutions—and there are no cheap options. Green is not free. Requiring up-front investments, the return on investment for energy projects is often longterm and hard to calculate. As the world’s economies again pick up, commodity and energy prices are trending up for the long haul. Water resources and agricultural operations must be addressed. Looming against this backdrop is the continual erosion of state support, meaning that tuition must fund many modifications.

University operations must become more energy efficient and environmentally sensitive without breaking the bank and without significantly impacting the educational enterprise. Such are the “opportunities” for the 21st-century college president.

To read about the university’s many green initiatives, visit the campus sustainability website, www.facilities.vt.edu/sustainability.
8 | How Tech Ticks: The Raw Materials of Creativity
Around the clock, the Burchard Hall atrium buzzes with creativity as students in the College of Architecture and Urban Studies brainstorm ideas and craft new designs.

10 | Marc Edwards: Corrosion Man
When evidence began to mount that Washington, D.C. residents were suffering because of lead in the drinking water, civil engineering professor Marc Edwards began a one-man investigation into the issue—using his own time, money, and resources in a search for the truth.

12 | For What They’re Worth: How to weigh the rankings
As college-bound students and parents consider the more than 4,000 institutions of higher education in the United States, college rankings systems are one tool that’s immediately available. But how reliable are these ranking systems, and how can users ensure that they’re interpreting the data correctly?

18 | Diploma-Driven: At Tech, it’s in the books
With a graduation rate of 89 percent, Virginia Tech student-athletes are subverting the “dumb jock” stereotype. The Office of Student-Athlete Academic Support Services provides these hard-working students with whatever guidance they need, including tutoring, time-management tips, and navigating complex NCAA guidelines.

24 | The Second Wave of Wireless: How Virginia Tech researchers are forging the future of the field
The first wave of wireless technologies led to ubiquitous information. The second wave offers intelligence in radios and networks, promising the creation of electronics that can think and problem-solve. At Wireless@VT, the largest academic communications network in the nation, researchers have been shaping these waves for decades—and the best is yet to come.

36 | Nancy Perry Graham: ‘She dances it beautifully’
Nancy Perry Graham (psychology, Spanish ’77), editor-in-chief and vice president of AARP The Magazine, seeks to “move the needle on [the] image of aging,” challenging her readers while walking a tightrope of hot-button issues.

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On the cover: The radio waves carrying the wireless activity of yesterday, today, and tomorrow bear the stamp of Virginia Tech researchers. Learn more on page 24.
Letters to the Editor

Assuming research results?

[The winter 2010-11 edition’s announcement of a grant to study the impact of the Gulf of Mexico oil spill on the piping plover population] gave the impression that results were already assumed by the College of Natural Resources and Environment. I can appreciate why they might “anticipate” some adverse effects on the plover population given the original hysteria with regard to the spill and the total lack of knowledge concerning a spill of this type. However, to then assert that results of the study would be used by litigators “to base settlements for damage lawsuits” seems a bit premature. If I were a lawyer for the defense, I could certainly use such statements to cast considerable doubt on the objectivity and, therefore, reliability of the results and interpretations.

Cart Huffman ’64
Denver, Colo.

The college’s news release about the grant may be viewed at www.vtnews.vt.edu/articles/2010/11/110210-cure-plovergrant.html.

Opposable thumbs

I enjoyed reading the latest magazine, but couldn’t help but notice that the fork on the cover has an extra tine that I realize is supposed to represent the “thumb” in the No. 1. Must be the engineer in me that cannot help but notice the “anatomically incorrect” technical drawing representation. :-)

Luis Occena ’83
Columbia, Mo.

V.P.I. and pinecones

On the back cover of the winter 2010-11 edition of Virginia Tech Magazine is [an advertisement] about Virginia forest industries. I am enclosing a photograph of a pine log with two pinecones caught in the first year of growth. It belonged to my late husband, Robert Ripley Lemon ’50. My husband was very proud and happy to have this “Yule log” from his grandfather. I enjoy each issue of the magazine, and I remember our wonderful days together at V.P.I.

Mary Frances Y. Lemon
Lynchburg, Va.

‘Last call for growley!’

Your spring 2011 issue is loaded with goodies for us “Geezer Gobblers.” For example:

“Tech receives third Tree Campus USA recognition” (Around the Drillfield): Who remembers the gorgeous stand of old hardwoods replaced by the memorial Pylons? Probably only our era’s dendrology students.

“No frills to five-star”: “Last call for growley, sirs!” That was what we rats had to yell (three times) before we would march to the mess hall, sit, and otherwise enjoy the cuisine. The origin and spelling of “growley” was unknown to us.

Jack Markley ’51
Port Angeles, Wash.

Do you have something to say? Send us your thoughts at vtmag@vt.edu.

Corrections

In the spring edition, the birth announcement for Bibi Ghousheigui Dietrich’s son was printed without his birth date of Nov. 1, 2010, and Bibi’s spouse was incorrectly listed as an alumnus. Also, Kerry A. Brennan’s last name was incorrectly listed in a birth announcement and in a note about her degree in law and social work.
Office of Economic Development secures grant money for area businesses

Nine projects totaling more than half a million dollars for Southwest Virginia’s transportation-equipment manufacturing industry were announced by Virginia Tech’s Office of Economic Development. The grants provide funding to make industrial plants more efficient, fuel new product creation, or beef up company research-and-development efforts. The largest grant recipient is Volvo Trucks North America, headquartered in Dublin. Four smaller companies also competed successfully for the grants: Salem Vent, Imperial Group of Dublin, and Dynax America and Metalsa, both in Roanoke. The grants were issued under a U.S. Economic Development Administration project focused on Southwest Virginia.

In a two-step process, projects were approved by a committee composed of Virginia Tech faculty and others and then by a private-sector committee led by the New River Valley Planning District Commission.

Career Services reports rise in recruiting and hiring

Virginia Tech Career Services reported a dramatic increase in employer job listings on its job-search website Hokies4Hire. The site experienced a decline in 2009, averaging 246 job listings added per month. In 2010, the site gained an average of 452 new listings each month; and during the first three months of 2011, an average of 671 job listings were added per month. Today, more than 1,600 job, internship, and co-op listings are available.

Student wins timbersports competition

On March 18, Marty M. “Scooter” Cogar II, a rising senior majoring in forestry and environmental resource management, won the overall competition in the Stihl Timbersports Series Collegiate Southern Qualifier in Walkersville, Ga. He competed in the standing block chop, single buck, stock saw, and underhand chop against 13 representatives from other universities. To find out more, we snagged a few minutes with Scooter before a wood-sports demonstration on the Drillfield.

How did you start competing in woodsports?
I actually didn’t get a chance to start competing until I got to Virginia Tech. But my family all the way back to my great-grandfathers competed one way or another, so I’ve spent a lot of time training in West Virginia with family.

What is your strategy when you chop?
There’s not as much strategy [to woodsports]. You just have to react to how the wood’s cutting. If the wood’s real soft, then you can put more pressure behind it. If the wood’s not chipping well, you have to put in more hits. It’s about reading the wood.

What do you eat for breakfast before you compete?
I like boiled eggs and oatmeal.

What are the most common injuries in woodsports?
I would have to say elbow injuries. Tennis elbow is pretty common, but we wear protective gear to minimize risk.

Another woodcutter, George Washington, was famously honest. What was the last white lie you told?
How fast I cut a tree.

Are you going to win the national competition [at the Oregon State Fair in August]?
I’m going to do my dangdest.

To see video of Scooter practicing, go to www.vtmagazine.vt.edu
Tech develops safety ratings for football helmets

To reduce the risk of concussions, Virginia Tech released the results of a new rating system for adult football helmets. This biomechanical-impact data study on helmets represents the first time researchers have provided the public with comparative test results. Testing showed that the overall best helmet is the Riddell Revolution Speed, which earned the only five-star rating. Consequently, many Tech football players are switching to the safer helmet for the upcoming season, according to project director Stefan Duma, head of the Virginia Tech/Wake Forest University School of Biomedical Engineering.

Refugee project recognized with governor’s award

The Roanoke, Va.-based Virginia Tech Pilot Street Project/Coalition for Refugee Resettlement, which helps resettled refugees transition into their new home, recently received the 2011 Governor’s Volunteerism and Community Service Award. Through the project, Virginia Tech students volunteer in English classes, tutor students, and serve as mentors to individuals and families. Virginia Gov. Robert McDonnell presented the award to project manager Will Evans and the two student leaders of the Coalition for Refugee Resettlement program: Katherine Lodge, a junior majoring in political science with an African studies minor, and Brittany Gianetti, a junior majoring in biochemistry and biology.

Available on the site, Nationwide reports show that 53.5 percent of employers indicate that they plan to increase college hiring, according to the National Association of Colleges and Employers.

‘This I Believe II’ named 2011-12 Common Book

“This I Believe II: More Personal Philosophies of Remarkable Men and Women,” a collection of 75 short essays discussing philosophy, was selected as the university’s 2011-12 Common Book. The book resonated strongly both with members of the student body invited to review the book and with members of the Common Book Committee, comprised of staff and faculty members. In its 13th year, the Common Book Project offers students a common academic experience.

Burning down the house—for fire safety

On a rainy afternoon in April, two nearly identical residence hall rooms were set on fire. The difference? Only one of the rooms had a sprinkler system. Both rooms, built to code to resemble a standard Tech room—right down to the furniture donated by the residence halls—were part of an unusual experiment conducted in the name of fire safety. The project, a partnership between Virginia Tech and several area community colleges, provided participants with valuable construction and management experience while demonstrating to students and university officials the importance of sprinkler systems and obeying fire-safety regulations. To see video of the event, go to www.vtmagazine.vt.edu.

For these stories and more, check out VT News at www.vtnews.vt.edu. For a regular dose of news, sign up for the Virginia Tech Daily Email at the site.
The Virginia Tech Research Center—Arlington held a grand opening ceremony June 24. Located in the vibrant Ballston district of Arlington, Va., a short distance from many of the leading federal science and research agencies and many high-technology companies, the 144,000-square-foot center is also U.S. Green Council LEED-certified.

Arlington research center opens

For your next visit, remember Gowalla and Foursquare
Virginia Tech has partnered with geosocial networks Foursquare and Gowalla to help students and visitors explore campus. With the Foursquare app on your mobile phone, you can check in at more than 100 venues on campus, such as Newman Library, the Drillfield, or Cassell Coliseum. Meanwhile, the Gowalla tour features seven campus locales selected by way of a question on Virginia Tech’s Facebook page, asking alumni to name the top spot for taking a graduation photo. To see photos of the seven sites, visit www.vtmagazine.vt.edu.

Wildlife biologist lends expertise to NPR’s ‘Car Talk’
Not only does Kieran Lindsey direct the Natural Resources Distance Learning Consortium for the College of Natural Resources and Environment, she is now the official wildlife guru for the famed Tappet brothers, Click and Clack, on “Car Talk,” one of the most popular shows on National Public Radio. While hosts Tom and Ray Magliozzi know everything there is to know about cars, Lindsey is better suited to field questions about encounters with animals. Whether the issue is bats in the garage, escaped pet Madagascar hissing cockroaches, or deer-vehicle collisions, Lindsey will chime in to explain what listeners can do about their animal problems.

Students develop child-proof ignition lock for adult-sized ATVs

WVTF radio snags three regional awards

New agreement facilitates admission for discharged Marines

Video: How Tech is guiding environmental stewardship

Alumnus awarded Virginia Tech’s highest honor
John W. Bates III (business administration ‘63) received the 2011 William H. Ruffner Medal, Virginia Tech’s highest honor, in recognition of his loyal and enthusiastic support of the university. Among other roles, Bates has served on the
Virginia Tech Foundation Board of Directors and co-chaired the Richmond Regional Campaign Committee of The Campaign for Virginia Tech: Invent the Future. He has been a staunch supporter of the university before the Virginia General Assembly and has been active in the Hokies for Higher Education advocacy group.

Tech gives innovative roofing company a good foundation

A collaborative effort between two alumni brothers and Virginia Tech researchers is helping to improve building safety in severe weather.

Chuck (psychology ’70) and Pat (civil engineering ’81) Johnson are principals of Acrylife Inc., a Wytheville, Va., company in the roofing-systems business. After brainstorming alternative ways to secure rooftops, the brothers approached Virginia Tech for help with research and development.

The resulting system, V2T, is a foot-high plastic structure that has two domes connected by three narrow columns. Airflow is split, speeding up the wind that is forced through the vent between the two domes, which creates a drop in pressure. This low-pressure system prevents uplift and detachment of the roof membrane.

Building on the brothers’ initial idea, a team of professors and students, backed by funding from Virginia’s Center for Innovative Technology, helped develop the design, even testing prototypes in Virginia Tech’s stability wind tunnel and NASA’s full-scale wind tunnel at Langley Air.

Study explores link between meditation and decision-making

Combining two unlikely techniques—Buddhist meditation and functional MRIs—researcher Reed Montague is shedding light on the human decision-making process. Montague, professor and director of the Human Neuroimaging Laboratory at the Virginia Tech Carilion Research Institute and professor of physics at Virginia Tech, was perplexed by emotion-based choices versus those based on rationality.

Consider the following scenario: A friend or relative wins $100 and then offers you a few dollars. Would you accept this windfall? Studies have shown that only about one-quarter of people would. The rest would say, “But that’s not fair. You have lots. Why are you only giving me a few?” In fact, people will even turn down any reward rather than accept an “unfair” share—unless they’re Buddhist meditators, in which case, more than half would accept the offered amount.

Why? According to Montague’s research, the decision is impacted by the area of the brain in which the process occurs. Buddhist meditators use different areas of the brain than other people when confronted with unfair choices, enabling them to make decisions rationally rather than emotionally. The meditators had trained their brains to function differently and make better choices in certain situations.

Conducted by Montague, along with Ulrich Kirk, research assistant professor with Human Neuroimaging Laboratory; and Jonathan Downar, assistant professor with the Neuropsychiatry Clinic and the Centre for Addiction and Mental Health at the University of Toronto, the study was published in the April 2011 issue of Frontiers in Decision Neuroscience.

Read the full story at www.vtnews.vt.edu.

Shaky data, solid research: Worldwide quakes recorded in Virginia

The ground beneath our feet isn’t so solid. Seismographs in Richmond and Blacksburg, Va.—both operated by Virginia Tech—have recorded ground displacement from recent high-magnitude quakes. Martin Chapman, director of the Virginia Tech Seismological Observatory and associate research professor of geophysics in the College of Science, shared images with Virginia Tech Magazine. From each reading, we extracted 1,000 seconds of movement (or 16 minutes and 40 seconds), traced the lines, and approximated the displacement.

**Haiti**

![Graph showing ground displacement](chart)

Date: Jan. 12, 2010 | Richter scale: 7.0 | Site: Richmond, Va.
Wind ensemble thrills Kennedy Center audience

Under the dazzling chandeliers, the Virginia Tech Symphonic Wind Ensemble performed at the John F. Kennedy Center for the Performing Arts on April 18. This was the first-ever appearance by a music department ensemble at the Kennedy Center since its opening in 1971.

The ensemble, conducted by music assistant professor Travis J. Cross, delivered a 45-minute showcase performance in the Concert Hall as part of the Washington, D.C., International Music Festival sponsored by World Projects. The audience of several hundred included prospective students, band directors, alumni, family and friends, Virginia Tech music faculty, and Senior Vice President and Provost Mark G. McNamee. The performance received a standing ovation.

Written by Christopher David Klein, a senior majoring in professional writing.

The V2T splits airflow, creating a drop in pressure that secures rooftops in high winds.
A handful of student desks—some cluttered, some with stacks, and one obsessively neat—were particularly intriguing. Go to www.vtmagazine.vt.edu to see and hear the students describe the order behind the chaos of Burchard Hall.
So that we can examine the building blocks of creativity, freeze-frame the frenzy of Burchard Hall.

Late in the spring semester, creative chaos fills the two-story underground atrium, housing studio space for upper-level architecture and industrial design students in the College of Architecture and Urban Studies.

The raw materials of creativity coat the estimated 250 desks. A peanut butter jar lies sideways on the floor, near a container of ammonia. Elmer’s Glue is common, and one desk sports a Mr. Potato Head, half-dressed. Like a recently shoveled snowfall, scraps of cardboard are piled on the fringes of the walkways.

Burchard Hall is open 24/7, and students stay until the work is done. “Sometimes staring at your model all afternoon is the most productive thing you can do,” said Jim Bassett, assistant professor of architecture. “There really is no substitute for time at the desk. As a result, there is a culture of late nights and long days.”

Caffeine is ubiquitous. Empty soda bottles decorate desks, while shelves hold tea bags, sugar packets, and Red Bull. The long hours demand creature comforts. Many a desk is buttressed by the sort of pricey office chair found at Staples. Sunlight streams through the pyramid skylights above.

On the outskirts of the two-story atrium, workshops for metal, printmaking, ceramics, textiles, and more are mixed with meeting rooms and faculty offices. A smell of sawdust wafts from the woodworking shop. On the atrium floor, a circular classroom called a kiva presents students with a unique space for building upon each other’s ideas.

The atmosphere is pedagogical by design. “The culture of the school is evident in the space,” Bassett said. “Experimentation is highly valued. You see more false starts than arrivals. That’s actually encouraged. Design is complicated and complex and certainly doesn’t come out of any formula.”

“One of my roommates said [the space is] like Santa’s workshop,” said Karen Glass, a fourth-year architecture major who had been at her desk until 2 a.m. the night before. “You can imagine Santa coming in and saying, ‘Ten more days till Christmas!’”
“This is the greatest job in the world. I get paid to create new knowledge.”

Marc Edwards paused, as if the idea was still mind-blowing after 14 years at Virginia Tech. On the fourth floor of Durham Hall, he peered around his office and gestured toward campus.

“Amazing.”

Edwards, the Charles P. Lunsford Professor of Civil and Environmental Engineering in the College of Engineering, brings this level of enthusiasm to his research and teaching every day. Edwards’ verve has earned him a reputation—he was dubbed “The Plumbing Professor” by Time magazine in 2004 for his work investigating the prevalence of lead in Washington, D.C., drinking water.

Because lead had been discovered in water in D.C. homes in the early 2000s, the D.C. Department of Health requested in 2004 that the Centers for Disease Control and Prevention (CDC) help assess the impact on residents’ health. In response, the CDC issued a 2004 report in its Morbidity Mortality Weekly Review (MMWR) publication, indicating that elevated lead in drinking water adversely impacts blood lead levels (BLLs) and that lead concentrations must be monitored.

The report also states that homes with lead service pipes are older and therefore the residents are “more likely to be exposed to high-dose lead sources (e.g., paint and dust hazards).” Moreover, the 2004 report said that “no children were identified” with BLLs above 10 μg/dl (micrograms of lead per deciliter of blood) “even in homes with the highest water lead levels”—a statement the CDC itself termed “misleading” in a 2010 notice to readers.

Reading the statements in 2004, Edwards immediately questioned their validity. He had measured the levels himself in March 2003, when he was working on a pinhole leak in a private home. Lead in water is considered unsafe at 15 parts per billion (ppb), but the readings were so high that his handheld meter, whose scale reached 1,250 ppb, wouldn’t register the level. Knowing lead contamination inside and out, Edwards thought the 2004 CDC findings were impossible, and he started to investigate.
From discussions with residents and as the result of congressional subpoenas, Edwards knew that the residents tested by the CDC had been informed months to a year in advance that they should avoid tap water and drink bottled or filtered water. In Edwards’ assessment, the report nonetheless implied that residents drinking tap water were not at a greater risk of lead exposure. The report was deliberately misleading, Edwards said.

In a statement this June, CDC spokesperson Bernadette Burden said that the report may have been “confusing,” but the language wasn’t deliberate misleading. She pointed to the CDC’s 2010 notice to readers that explained that the 2004 report also should have referenced a separate study showing that children living in homes serviced by lead pipes were more than twice as likely to have elevated BLLs. Burden also noted a 2004 cross-sectional study of 201 residents in which 76 percent of respondents reported using tap water and 53 percent reported using a water filter.

In 2004, with anger and resignation, Edwards decided to challenge the CDC’s initial report. When most people might have given up, he just pushed harder, spending his own time and money on the research and putting his professional reputation on the line.

“The odds against me were, optimistically, one in 1,000,” he admitted. Though the fight cost him some old friends and industry colleagues, he gained new friends among D.C. residents. Edwards heard directly from several residents who knew their children were ill because of lead in water—not from other lead sources, as part of the CDC report suggested.

Edwards’ research continued through the mid-2000s. The tide started to turn in 2007, when he was awarded a MacArthur Fellowship, often called a “Genius Grant,” a no-strings-attached $500,000 grant to further his research. In 2008, a breakthrough finally came: The Children’s National Medical Center in D.C. shared its data, giving Edwards access to the levels of lead in D.C. children.

When Edwards finished analyzing the numbers, a clear correlation between the high lead levels in water and the children’s health problems emerged. Hundreds and probably thousands of children had suffered irreversible damage as a result of the lead poisoning. Edwards testified at congressional hearings critical of the CDC, and his paper on the subject won the Environmental Science and Technology journal’s Editor’s Choice Award for Best Science Paper of 2009.

While Edwards won this round of his monumental battle, he does not want the lead crisis to define him. “I try not to talk about it much,” he said. “I have other positive goals for my career and advisee research.”

His research now involves studying harmful bacteria in water heaters in private homes and pinhole leaks in pipes. He is also examining how water at a house closer to a treatment plant differs from water at points farther along the pipes.

After his battle with the CDC, he also found his research heading in an unexpected new direction. He won a Praxis Award in Professional Ethics in 2010 from Villanova University, and he teamed with D.C. resident Yanna Lambrinidou, who had assisted him in the fight against the CDC, on a proposal to the National Science Foundation to study research ethics. He called the field of ethics and scientific misconduct an interesting new world.

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Some might argue that few decisions are as significant and influential in one’s life as the choice of where to attend college.

Few choices are as liberating. For many high school students, the decision is the first time they have a say in where they go to school. Parents, too, proud and anxious, play a powerful role in guiding their children through the sea of options.

There are more than 4,000 institutions of higher education in the United States. As students prepare for the journey of applying to college, they are faced with an overabundance of information. One of the tools available to aid parents and students in this process is college rankings. Publications, including U.S. News & World Report, Forbes, The Princeton Review, and Washington Monthly, among others, offer various rankings systems. But this oft-confusing wealth of data can leave parents and high school students scratching their heads. Where does one begin?

**DECIDING FACTORS**

Larry Hincker, associate vice president of university relations at Virginia Tech, said college rankings should serve only as a jumping-off point in the decision-making process. “The thing to remember is that there’s no appreciable difference between No. 1 and No. 2 or between No. 25 and 35. You also have a lot of schools tied for, say, No. 25. But is there a difference between a school in the top 10 and one in the top 100? Yes,” said Hincker, whose two-decade role as chief of university communications means he has compiled and analyzed data for many rankings.

Hincker offered a few pointers for assessing these numbers. “It’s important to understand what’s being ranked.” Rankings systems place varying weights on faculty-student ratios, small class size, incoming student SAT scores, and a number of other factors. Rankings draw data from a number of sources, ranging from U.S. News’ peer-institution surveys to a Forbes survey that culled student evaluations from the popular websites RateMyProfessors.com and MyPlan.com. A recent Wall Street Journal survey took a unique approach by asking corporate recruiters which schools produced the most well-trained, well-educated graduates—in other words, those most likely to succeed once hired.
Hincker cautioned that some aspects of the undergraduate experience cannot be quantified: No rankings system can tell a student whether a large public university or a small, private liberal arts college will best fit his or her needs, or if the student will be happiest in an urban or small-town environment. In the end, the “fit” between student and school should drive the decision.

Robert Morse, director of data research for U.S. News & World Report, agreed that the rankings are meant to be only one part of the decision-making process. “They should be used as one tool, not the sole determining factor,” said Morse. “In fact, if they’re being used as a sort of line in the sand, then that’s the wrong use.”

“It’s one data point,” agreed Sue Magliaro, director of Virginia Tech’s School of Education, who estimates that the school spends about $250,000 per year on accountability-assessment expenses and who has expertise in the evaluation of educational programs. “If you’re really going to be a savvy consumer, you’re going to need to investigate quality more broadly and deeply.”

Ultimately, other salient factors should play key roles in the decision-making process. Daniel Wubah, vice president and dean for undergraduate education at Virginia Tech, said retention and graduation rates are important, as are opportunities for undergraduates to interact with faculty and conduct undergraduate research and creative work.

The quality of the student’s intended major at that institution should also be considered. “Campus visits are very important,” he added. “[Parents] get a feel for the culture of the [school], and [they] get an idea of how [their] student will fare.”

Outside of Virginia Tech, administrators at other universities echoed the need to understand how to interpret rankings.

“I’m not one of those people who says rankings are intrinsically evil,” said Henry Broaddus, associate provost for enrollment and dean of admission at the College of William & Mary. “But a person needs to use that information responsibly and make sure that the decision is based on...
personal considerations.” Broaddus added that he is surprised by how many prospective students, despite placing high importance on the rankings, aren’t aware of the methodologies being used.

In fact, some studies suggest that the rankings are far more important to parents than to students, noted Morse. Students might be more interested in campus life, such as student organizations, study-abroad opportunities, or campus dining options.

Nicole Lartigue, a rising high school senior, visited Virginia Tech for a campus tour in June. She said the feel of a campus and its people are more important to her than the numbers. “I want to study computer science, and I heard [there is] a great program here,” said Lartigue, who added that she doesn’t know Tech’s position in the rankings.

Lartigue’s mother, Michelle, accompanied her daughter to campus. She agreed that the campus tour is the best way to determine whether a school feels right. “We’re going to look at the rankings before we make a final decision, but it’s not a make-or-break deal.”

In addition, there’s one source of information that might give students the best indication of whether a university will be a good fit: alumni and current students. “You can’t beat hearing from someone who’s actually experienced [the university],” said Amy Widner, public relations coordinator for undergraduate admissions at Virginia Tech.

**Decoding Rankings**

One of the keys to navigating the rankings is simply understanding what is being ranked and from where the data was extracted. For example, Hincker noted, some rankings rely heavily on factors such as dollars spent, so those rankings tend to work in favor of wealthier schools. Other aspects must be considered, too. For example, U.S. News defines a “small” class size as 20 students or less, whereas many smaller classes at Tech and other universities are capped at 25. (It’s important to note that the U.S. News survey, as the granddaddy of college rankings, receives the most attention and, consequently, the most flak.)
For the U.S. News survey, the professional reputation portion accounts for 22.5 percent of a university’s rank. This category is based on how the institution is viewed by its peers, using data collected by peer surveys. While some believe that leaders may intentionally undervalue competing institutions in order to make their own institutions look better, Hincker found another potential downfall: Leaders at fellow institutions simply might not be aware of changes undertaken by a university in the past few years, so the peer surveys might not be reflective of recent developments.

On occasion, even the validity of a rankings system has been called into question. A ranking of teacher-preparation programs recently set into motion by U.S. News and the National Council on Teacher Quality drew the ire of many schools of education across the country. Virginia Tech’s School of Education was among 33 of the commonwealth’s 37 schools of education to elect not to participate in the study. “We’re all for accountability,” said Magliaro. “But it has to be a fair and credible assessment.” Among the criticisms of the study was that universities that opted out would receive a failing grade, and an independent review showed that the methodology would not be a credible way of assessing teacher quality, according to Magliaro. “Assessment should be pointed toward student outcomes, not inputs.”

The amount of time, money, and resources spent by many institutions of higher education to participate in these rankings is also significant. Hincker, whose office is just one of several that contributes data to the annual U.S. News ranking, estimates he spends about 10-20 hours yearly on that survey alone, as do other offices.

Now, universities are also coping with a growing number of rankings systems geared toward graduate school strengths. The systems tend to emphasize such factors as research capability, evident in faculty citation rates and other data, and are therefore viewed as key to attracting top graduate students from around the country and the world.

Where a college stands in the rankings often isn’t at the forefront of day-to-day life at most universities. “At James Madison University (JMU), the faculty and staff do not come to work each day motivated to improve our position within the rankings,” said Don Egle, director of public affairs at JMU. “Instead, we come to work focused on adding value to the university and creating a better place for our students. We’re always pleased to be included in the rankings, but rankings are not the primary focus at JMU.”

Nonetheless, rankings remain popular tools for prospective students and parents. In one month—March 2011—U.S. News’ Best Colleges Web page had 13.7 million page views. As millions of people access the publication’s rankings online, the number continues to climb.

Hincker advised, “Take every [ranking] with a grain of salt. Understand what is being ranked.” Faced with so many options for what will be a weighty life decision, students and their families need someplace to start—and rankings provide just that.

Senior English major Hillary May contributed to this article.
By stimulating economic development and creating jobs, Virginia Tech helps the commonwealth weather financial uncertainty and high unemployment. True to our roots, we’re using intellectual capital, research prowess, and collaborative resources to launch innovative enterprises that improve lives. Partnerships like the new Rolls-Royce jet engine plant in Prince George County, Virginia Tech Carilion School of Medicine in Roanoke, and Southside’s Virginia Institute for Performance Engineering and Research are all examples of how we’re boosting the economy and creating career opportunities never before available. In fact, Virginia Tech is responsible for more than 17,000 jobs and a $1.5 billion economic impact across the state. To learn more, visit www.vt.edu/impact.
The playbook: During coach Seth Greenberg’s eight-year tenure, every men’s basketball player who has remained in the program through his senior year has graduated. In May, Terrell Bell earned his bachelor’s degree.
At Tech, IT’S IN THE BOOKS.

DIPLOMA-DRIVEN

BY RICHARD LOVEGROVE

PHOTOS BY JIM STROUP
In discussions of how to help student-athletes struggling to stay academically eligible for National Collegiate Athletics Association (NCAA) sports, Martha Blakely doesn’t come to mind.

Blakely, a rising senior who plays on the Virginia Tech women’s tennis team, carries a 3.97 grade point average while majoring in chemistry and biochemistry with a minor in mathematics. She earned the 2010 Skelton Award for Academic Excellence in Athletics as the top female scholar-athlete at Tech and is an all-ACC academic tennis team honoree and a Goldwater Scholar, among other accolades. This fall, she plans to apply for a Rhodes Scholarship.

In fall 2010, however, Blakely faced the possibility that she would be declared ineligible to play tennis in spring 2011. Because she was concentrating on biochemistry and mathematics, she wouldn’t meet the NCAA requirement that she take six credits in her primary major, chemistry. “That was when our support system was put to the test,” Blakely said.

Virginia Tech Student-Athlete Academic Support Services (SAASS), working with the chemistry department, stepped in and convinced the NCAA that Blakely deserved a waiver. As a result, she stayed on track—academically and athletically. “I have great support,” Blakely said. “The chemistry department has been huge, and the athletic department has been huge.”

Whether they’re studying game film or for an exam, juggling a quick strike from a quarterback or a complicated semester schedule, student-athletes lead hectic lives. Support is essential, no matter the student’s sport or academic acumen, according to Jermaine Holmes (business marketing ’96, M.A. resource management ’98), SAASS director and a former Hokie football player. Student-athletes face initial and continuing eligibility requirements that are more intricate than those for non-athletes—as Blakely discovered—and they frequently live in a fishbowl, showcasing Virginia Tech for the public and managing the academic and social demands of college.

The balancing act can be challenging. “A lot of people just see … the Saturday football game or the Wednesday basketball game, so they don’t understand all the time and effort that goes into being a student-athlete,” Holmes said. “It’s basically like having two full-time jobs.”

Virginia Tech senior wide receiver Danny Coale knows the feeling. Normally, he’s up by 6:30 a.m. In a typical long day, he’ll go to class, watch game film, eat meals to keep fueled, lift weights, sit through taping sessions in the training room, attend position meetings, and, of course, sweat through practice. He’ll also hit the books during spare moments, as well as devote 10-15 hours per week to investment research as a member of Student Endowment for Educational Development, a student-run group that manages a multimillion-dollar portfolio for the university’s endowment. At the end of what most would consider a grueling day, Coale returns to his apartment by about 9 p.m.—only to face more schoolwork.

“It’s the last thing you really want to do,” Coale said of late-night homework. “You just want to sit on the couch and watch TV and relax. But when you come in as a freshman … they teach you to manage your time.” Coale has managed...
his time well enough that he earned a degree in finance in December 2010. He red-shirted his freshman year, so he’s staying for a fifth year to complete a degree in marketing—and a fourth year as a starting wide receiver.

SAASS is the primary university entity that helps Coale, Blakely, and 520 other Virginia Tech student-athletes learn how to budget their academic, athletic, and social time and keep up with the NCAA’s intricate rules. As a collaboration between the athletics department and the provost’s office, SAASS is funded by both the university and the athletics department. Years ago, according to Karen Eley Sanders, the university’s associate vice president for academic support services, the athletics department handled all interactions with athletes, “but we moved to a different model, and we think it’s an appropriate model. Our system is working. Our student-athletes are performing academically. … They are students first. They came to Virginia Tech to advance their education.”

When Holmes attended Tech in the 1990s, academic support for athletes consisted of two employees and a handful of tutors jammed into some small rooms in Cassell Coliseum. Now, 11 employees and 80 to 100 tutors in an 18,000-square-foot facility on the west side of Lane Stadium offer 8,000 annual hours of tutoring, daily study halls, mentoring to teach student-athletes how to balance demands, and a gleaming computer lab. The improvements were fueled partly by the growth in athletics, partly by a desire to see students-athletes improve academically, and partly by recent and stricter NCAA regulations that track the progress of individual athletes and whole teams toward degrees.

“[The improvements] definitely have been a change, and I think it’s helped our student-athlete population tremendously,” Holmes said.

While the facility for student-athletes is unquestionably convenient and comfortable, the services offered are generally the same as those provided to other populations, such as first-generation college students, Corps of Cadets members, or students who are, for instance, struggling with math, said Sarah Armstrong (human development ‘03), SAASS associate director and advisor for football.

“We offer (student-athletes) a one-stop shop with the NCAA component in there,” said former Hokie swimmer Katie Cross (political science, communication ‘97), SAASS associate director and advisor for men’s and women’s basketball and volleyball.

Cross knows that college athletes constantly battle stereotypes, none more persistent than the myth that all “jocks” are on campus for sports and little else. But she sees all types taking advantage of SAASS. “[The services are] not just for students who need help,” Cross said, “[but] for the students who have some big goals they want to accomplish, and for students who want to make sure they get an ‘A’ in their class.”

In fact, according to the NCAA, student-athletes traditionally graduate at rates higher than the overall student body. Tech’s rate was 89 percent for the freshman class of 2003-04, well above the national rate of 79 percent for student-athletes. The football team’s 79 percent rate was the fifth highest among the top 25 schools in the Bowl Championship Series standings.
“Not competing in the classroom is not an option. We want them to leave Virginia Tech with the total experience, and a degree is part of that.”
— Seth Greenberg, men’s basketball coach

“Our student-athletes are just as academically talented as the rest of the undergraduate student body,” said Sanders.

Hasheem Halim, who won the ACC outdoor triple jump title this spring and went on to place fourth at the national championships, knows about the stereotypes. He came to Virginia Tech to study architecture, an exceedingly difficult major to juggle with athletics. He’s rarely home except to sleep. His coach allowed him to start practice late to accommodate studio time for architecture and the architecture department also cooperated.

“I really had to communicate with my teachers and get a different plan than other students,” he said. Still, Halim said, some people connected with athletics were discouraging about the demands of the major, and “sometimes in the architecture department, people don’t think I’m really an architecture student. People do ask me if I came here for track. I don’t know what they’re thinking.”

Blakely and Halim demonstrate a key point of which Tech’s student-athletes are well aware: For most collegiate athletes, a professional athletic career isn’t on the horizon.

The numbers from the NCAA tell the story. Of approximately 540,200 high school students playing men’s basketball, only about 44 of those students eventually will be drafted from college into the pros. About 66,300 of more than 1.1 million high school football players will make it to the NCAA, level, and each year about 250 will move on to the pros. Of six sports highlighted by the NCAA report—men’s and women’s basketball, football, men’s soccer, baseball, and ice hockey—the percentage of high school players who eventually earn a shot at the pros ranges from 0.03 percent to 0.44 percent.

“I believe that most athletes understand that they will not move on to the professional ranks, so we spend a good amount of time talking about how to prepare for the real working world—for example, internship experience, networking, résumé preparation and interviewing skills, and how to sell themselves as athletes,” Holmes said.

Head basketball coach Seth Greenberg is aware of the odds. When he and his assistants are recruiting, there’s one question they always ask: How much
does the student value earning a college diploma?

Because of that emphasis on athletics and academics during Greenberg’s eight-year tenure, every player who has remained with the program until his senior year has walked away with a degree.

“It’s a big part of who we are,” Greenberg said, who praises Tech’s SAASS and its facilities as among the top in the country. “Not competing in the classroom is not an option. … We want [student-athletes] to leave Virginia Tech with the total experience, and a degree is part of the total experience.”

And just like other young people off on their own for the first time, student-athletes will sometimes waver, Greenberg said. “It’s no different from the kid in a fraternity or a club. … [We] hold the kids accountable.”

Star basketball forward Erick Green went to private school for a year to prepare for both college athletics and academics, and although he thought he was ready, he acknowledges that he struggled some his first year. “I felt like, hey, I’m out here, and I’m playing basketball, and I wasn’t as serious [as I should have been],” Green said.

The support system helped turn his academic outlook around, but Green also had to show the initiative. “They can tell you [what you need to do], but they don’t do it for you. You’ve got to do it yourself.

“To be honest, I’ve grown up,” Green added. “I know that one day basketball’s going to end.”

“There is always room for improvement when you talk about performing academically,” Holmes said of Tech’s academic support efforts. “In a perfect world, we would have 100 percent retention and graduation rates across all of our sports. In the meantime, we will continue to push our student-athletes to perform at the highest level possible.”

Richard Lovegrove is an editor for Tech’s Marketing and Publications unit.

To hear Tech student-athletes describe SAASS and their paths toward graduation, check out the video at www.vtmagazine.vt.edu.
The next frontier: Researchers are teaching a community of 48 cognitive radios to seek each other out and cooperate. In the field of wireless technology, intelligence is the second wave.
In the control room for a network of 48 cognitive radios spread across four floors of a new building on the Virginia Tech campus, a postdoctoral researcher likened the evolution of wireless technology to the progression of life forms—from single-celled creatures to complex organisms.

In evolutionary terms, radios today are developing brains. The cognitive experimentation is under way via Wireless@VT, the nation’s largest communications-network research center. The progress is most evident in the cognitive radio test bed, the first network of its kind at any university in the country, which is housed in the Institute for Critical Technology and Applied Science’s (ICTAS) newest building at the corner of Stanger and Old Turner streets.

Haris Volos, a postdoctoral associate with Wireless@VT, demonstrated the cognitive system at its most basic level, showing a video of a student purposely interrupting communication between two radio nodes in the 48-node system by changing channels on a store-bought hand-held radio. In response, the cognitive system automatically switches frequencies, from channel 7 to channel 8, back to 7, then to 14. “For us, this [demonstration] is rudimentary, very basic,” Volos said, “but it captures the essence.”

The system recognizes, adapts, and remembers. This intelligence is the next frontier in radios and networks. With smarts comes socialization. “We approached this network like you would approach a community of animals,” said Charles W. Bostian, Alumni Distinguished Professor Emeritus of Electrical and Computer Engineering. “First, we teach the radios to seek others of their own kind and recognize their environment, thus creating a network. Then our team teaches the different cognitive radios to work together.”
Like living creatures, the radios are aware of their surroundings and understand capabilities and limitations. Intelligence in a cell phone or police radio allows the device to determine the best way to operate in any given situation. Instead of following a set of predefined protocols, as regular radios do, cognitive radios configure to their environment and their users’ needs.

“Every cognitive radio has a knowledge base it has learned over time. Now, our research makes it possible for all cognitive radios to be connected in a network where that information can be shared in what we characterize as a cognitive network,” said Bostian.

For a number of reasons, cognition will be critical for the second wave of wireless technology.

The second wave

The first wave of wireless development, stretching from the late 1980s into the late 2000s, was characterized by the proliferation of data. Today, wireless technology is gathering its strength for a giant leap forward, and Virginia Tech is the launching pad.

Wireless activities—encompassing cell phones, machine-to-machine communications, Wi-Fi, short-range data communications, multimedia distribution, public safety, and military applications—are exploding. The second wave will mean wireless all around us, in cognitive radios, smart grids, augmented or enhanced reality, precision agriculture, smart and cognitive phones, self-organizing networks, and digital-signature algorithms.

The implications are hard to overstate. Globally, the second wave of wireless will be a “disruptive technology,” said Jeff Reed, director of Wireless@VT and an icon in the field of wireless technology. Wireless access in even the most remote third-world areas will allow these regions to skip the hefty infrastructure costs of wired access and accelerate the social and economic trajectories of the world’s poorest countries. Cognitive radios will send more consistently secure signals, aiding greatly in military intelligence. Smart phones will enable commerce, while smart grids will support energy efficiency.

The unrest and collapse of countries such as Egypt in the early part of 2011 serves as an example of this acceleration. “Who knows how many Einsteins might be living in the deserts of Egypt who could really excel” as they grab hold of the second wave of wireless, said Reed, the Willis G. Worcester Professor in the Bradley Department of Electrical and Computer Engineering.

The future will build upon the first wave’s primary achievement: ubiquitous information, Reed said. This expansion of information irrevocably altered the conduct of global communications and commerce. Video delivery over the Internet, including YouTube and Netflix, is currently the largest and fastest-growing use of wire-line transmission bandwidth and could become the largest use of wireless as well. In 2009 alone, there were some 7 billion application downloads.

Reed noted that the iPhone alone increased AT&T’s data load 80 times over. “Mobile data traffic will increase some 450 times between 2005 and 2015. The spectral efficiency doubles every 18 months,” he said.

In other words, there is backbreaking congestion on the Internet superhighway. As a result, researchers are tasked with alleviating the bandwidth problem.

The spectrum needed to carry the additional traffic currently exists, Reed said, but due to current government-regulated allocations, this space is off-limits to wireless providers, especially in the United States and other developed countries. At Rutgers University, the Wireless Information Network Laboratory (WINLAB) and its director, Dipankar Raychaudhuri, are collaborating with Tech researchers on a major federal research initiative to study technologies for efficient, or “dynamic,” spectrum access.

Raychaudhuri described spectrum as a finite resource, the only component of the wireless equation that cannot be enhanced by buying more equipment and developing new technology. Spectrum allocated for a specific purpose—for example, military and emergency communications—could be shared with secondary users when dormant. Cognitve radios will sense the environment and allocate spectrum appropriately.

(The video shown by Volos, in which the cognitive system switches frequencies, is a simple example.) In its earliest stages,
dynamic spectrum access is “something that Virginia Tech has been quite active in,” Raychaudhuri said, adding that it is a common goal for WINLAB and Virginia Tech, and something we look forward to cooperating with them on.

Along with spectrum efficiency, new avenues for the next generation of wireless are being considered. Television whitespace is an example of untapped bands of the wireless transmission spectrum. These bands, especially between the 50-700 megahertz frequencies that now go unused, could be available for broadband wireless communication. Also, the introduction of femtocells, small cellular base stations designed for use by a homeowner or a small business, can connect users to a service provider via broadband.

Reed has proposed a new model for service providers in developing countries. Low-cost 4G femtocells and cellular modems can be located in small rural communities and powered by renewable energy resources. The femtocells are then connected back to the wired network using low-cost unlicensed whitespace devices. In the research stages now, the model could be ready for deployment in several years, Reed said.

Residents of developing countries will then have access to telemedicine, remote education, and micro-finance, all of which hinge on a communications infrastructure,” Reed said, while providing “developing nations with a way out of investing in and building expansive and costly communications infrastructure.”

Reed predicted the second wave of wireless technologies will reshape the way humans perceive and interact with each other and the world around them. If pioneering companies adjust their business models, the new wave could make expansion of broadband and wireless technologies into developing nations far more efficient and profitable.

“In the repair business, think of the common occurrence of a jam in a copy machine,” Reed said. “Rather than call a service person to the site, the operator can point a cell phone camera at the machine, send the picture to the supplier, and a fix would be transmitted back, all via wireless technology. The intelligence might be in the network, the phone, or the copy machine.”

A powerhouse of wireless research

In the Wireless@VT lab in ICTAS, the cognitive radio system enables Reed and others to implement and test their algorithms, protocols, applications, and hardware technologies that support whitespace communications. Most importantly, these tests now occur in a live environment, rather than computer simulations or one-to-one radio interactions. Researchers are hard at work improving the cognitive radio’s smart engine, which drives the radio’s ability to monitor its own performance continuously, read the radio’s outputs to determine the radio frequency, channel conditions, and adjust the radio’s settings to deliver the needed quality of service,” Reed said.

By incorporating cognition into radio and network operations, “we can make efficient use of the spectrum, achieve rapid deployment, lower maintenance, and provide network security,” Reed said. Given the scope of tomorrow’s wireless networks—in effect, a blanket of wireless access coating the Earth—automated thinking and learning will have to control the connections. Ahead of this scenario, Tech researchers are figuring out how.

In the first phase of wireless development, the devices did not generally have access to unutilized processing power and information on equally similar nodes. “The advent of self-organizing distributed ad-hoc networks has improved the interaction and collaboration among nodes,” Reed said. “More recently, radio devices for communication have been applied to collect and process sensor information, such as environmental data, which can then be shared with other nodes.”

According to Roop Mahajan, ICTAS director and the James S. Tucker Professor of Engineering, “The potential for development and refinement of research-based findings through the institute’s test-bed installation is an outstanding example of the kind of impact that this institute was created to inspire and support.”

Tamal Bose, associate director of Wireless@VT and a professor of electri-
The thinkers: In the hallway ceiling above these wireless researchers, cognitive radios are at work. Researchers are, from left, Wireless@VT Director Jeff Reed and Associate Director Tamal Bose, Dan DePoy, Haris Volos, Dinesh Datla, and Barathram Ramkumar. Volos is a postdoctoral research associate; Ph.D. candidates DePoy, Datla, and Ramkumar are graduate research assistants. Above, DePoy adjusts the antenna on a cognitive radio. Each one of the 24 servers seen behind the researchers acts as the brains for two cognitive radios.
cal and computer engineering, agreed. “Many of our proposals have capitalized on the test bed as a valuable infrastructure for research. In fact, several proposals have been successfully funded as a result of it. This unique and important infrastructure has positioned us very well as a leading research institution in wireless communications.”

Case in point: The premier electrical engineering journal, The Proceedings of the IEEE (the Institute of Electrical and Electronics Engineers), invited Tech researchers to publish a 2009 paper, “Cognitive Radio and Networking Research at Virginia Tech.” In it, the authors cited a handful of other noteworthy university research efforts, such as Georgia Tech and the aforementioned WINLAB at Rutgers.

Rutgers’ Raychaudhuri said Virginia Tech’s wireless efforts are evidence of the time and investment necessary to influence the field. “There was a particular mass of expertise,” he said of Tech’s early years. “That has continued, and new faculty members have become involved over the years. We have good relationships with all the universities specializing in wireless. It’s a friendly community. Virginia Tech is in the front rank of wireless research centers nationally.”

Another top-tier academic research operation is Georgia Tech’s Wireless Systems Laboratory in the School of Electrical and Computer Engineering. Director Gordon Stüber spoke highly of Virginia Tech’s most notable wireless names, such as Theodore Rappaport, now at the University of Texas at Austin, for his work in propagation (defining how radio waves move and how they are distorted), and Reed and others for expertise in software-defined radio and cognitive radio. Virginia Tech “certainly has a good reputation,” Stüber said. “They do good work.”

This powerhouse of wireless research at Virginia Tech is attracting nearly $10 million per year in research funding. Since 2005, the wireless group has received funding from the U.S. Air Force, National Institute of Justice, National Science Foundation, Office of Naval Research (ONR), U.S. Army Research Laboratory, Defense Advanced Research Project Agency (DARPA), Electronics and Telecommunications Research Institute, and other organizations.

Santanu Das, an ONR program officer, has worked directly with Virginia Tech researchers. “ONR recognizes the significant contributions and benefits stemming from university partnerships and research initiatives,” Das said in a statement. “With naval tactical communications mostly wireless in nature, ONR seeks and draws upon world-class research from groups such as [the researchers at] Virginia Tech, who are noted for leading-edge contributions in areas of radio and networking technologies.”

In the midst of these game-changing technologies, the international concern about network security remains. Tech researchers are working on this quandary with funding from DARPA and ONR. Reed, Bose, Madhav Marathe of Virginia Tech’s Virginia Bioinformatics Institute, and a team of graduate students are developing a new technique for security called wireless distributed computing.

The researchers said that the advanced concept will perform computationally intensive applications, such as geolocation, coordinated jamming, distributed sensing, and real-time image processing.

With a wireless channel between nodes, the distributed computing problem becomes very complex. Depending on the condition of the wireless channel, researchers are determining whether the complex computations to process data can be executed locally on a single radio node or in a distributed manner on a collaborative radio network such as the one in the on-campus ICTAS facility. This collaborative approach can benefit and assist radios with limited computational power, such as handheld radios, cell phones, or unmanned aerial vehicles. Devices based in aerial vehicles, for instance, could form a network that captures images of ground activity and compresses the images before transmitting them to a warship.

**Foundational research**

Overcoming challenges is a mainstay of the university’s wireless group. Over the past four decades, the work of Tech engineers in this burgeoning field has served as the technological basis for companies such as Direct TV, Iridium Satellite, and Globalstar, Reed said. Beginning with their first NASA-funded project in 1971 and continuing through the 1990s, Bostian and Warren Stutzman, both professors emeriti in the electrical and computer engineering department, led Tech’s satellite communications efforts, building ground stations for global satellite communications and characterizing the propagation environment. Rappaport’s work proved key to understanding cellular instrumentation, emergency 911 geolocation, and more. “The work they started impacted standards and real sys-
tems used by industry and government,” Reed said.

A defining moment for the Virginia Tech wireless group came in 1993 when Reed was one of the researchers to land the group’s first major funding from DARPA, a $1.7 million contract to develop a revolutionary approach to wireless communications. The Hokies combined new technologies in computer chips, antennas, and digital signal processing in a novel way, eventually allowing wireless devices to be extremely small, yet able to adapt to interference in a radio channel. They accomplished their goals and showed an order of magnitude increase in the number of radio devices that could share a single radio frequency, thereby increasing the capacity of wireless users in a specific region of space. This award started the long-standing relationship between Virginia Tech and DARPA that remains in place today.

Quickly taking the form of viable business models, Tech-based research paved the way for consumer products. Companies emerged, including the first wireless communications company in Blacksburg, TSR Technologies, which later was sold to Grayson Electronics. In 1998, a second spin-off, Wireless Valley Communications Inc., was founded and later sold to Motorola for $30 million.

Within a few years, some of the technologies that Virginia Tech had developed included SIRCOM, an indoor channel modeling program; CELLSCOPE, a technology that identifies a person using a cellular phone; SMT, a site-modeling tool for indoor communications that led to the Wireless Valley Communications formation; Stallion, a high-performance computing device for handsets; and Interactive Video, a wireless mechanism for users to order products they see advertised on TV. In the past couple of years, new companies, such as Cognitive Radio Technologies and Power Finger Printing, have spun out of the research group.

Some of the other wireless projects the various Tech groups were working on are commonplace today, such as Bluetooth technologies that enable indoor location; software radio for wireless communication interoperability; smart antenna technologies to eliminate co-channel interference; and advanced wireless modems to support remote computing and high-speed wireless access to the Internet. Researchers were instrumental in the improvement of cellular communications to prevent co-channel interference and reduce power consumption, and they developed the experiments and testing methodologies that today allow 911 callers to be located. Tech researchers were working on Global Positioning Systems, originally hatched as applications for emergency vehicles, more than a decade before the systems became popular Christmas presents for directionally challenged drivers.

From the cognitive radio test-bed control room, Volos showed a second video, demonstrating the radio nodes’ ability to locate a moving radio. Embedded in the ceiling, the nodes tracked a small Motorola radio held by a student walking down the hallway. As the student ambled farther away, the node nearest the radio detected the strongest signal strength. The nodes lit up sequentially, whispering to each other about the individual’s presence.

Volos described how radio waves perceive the walls of ICTAS as semitransparent, even when the exterior walls are clad in Hokie Stone. Emanating in omnidirectional fashion—circularly, like a donut—from the radio nodes within, the waves cooperate internally and push their findings outward, just like Tech’s wireless experts.

Constantly conceiving, creating, and deploying new technologies, researchers at Virginia Tech are shaping the wireless wave that will dramatically alter social, cultural, economic, and military landscapes the world over.

Lynn Nystrom is the College of Engineering’s director of news and external relations.

To take a video tour of the cognitive radio test bed, go to www.vtmagazine.vt.edu.
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BUILDING ON TRADITIONS

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This spring, the university announced the largest single donation in its history and its largest bequest ever realized.

The two gifts, both directed to the College of Engineering, totaled more than $42 million. Virginia Tech President Charles W. Steger announced them, as well as a separate $3 million commitment of support for engineering, at an April press conference.

“These three gifts, along with many others received since 2003, when we launched our $1 billion Campaign for Virginia Tech: Invent the Future, demonstrate how private support provides a margin of excellence for our institution,” Steger said prior to the press conference. “This new building, as well as the many new scholarships and faculty-assistance funds provided by donors over the life of our campaign, are helping our largest college to raise the bar even higher for engineering education in Virginia.”

On an extraordinary day for the university, Steger disclosed that an anonymous donor had committed $25 million toward the Signature Engineering Building.

“The monetary value of such a gift is tremendous, but equally important is that a gesture of this magnitude is certain to inspire all who support our programs and those who will reap the benefits of the world-class education that our College of Engineering provides,” he said.

Steger also announced $3 million for the project from the Quillen family of Southwest Virginia, and receipt of more than $17 million from the estate of Robert E. Hord Jr., of Richmond, Va., who died in December 2010.

Hord (mechanical engineering ’49, M.S. power and fuel engineering ’50) directed his gift to the mechanical and chemical engineering departments, both of which will have space in the...
Signature Engineering Building. The Quillens’ support was led by alumnus Michael J. Quillen (civil engineering ’71, M.S. ’72), of Bristol, Va.

Considered the top priority in Virginia Tech’s capital construction plan, the Signature Engineering Building is expected to draw $50 million in state support and $50 million in private donations for its construction. The current plan is for a four-story, 153,000-square-foot building near the corner of Prices Fork Road and Stanger Street.

College of Engineering Dean Richard Benson said the new building is essential to address growing enrollment demand, particularly at the undergraduate level. He said the college would like to admit more students but needs better and bigger facilities.

Many companies rely on Virginia Tech for engineering talent and so support the proposed project as way of ensuring a highly qualified workforce in the commonwealth, said John Sparks (mechanical engineering ’74, M.S. ’76, Ph.D. ’81). Sparks appeared with Steger and Benson at the gift announcement. He has lobbied for state support of the Signature Engineering Building and is a director at Aerojet, a major space and defense contractor with two locations in Virginia.

“We in industry need a large supply of bright, creative, hit-the-ground-running engineers, the type we get from Virginia Tech,” Sparks said.

Albert Raboteau is a writer for University Development.

For more information on the Signature Engineering Building, including floor plans and interior and exterior renditions, visit www.eng.vt.edu/signaturebuilding.

Highlights of the Signature Engineering Building include:

- 153,000 gross square feet
- Eight new classrooms
- More than 40 instructional and research laboratories
- More than 150 offices for faculty, staff, and graduate students, including conference rooms
- 300-seat auditorium for large lecture classes and presentations
- First-floor café serving students, faculty, and staff
- Third-floor communications center for the engineering education department
- A project goal of obtaining LEED silver rating as defined by the LEED Green Building Rating System for New Construction and Major Renovations
For Virginia Tech’s Department of English, the best day of the year is the day of the Undergraduate Research Conference.

This year, more than 45 students from across the university shared their research with an audience of faculty, parents, English department alumni, and fellow students. The presentations covered a variety of subjects from Charles Dickens to Robert Frost, African-American literature to popular culture, document design to poetry.

Research, often understood to be a solitary endeavor, finds its fullest expression when discoveries are shared with others and opened up for discussion and collaboration. Accordingly, research conferences such as this one help undergraduate students discover and develop their voices.

One participant, Jessie Cohen, came to Virginia Tech with plans to major in biology. She made the jump to English in her sophomore year, however, when she realized she spent more time reading the work of Nobel Prize-winning writer Derek Walcott than her biology textbooks.

Initially nervous about being an English major at a large technical school with comparatively little funding for the English department, Cohen found that the professors in the department surpassed her expectations. “To put it simply, my teachers are superheroes,” she said. “Not only have they taught me how to think and write critically about literature, but through their generous support and encouragement, they’ve helped me to recognize my own potential as a student and future teacher.”

In May, Cohen traveled to Miami to present her paper about the implications of female sexual expression and repression in “The Bluest Eye” and “Sula,” both by Toni Morrison, at the ACC Meeting of the Minds. The annual conference allows undergraduate students in the Atlantic Coast Conference to highlight research excellence and to share their work with peers.

Donations from friends and department alumni help make opportunities such as these possible. The department uses gifts to produce the Undergraduate Research Conference, as well as to help students travel to national conferences.

It’s easy to assume that only endowments and scholarship funds matter. But modest gifts can make a real difference to students who are able to expand their academic horizons because of such generosity. “Without such funding, opportunities for students to present their research would be in short supply,” said Rachel Holloway, the conference’s keynote speaker and associate dean of undergraduate academic affairs in the College of Liberal Arts and Human Sciences. “It is these kinds of opportunities that help make the Virginia Tech experience truly special.”

Amy Ostroth (M.A. English ’97) is publications editor for University Development.

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It didn’t dawn on Nancy Perry Graham (psychology, Spanish ’77) that, about five years ago while serving as the deputy editor of AARP The Magazine, she became eligible for membership in AARP.

Why? Graham is too busy dancing—at times, literally—to prove to an estimated 47 million readers that they’re never too old to make their lives what they want. Now the magazine’s editor-in-chief and vice president, and one of the primary public voices for an organization with tremendous clout, Graham is supremely focused on her goal “to move the needle on [the] image of aging”—so focused that her 50th birthday wasn’t going to deter her.

In a recent editor’s note, Graham challenged her readers with “What would you do if you weren’t afraid?”—a line from the book “Who Moved My Cheese?” Just what would Graham do? In her 50th year, she and her husband adopted their third child. (Her three children—5, 9, and 12 years old—live with her in Ashburn, Va., close to her D.C. office.) Recently, she jumped at the chance to team up with Corky Ballas, a ballroom-dance champion and occasional contestant on television’s “Dancing with the Stars,” to learn the jive in just three hours. On the occasion of the dance instructor’s 50th birthday, the routine became an online video for magazine readers.

If she wasn’t afraid, Graham said with a laugh, she’d “probably lobby harder” to become a “Dancing” contestant. And, though she relishes her role with AARP now, she likes the idea of someday teaching at a university or writing a book. She would even consider running for office or filling a White House appointment, should such an opportunity arise.

A big-picture thinker

Whatever the future holds, Graham’s professional background broadens her options. Her career spans such magazines as Fortune, Money, and People—venues that are seemingly
incongruous but which, when combined, mirror her interests in politics, business, and entertainment. Graham possesses an innate ability to master policy on any given topic, said Frank Lalli, the former editor-in-chief of Money, who, impressed by Graham’s enthusiasm, hired her as senior political editor at the publication in 1994.

While at Fortune from 1983-94, Graham immersed herself in covering Department of Defense intelligence issues. Once at a pre-party gathering for the White House Correspondents’ Dinner, Lalli watched Graham debate then-Chairman of the Joint Chiefs of Staff Colin Powell. Powell made his points and walked away, only to return with a “by the way” and re-engage Graham for another 10-15 minutes.

“Very seldom does a journalist go nose-to-nose with the [chairman of the] Joint Chiefs of Staff,” Lalli said. “But that’s Nancy. In my eyes, she won the debate. In my eyes, she made very strong points.”

Lalli said Graham excels by understanding power, politics, and policy, and then, most importantly, how to move beyond the problems and prescribe solutions to affect change. Covering public education for Fortune, Graham recognized that schools were failing to produce prepared graduates, and she demonstrated the need to fund magnet schools, early childhood education, and the 2+2 concept (community college followed by university courses). She even advanced the conversation by leading education panels in Los Angeles and elsewhere, and running an annual Fortune education summit in D.C. The result? More funding for those three initiatives and other key areas of need.

“She deserves some credit for that [funding],” Lalli said. “Those were seminal articles she did at Fortune. She’s done that kind of thing over and over. And now she’s one of the leading experts in retirement issues.”

Graham seems to welcome the pressure of a challenge. Lalli took note of the dance Graham chose to perform with Ballas—the jive.

“A decisive leader

Whatever the opportunity, Graham seems to have a knack for gracefully leading others through delicate situations. Last fall, staff at AARP The Magazine grappled with the opportunity to put former President George W. Bush on the cover. His memoir, “Decision Points,” was coming out, and Bush’s camp approached Graham about an “exclusive” for AARP to land the sole national magazine interview.

“It was a very emotionally wrenching process because people were really concerned about Bush’s policies,” said Marilyn Milloy, the magazine’s deputy editor. “It seemed to a lot of people that we were giving him a platform.” Timeliness was also a factor because other media outlets would discuss the memoir before the magazine reached its readers.

Guided by the feedback, Graham moved to receive assurance that Bush would reserve specific topics for AARP. She also developed a strategy to get aspects of the AARP story onto the Web to create buzz without being late to the overarching story.

“It’s safe to say she was very much a minority among her own staff,” Milloy said. “She saw what it could be, and she dealt with the timing issues and made sure the piece didn’t come across as fawning or overly aggressive.”

“I will take all the credit—or the blame—for the decision to put George Bush on the cover,” said Graham, who conducted the interview at Bush’s Texas home. “There was dissension in the ranks. It was kind of intense, but I really felt in my gut that it was the right thing to do. I’m still getting some angry letters [from readers]. Whether people like him or not, he’s still a fascinating historical figure.”

All the while, Graham never alienated her staff with her decision. Milloy described a manager who is adept at balancing constructive criticism with all-out fun. “She’s tough. She’s a real taskmaster, but really quite brilliant at getting the most out of her staff. Everybody loves her,” Milloy said. “You can never stay mad at her. She’s got a fast wit, and sometimes we’re just on the floor.”

Creative direction

Graham said that her four years in Blacksburg fostered close friendships, helped her overcome fears and insecurities, and built up her confidence. The collegiate experience cemented her sense of optimism before heading into the world. “In addition to being four of the happiest years of my life, it was such a nurturing place. It gave me confidence for everything I’ve done since,” Graham said.
After college, several years in computer marketing and cash-management marketing convinced Graham of her creative leanings. In New York City, she tried her hand at freelancing and acting while inundating Time Inc. with résumé after résumé, finally landing a job as a Fortune reporter in 1983. In 1989, she moved to L.A. as Fortune’s Los Angeles bureau chief. Garnering experience at Money and then at People (where she was a senior editor and Insider columnist), Graham returned to New York City in 2000 as executive editor for Family Money magazine and soon became the Boston Consulting Group’s deputy editorial director. In 2003, she landed in Washington, D.C., as AARP The Magazine’s deputy editor.

In 2008, she became the publication’s first female editor—a “breakthrough,” she said. “For a mass-market, important magazine, it’s a sort of pioneering step for women. Once you do it, it’s easier for others.”

In terms of political power, the incredible size of the AARP audience is constantly on Graham’s mind. She must balance the highest journalistic standards with the caveat that AARP, a nonprofit corporation, cannot engage in lobbying. “I have to be very careful in the magazine to make sure what we do is objective journalism, as opposed to partisan journalism,” she said.

Graham must always walk that fine line, Milloy said, and “she dances it beautifully.”

Read Graham’s article on former President Bush at www.aarp.org/politics-society/newsmakers/info-11-2010/george-bush-interview.html. To see her dancing with Corky Ballas, visit http://aarp.us/axLtVX.

Three podcasts with Edwards are available online. Listen at www.vtmagazine.vt.edu.
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Kasey Beernink (chemistry ’11) has been chosen for nuclear submarine duty by the U.S. Navy, earning distinction as the first female from Virginia Tech and one of the first in the entire Navy to be chosen for such duty. Beernink is following in the naval-commissioning footsteps of her older sister, Krista (chemistry ’08), who is currently a naval flight officer flying the P-3 Orion patrol aircraft.

Beernink grew up in a Navy family. At age 7, she toured a submarine while her family was stationed in Naples, Italy, and she found her calling. At the time, women were prohibited from submarine service. Last year, that policy changed; during her summer training, Beernink spent a week aboard the USS Alaska as part of the integration of women on submarines. The experience solidified her decision to drive submarines. She aspires to be among the first female submarine commanders in the Navy.

For her efforts, the Women’s Center at Virginia Tech awarded Beernink its Advancing Women Award. In the award nomination package, Capt. Dan Forney, professor of naval science, stated that Beernink has “set the bar” for pioneering young women.

Lt. Cmdr. Suzanne Schang (communication ’01), who recently took command of the mine countermeasures ship USS Patriot, reached out to Beernink as a mentor. “You are a trailblazer. As a service member, you are less than 1 percent of the American population,” Schang wrote to Beernink. “Your journey in life is very personal to you, but recognize what your journey means to others, literally and symbolically. What you are doing will make it easier for others to follow you and break newer ground to the next step. … This is a huge responsibility, but it’s also a huge honor.”

Like Beernink, Schang was a member of the Highty-Tighties.

Beernink’s selection is already a cause for pride among alumni. Retired U.S. Navy Cmdr. Laura Yambrick (political science ’87) was proud to be counted in the first class of naval officers commissioned under the newly established NROTC program in the mid-1980s. “Looking back, it seems odd to think that when I joined the Navy, women weren’t allowed to serve onboard ships or fly combat aircraft. So you can imagine how excited I was to hear that a Virginia Tech Corps of Cadets graduate would be among the first women to serve onboard a naval submarine,” Yambrick said.

We wish Ensign Beernink the very best of luck on active duty and look forward to following her progress. Ut Prosim (That I May Serve).

Col. Rock Roszak ’71, U.S. Air Force (retired), is the alumni director for the Virginia Tech Corps of Cadets.
Correction: In the spring 2011 book notes, the Web address for Pileated Press, the publisher of Michael Abraham’s “Union, WV,” incorrectly pointed to an out-of-state publishing house by the same name. The book was self-published through the Pileated Press entity found at www.bikemike.name.
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Commentary

Our university motto, Ut Prosim, Latin for “That I May Serve,” is the focus of a lot of attention, and rightly so. Service has been a hallmark and treasured value of so many Virginia Tech alumni and students since the motto was coined in the late 1890s. As the world looked on, the April 16 tragedy heightened awareness of Ut Prosim and stimulated service by alumni as a tribute to the university.

Today’s students come to the university seeking service opportunities. The community-wide service day, the Big Event, begun by the Student Government Association 10 years ago, is perhaps the best example of that commitment. Approximately 7,000 students worked on more than 900 individual projects on a single day in April. And that’s only the tip of the iceberg. Students and student groups participate in hundreds of projects throughout the year. The Virginia Tech Relay for Life, benefiting the American Cancer Society, has raised more than $500,000 annually for the past three years, making it the highest-grossing collegiate Relay for Life in the country.

Not long ago, I attended a presentation by civil engineering students who had built a footbridge in Haiti. A river that floods at least four months of each year isolated the residents of Ti Peligre. Denying access to medical care and schools, the raging water created a physical and psychological separation for the villagers. To remedy the situation, Tech students constructed a 200-foot bridge spanning the river, completing and dedicating the project during spring break in March. The students accomplished their goal by funding the project costs of more than $20,000 and by forming a chapter of Bridges to Prosperity, an international philanthropic organization founded by Tech alumna Cheri Nice (finance ’76) and her husband. The chapter, soon to be assisted by a grant from the Rotary International Foundation, plans to build a bridge each year going forward.

Alumni have embraced the VT-ENGAGE service initiative since the April 2007 tragedy and have conducted hundreds of service projects through various organizations and alumni chapters. Students come to Virginia Tech with community service experience in high school and apply that same spirit to engage others in projects both on campus and in communities such as hurricane-ravaged New Orleans and Mississippi and in Appalachia, South America, and the Dominican Republic.

We are inspired by the dedication to service that our alumni and students demonstrate. Ut Prosim is a phrase with real meaning for Hokies and a value they hold close and embrace beyond their college years. This commitment extends the best of Virginia Tech to the nation and world.

Vice President for Alumni Relations

Footbridge dedicated in Haiti, March 2011
Alumni board elects new officers and members

New Alumni Association Board of Directors President Lance L. Smith (business administration ’68) and board Vice President Matthew M. Winston Jr. (marketing ’90) have begun one-year terms. Smith, who resides in Pinehurst, N.C., is a retired U.S. Air Force general. Winston serves as assistant to the president at the University of Georgia and resides in Athens, Ga. Also elected to the board’s executive committee are Ryan M. Beach (finance ’97), Gregory D. Merritt (marketing ’93), and Nicholas J. Moga (aerospace and ocean engineering ’76).

Newly elected board members are Morgan E. Blackwood (industrial and systems engineering ’02), Marvin J. Boyd (management science ’00), Karen E. Torgersen (elementary education ’78, M.B.A. ’86), Jim L. Wade (accounting ’76), and Erich A. Windmuller II (history ’76).

Alumni board nominations for 2012-15

The Alumni Association is seeking nominations for its board of directors for the three-year term that begins July 2012. Nominations are due by Sept. 1 and should be mailed to Alumni Board Nominations, Virginia Tech Alumni Association, Holtzman Alumni Center, Blacksburg, VA 24061. Please include each nominee’s full name, class year, address, and specific qualifications for service on the board.

Call for Outstanding Recent Alumni Award nominations

The Alumni Association invites nominations for the 2011-12 Outstanding Recent Alumni Awards, which recognize professional achievement and leadership by alumni who have graduated in the past 10 years (2002-11). Nominations are due by Sept. 1 and should be mailed to Outstanding Recent Alumni Awards, Virginia Tech Alumni Association, 901 Prices Fork Rd., Blacksburg, VA 24061. Please include each candidate’s biographical information and qualifications.
The Hokie Nation gathered on April 16 in Blacksburg and across the nation and world to remember the 32 victims who died on April 16, 2007.

Severe weather canceled the annual Run in Remembrance, but several hundred of the more than 9,000 people registered ran the 3.2-mile course anyway. Although weather also forced the student-run community picnic inside, more than 1,000 students, alumni, and university community members attended.

Throughout the day, a variety of “Expressions of Remembrance” honored the victims. The Contemporary Dance Ensemble sponsored a Performing Arts Showcase honoring the victims, while exhibits and videos on each person were featured at venues across campus. The University Commemoration and Candlelight Vigil was held just before dusk.

A number of family members of victims attended campus events, while others watched via the Burruss Hall webcam. Others participated in local events in their areas. Families who were on campus also took part in private events.

From Atlanta to Iowa to Seattle, and even in Afghanistan, alumni held their own 3.2 Run in Remembrance events. In support of Hokie Nation Serves, alumni chapters held community service events throughout April, such as blood drives, HokieBird Fights Hunger activities, and community clean-up projects.

At 11:28 p.m., Virginia Tech Corps of Cadets members stood guard for 32 minutes before extinguishing the ceremonial candle and returning the light to Burruss Hall, signifying Virginia Tech’s commitment to never forget the 32 lives lost.
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* Dates and prices are subject to change. Pricing is based per person on double occupancy without air, except as noted. Free air is based on departure from select North American gateway cities.
In March, the Pamplin College of Business linked up with alumni in New York City at the 11th annual Hokies on Wall Street reception and the college’s first-ever women’s networking reception the evening before.

Approximately 120 alumni came to the Wall Street reception at the offices of investment firm AllianceBernstein, where Michael Aldrich (finance ’02) is vice president of global wealth management. Another 40 alumnae attended the women’s networking reception, the first such event that the college and university has held. Patricia Ann Caldwell (mathematics ’71), a partner at Gordian Group, and Lynn Doughtie (accounting ’85), national managing partner of KPMG’s U.S. advisory services, sponsored the reception, which they plan to make an annual event.

Hokie Day 2011

This year’s Hokie Day at the General Assembly was attended by 130 Virginia Tech alumni and students from around the commonwealth, making it the Alumni Association’s largest event ever for higher education legislative advocacy.

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50s

‘56
Richard M. Arnold (IE), Blacksburg, Va., was elected to the Virginia Tech College of Engineering’s Academy of Engineering Excellence and appointed chair of the NRV Leading Lights.

60s

‘64
R. Kent Harris (DE ‘65), Gretna, Va., was inducted into the Bluestone High School athletic hall of fame.

Jaan Holt (ARCH ‘65), Alexandria, Va., was named the Patrick and Nancy Lathrop Professor of Architecture by the Virginia Tech Board of Visitors.

H. Bennett Teatos (EE ‘65), Blacksburg, Va., is the executive director of the Virginia Tech Applied Research Corp.

66
Nancy Tomlinson Hobbs (CTRA, CTRA ‘70), Pennington Gap, Va., retired from the United Methodist Church General Board of Global Ministries as a church and community worker.

68
Charles W. Atkins (IAED ‘69), Fincastle, Va., retired as president and CEO of Collegiate Pacific.

Ernest S. King Jr. (BAD), Johnson City, Tenn., has graduated from East Tennessee School of Preaching and Missions in Knoxville and is associate minister at the Cherokee Church of Christ.

70s

‘71
Robert J. Dunay (ARCH, ARCH ‘71), Blacksburg, Va., received a national teaching award from the Association of Collegiate Schools of Architecture.

‘73
C. Nelson Long Jr. (PSCI ‘73), Bedford, N.Y., received a 2010 Bill Strausbaugh Award for distinguished efforts in mentoring and supporting improved employment conditions for PGA professionals.

Danny G. Saunders (I EOR ‘73), Villa Rica, Ga., retired from Norfolk Southern Corp. after 38 years and eight months of service.

75
Marcus Alley (AGR ’71, AGRN), Blacksburg, Va., was named a Fellow of the American Association for the Advancement of Science.

William M. Taylor (ARCH ‘76), Culver City, Calif., was named a Fellow by the American Institute of Architecture.

76
Allan A. Anderson (BION), Cambridge, Md., is president of the American Association for Geriatric Psychiatry.

77
Mark B. Warlick (PSCI), Norfolk, Va., was elected as chairman of the Norfolk City Planning Commission.

78
Deborah Harold Alderson (CTRA, CTRA ‘80), Alexandria, Va., was honored by Federal Computer Week for her pivotal role in the federal government information technology community.

Christopher P. Bolen (COMM ‘79), Arlington, Texas, produced photography of the Joint Services Color Guard at the 2011 Super Bowl in Dallas.

79
Edwin J. Jones (FIW, FIW ’83), Cary, N.C., is associate dean of the College of Agriculture and Life Sciences at Virginia Tech and director of Virginia Cooperative Extension.

Kenneth J. Reed (ARCH), Falls Church, Va., was selected as one of 24 semi-finalists in the National Ideas Competition for the Washington Monument Grounds.

80
E. William East (CE), Mahomet, Ill., received the 2010 Institute Member Award from the National Institute of Building Sciences.

William M. Taylor (ARCH ‘76), Culver City, Calif., was named a Fellow by the American Institute of Architecture.

Wayne H. Robinson (FIN ‘81), Greensboro, N.C., was inducted into the ACC Legends.

82
Sharon Williams Birk (ESM, ESM ‘84), Wilmington, Del., is vice president of business development for Bluewater Defense Inc.

P. Kevin Carville (PSCI), Herndon, Va., was named chief of the U.S. Department of Justice’s Capital Case Unit.

John R. Craynon (MINE, MINE ‘85), Christiansburg, Va., is an ARIES project director for the Virginia Tech Center for Coal and Energy Research.

William David Francis (ME), Chesterfield, Va., is corporate director of human resources for Dewberry’s Fairfax office.

83
Carol J. Burger (MICR), Blacksburg, Va., was conferred the title of associate professor emerita by the Virginia Tech Board of Visitors.

Douglas G. Stewart (MKTG), Fredericksburg, Va., was named one of the top 1,000 financial advisors in the United States two years running by Barron’s magazine.

84
Michael E. Davis (PSCI), Martinsburg, W.Va., is the network architect for Jefferson County (W.Va.) Public Schools.

Jane Quesenberry Davis (COMM ‘79), Arlington, Va., is an ARIES project director for the Virginia Tech Center for Coal and Energy Research.

85
Bainy Billosly Cyrus (HORT), Norfolk, Va., received her master’s in counseling at Old Dominion University and is a job coach for the disabled in South-east Virginia. She has published a memoir, “All Eyes, A Memoir of Deafness.”

Angela M. Smibert (BIOL), Roanoke, Va., authored a book entitled “Memento Nora.”

W. Alex White (AGEC, AEAC ’95), Blacksburg, Va., was named the Kohl Junior Faculty Fellow of the Kohl Agriculture Centre by the Virginia Tech Board of Visitors.

86
Charles H. Lytton (AGED, EDG ’92), Blacksburg, Va., was conferred the title of senior Extension agent emeritus by the Virginia Tech Board of Visitors.

G. Geoffrey Vining (STAT, STAT ‘88), Blacksburg, Va., was awarded the Shekhart Medal from the American Society for Quality for technical leadership in the field of quality control.

87
Timothy E. Long (CHEM), Blacksburg, Va., received the American Chemical Society Division of Polymeric Materials’ 2011 Award for Cooperative Research in Polymer Engineering and Science and has been named the College of Science associate dean for strategic initiatives.

June E. Pederson-Trujillo (FCD), Rio Rancho, N.M., is a surety specialist at Rutherford and is responsible for bond account production and management.

Virginia Tech Magazine | Summer 2011
Award-winning filmmakers shed light on the lives of NFL hopefuls

BY CHAD O’KANE M.A. ’11

What started out as a project to create short profiles for a handful of NFL hopefuls quickly evolved into a feature-length documentary for Evan Marshall (communication ’94) and Jim Nabti (electrical engineering ’94).

The film, entitled “Late Rounders,” won Marshall, a first-time film director; the D.C. New Filmmaker Award at the 2011 Washington, D.C., Independent Film Festival. Despite the accolades, merely finishing the film, according to Marshall, was reward enough. “So many people like to say, ‘I’m a filmmaker,’ yet they’ve never finished a project,” Marshall said. “So even if I never make any money from this film, I finished a feature-length project that actually won some awards.” Nabti, who produced the film—which tells the stories of players expecting to be selected in the last rounds of the NFL draft, if at all—immediately thought of Marshall when he was first approached about the project by the agency representing the featured players.

The partnership between Marshall and Nabti, who both freelance full-time for television and film productions around the country, can be traced back to their days at VTV, a station run by and for Virginia Tech students. Each credits his time at Virginia Tech with helping to shape his future. Marshall was quick to note that his Virginia Tech background was instrumental in helping him get his start in the entertainment industry.

“My first job in TV out of school came from Tech connections,” Marshall said. “It may sound cliché, but the VT community is something special. When you’re in the club, you’re in the club.” And while engineering might seem like a far cry from the entertainment industry, Nabti couldn’t disagree more. “I think the engineering degree at Tech is perfect for any career,” Nabti explained. “My professors didn’t teach me the answers; rather, they taught me how to find the answers myself.”

As the film continues on the festival circuit, the pair hopes to sign on with a distributor, though Nabti has even higher hopes. “The awards and recognition are great, but I’m hoping we haven’t had our greatest reward yet,” Nabti said. “Like all great discoveries, we sort of stumbled into this. But we’ve found a niche and really think this would make a great TV show.”

Chad O’Kane (M.A. communication ’11) is a graduate assistant with Virginia Tech Magazine.
Confessions of a ‘chocoholic’

BY CHAD O’KANE M.A. ‘11

When self-proclaimed lifelong “chocoholics” Frances Park (psychology ’77) and her sister, Ginger Park, recently celebrated 25 years in their downtown Washington, D.C., boutique, Chocolate Chocolate, they penned a memoir recounting the experience, rife as it is with successes and challenges. Entitled “Chocolate Chocolate: The True Story of Two Sisters, Tons of Treats, and the Little Shop That Could,” the book has received a great deal of attention—and they’ve heard from some readers who consider it a bible of business know-how.

The secret ingredient seems to be enthusiasm. “Our customers often remark that it looks like we’re having way too much fun behind the counter,” Frances Park said. “We never look at the clock and often find ourselves still in the shop an hour after closing time.”

Park credits her father with her taste for fine chocolate, fondly recalling the time he returned from a business trip with a suitcase full of gourmet Swiss goodies. Following their father’s untimely passing, Park, her sister, and their mother used the money from his estate to set up shop. “We lost a father but found a dream,” Park said.

Park said they “taste everything out there and only sell what we love: the best local and global chocolates on the map.” They prefer the smaller manufacturers, European or American, as the product is fresher upon arrival. Their house truffle, the one delicacy they produce in-house, is made daily and is almost always gone by late afternoon. While they are both fans of gourmet chocolate, Park explained that she and her sister are by no means chocolate snobs. “We have it all,” Park said, “which I think is part of why we’ve been so successful. We have something for everyone.”

A published writer since high school, Park observed that she lives in two worlds. “I balance writing and the store,” Park said. “When I write, I’m completely isolated, sometimes for days. When I’m at the store, all I do is talk all day.” Park continually finds inspiration in her college years. “With most of my writing, I draw heavily upon my time at Virginia Tech,” she said.

Chad O’Kane (M.A. communication ’11) is a graduate assistant with Virginia Tech Magazine.

Frances Park ’77 in her Chocolate Chocolate boutique
'07
Minta Jane Dodd Ferguson (ARCH), Charlotte, N.C., is an associate with Harrell, Saltrick & Hopper, an architectural and engineering firm in Charlotte.

Jacob T. McCrowell (HNFE), Williamsport, Pa., volunteered as a physical therapist in February in Haiti on behalf of Physicians for Peace.

Shawn C. Eubank (FIN), Virginia Beach, Va., co-owns and operates a sustainable farm in Maryland.

Gregory R. Glenn (AEC), Pooler, Ga., co-owns and operates a sustainable farm in Maryland.

'08
Elizabeth A. Choppy (ARCH), Greensburg, Pa., is a graphic designer for Walter Robbs Callahan & Pierce Architects in Winston-Salem, N.C.

'10


Matthew McDavid and Winter Garden, Fla., 2/27/11.

David A. Sobral and Julianne Muholian, Alexandria, Va., 3/20/10.

Lambri Drosos Vatikitis and Steilos Vatikitis, Leesburg, Va., 8/21/10.

Benjamin W. Deen and Cynthia S. Achar, Reston, Va., 11/6/10.

Christina Albano Oliver and John Oliver, Midlothian, Va., 1/15/11.


Amy Vermillion Utterback, Sterling, Va., a daughter, 1/5/11.

Kara Wesley Beasley, Charlotte, N.C., a son, 1/14/11.

Amber Maness Scruggs, Reston, Va., a son, 10/13/10.

Andrew D. Lessner and Erin Taylor Lessner, Powhatan, Va., a daughter, 1/12/10.

Kimberly Kirby Rinaldi, Midlothian, Va., a son, 11/29/10.

Nathan A. Sauder, New Bern, N.C., a son, 1/14/11.

Marcy Peil Tillman, Flintstone, Ga., a daughter, 12/15/10.


Jeremy B. Norman, Dublin, Va., a son, 2/8/11.

Britta Long Petrich, Christiansburg, Va., a daughter, 2/8/11.

Keith T. Frost, Port Hueneme, Calif., a son, 1/7/11.

Jamie Cassey Hudson, Milton, Del., a daughter, 11/21/10.


Daniel M. Maine, Pensacola, Fla., a daughter, 1/29/11.

Elmer L. Gardner, Abington, Va., 3/24/11.

John P. Tokarz, St. Michaels, Md., 2/8/11.

Edward G. Davis, Franklin, Va., 1/6/11.

Nelson R. Anderson, Atlanta, Ga., 2/1/11.


Louis R. Buchanan, Virginia Beach, Va., 1/7/11.

Elizabeth Starke Klingler, Turlock, Calif., 1/10/11.


Joseph W. Showalter, Port Republic, Md., 3/16/11.

James M. Stanley, Blacksburg, Va., 3/13/11.

Ralph L. Davis, Mechanicsville, Va., 3/26/11.

Bruce J. Hall, Sebring, Fla., 11/6/10.

William C. Rice, Huntsville, Ala., 2/20/11.

William C. Wright, Tempe, Ariz., 1/3/11.

Randolph E. Farebee, Norfolk, Va., 3/28/11.

E.W. Glossbrenner, Blacksburg, Va., 1/19/11.

James T. Hagg, Abingdon, Va., 3/26/11.

James F. Turner, Smithfield, Va., 11/19/10.

Norman O. Wagenschein, Bridgewater, Va., 2/19/11.

Kenneth E. Cox, Kingsport, Tenn., 1/9/11.
When looking for a commissioner for the Virginia Department of Agriculture and Consumer Services (VDACS), Gov. Bob McDonnell wanted someone for whom agriculture was both a way of life and a passion. Those criteria made Matthew Lohr (agriculture education ’95) the man for the job.

Born and raised on the family farm he now owns in Rockingham County, Lohr has worked hard to bring the farm into the 21st century. What began as a purely traditional farm with beef cattle, poultry, and soybeans has grown to include agritourism, from a corn maze to pick-your-own pumpkins to hayrides. The farm welcomed 15,000 visitors last year.

“Agritourism gives the consumer a chance to experience life on the farm. It educates folks about agriculture,” Lohr explained. His willingness to think outside the box and his love of service led him toward politics. After beginning in local elections, he won a seat in the Virginia House of Delegates. He served for five years, the majority of which he was the only elected farmer. This distinction enabled him to keep important agricultural issues on the table.

When McDonnell appointed him, Lohr was ready for the challenge. “We have just over 500 employees, and I oversee everything from marketing to keeping a safe food supply to making sure we have healthy animals,” he said.

Most exciting for Lohr is consumers’ new desire to “know their farmer.” Interest in locally grown produce has skyrocketed. “We have doubled the number of farmers’ markets in Virginia. There are now over 200,” he said.

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Lohr cites his time at Virginia Tech as helping him to seize opportunities and expand his knowledge of his field. “Virginia Tech keeps innovating and researching to stay on the cutting edge of agriculture,” he said. “I love whenever I get a chance to go back to Tech and work with students.”

Hillary May, a senior English major, is an intern with Virginia Tech Magazine.
'71 Richard E. Ranels Jr., Fredericksburg, Va., 1/9/11.

'72 Douglas C. Parsons, Suwanee, Ga., 3/15/11.

'72 Leroy H. Smith Jr., Roanoke, Va., 1/30/11.

'72 Patrick M. Stafford, Corrales, N.M., 1/14/11.


'74 James Kirkpatrick III, Lakeville, Minn., 1/30/11.

'74 Barry L. Tingler, Culpeper, Va., 3/28/11.

'75 Walter Hedges Jr., Buford, Ga., 12/31/10.

'76 Jenet McLean Anderson, Houston, Texas, 1/17/11.

'77 Vicki N. Paris, Lynchburg, Va., 3/12/11.

'79 Nancy R. Lloyd, Narrows, Va., 3/24/11.

'80 Ramona Hartley Mapp, Suffolk, Va., 1/8/11.

'81 Therese Ehrgott

Grimes, Blacksburg, Va., 2/20/11.

'82 Patricia Lester Stacy, Bluefield, Va., 3/26/11.

'82 William B. Webber, Roanoke, Va., 3/12/11.

'83 Kim S. Clark, Roanoke, Va., 1/6/11.

'84 Edith Henry Elson, Virginia Beach, Va., 12/31/10.

'86 Linda Ellis Cardwell, Lewisesville, N.C., 1/8/11.

'87 Karen A. Cronin, Eliston, Va., 2/20/11.


'88 Donald V. Mackey, Millville, N.J., 1/5/11.


'96 James M. Ottinger, University Place, Wash., 3/6/11.

'96 Arthur J. Vieira, Charleton, N.C., 10/24/10.

'98 Christopher N.

Osburn, Manassas, Va., 1/21/11.

'03 Kayoko Ishizuka, Tampa, Fla., 9/25/10.

'08 Timothy R. Wade II, Atlanta, Ga., 3/27/11.

'10 Andrew B. Odenthal, Roanoke, Va., 3/21/11.

'11 Amanda Lee Montgomery, Max Meadows, Va., 2/17/11.

'84 Meil I. Schneller, professor of finance in the Pamplin College of Business, died April 10 in a glider accident. He is remembered by his colleagues and students for his caring and generous nature, his wry wit, deep intellect, and expansive range of interests. A member of the Virginia Tech faculty since 1992, Schneller taught undergraduate and M.B.A. courses and undertook research in corporate finance, focusing on dividend policy. He also served as the head of the finance department for two years and was a faculty advisor to two student clubs at Virginia Tech, the Jewish Student Organization and the Chartered Financial Analyst Club.

According to the Richmond Times-Dispatch, Jamerson was regarded as “a fastidious steward of the state Capitol’s traditions and lore.” His job put him in charge of the everyday operations of the seat of government. On the first day back in session, a black drape covered the lectern from which Jamerson oversaw the 100-seat House chamber.

According to the obituary printed in The Roanoke Times, Jamerson “practiced political neutrality, retaining a formal manner in his duties. The only personal indulgence he showed was an unabashed loyalty to his alma mater, Virginia Tech.”

A lasting legacy to Jamerson is the $110 million restoration of the 200-year-old Capitol and construction of its subterranean extension. The project consumed him for years as he worked to speed it to completion in time for a spring 2007 visit by Queen Elizabeth II.

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Meet Emily Love (English ’11), who presented a research paper at the English department’s Undergraduate Research Conference this spring. She also traveled to the University of Miami in April to present her research at the Atlantic Coast Conference Meeting of the Minds. Emily says one of the great things about Virginia Tech is that research can be part of any major.

Gifts to the Department of English helped pay for her travel to Miami and for the department’s research conference, which gave more than 45 Virginia Tech students the chance to present papers to an audience of faculty and peers.

Whether providing funds for conferences, special events, or research opportunities that will broaden educational horizons, your gift makes a difference to the students at Virginia Tech. These experiences help make a Virginia Tech education truly special. Visit www.givingto.vt.edu to make a gift or to learn more.
September

Sept. 3 - Virginia Tech vs. Appalachian State
  • Class of ’86, 25th reunion
  • Young alumni reunion for Classes of ’91- ’93 and ’00-’02

Sept. 17 - Virginia Tech vs. Arkansas State
  • Class of ’81, 30th reunion
  • Graduate degree alumni homecoming
  • Corps of Cadets alumni homecoming
  • College of Natural Resources and Environment alumni homecoming
  • Marching Virginians alumni homecoming

October

Oct. 1 - Virginia Tech vs. Clemson
  • Class of ’71, 40th reunion
  • College of Architecture and Urban Studies alumni homecoming
  • College of Science alumni homecoming
  • Multicultural alumni homecoming

Oct. 8 - Virginia Tech vs. Miami
  • Class of ’76, 35th reunion
  • Pamplin College of Business alumni homecoming
  • College of Engineering alumni homecoming
  • Cheerleader alumni homecoming

Oct. 22 - Virginia Tech vs. Boston College
  • Class of ’61, 50th reunion (traditional parade)
  • College of Agriculture and Life Sciences alumni homecoming
  • Highty-Tighty alumni homecoming
  • Student Affairs reunion: Residential Learning Community, Virginia Tech Union, Homecoming
  • King and Queen alumni homecoming

November

Nov. 17 - Virginia Tech vs. UNC (Thursday)
  • Class of ’66, 45th reunion
  • College of Liberal Arts and Human Sciences alumni homecoming
  • Virginia-Maryland Regional College of Veterinary Medicine alumni homecoming