HokieSpeed, the new supercomputer from Virginia Tech's College of Engineering, debuted in December 2011 under the guidance of Wu Feng, associate professor with the computer science and electrical and computer engineering departments. He said HokieSpeed was Virginia Tech's latest war horse in the research arena. “This instrument will empower faculty, students, and staff across disciplines to tackle problems previously viewed as intractable or that required heroic efforts and significant domain-specific expertise to solve.”

The supercomputer, as of press time, boasted a single-precision peak of 455 teraflops, or 455 trillion operations per second, and a double-precision peak of 240 teraflops, or 240 trillion operations per second. That was enough computational capability to put HokieSpeed at No. 96 on the latest Top500 List, the industry-standard ranking of the world’s 500 fastest supercomputers, and No. 11 on the Green500 List, a compilation of supercomputers that excel at using less energy to do more. Feng also heads the Green500 List, with co-founder Kirk W. Cameron, associate professor of computer science.

Located at Virginia Tech’s Corposata Research Center, the $1.4 million machine contains 209 nodes, or separate computers, connected to one another in and across large metal racks, each roughly 6.5 feet tall, to create a single supercomputer that occupies half a row of racks in a vast university computer machine room. A majority of the supercomputer’s funding came from the National Science Foundation. Feng sees HokieSpeed as a tool that one day will be readily available to the public. In particular, small businesses and researchers from smaller universities can gain access to technology previously available only to well-funded corporations or universities.

“...the next frontier is to take high-performance computing, in particular supercomputers such as HokieSpeed, and personalize it for the masses,” he said.

HokieSpeed is 22 times faster than the latest Top500 machine, debuted in 2003, placed at 20, and yet a quarter of the size of System X, the first major supercomputer developed at Virginia Tech. That machine, debuted in 2003, placed the university among the world’s top computational research facilities and garnered national headlines.

Duma’s helmet impact research expands, gains national attention

During the past year, Stefan Duma expanded his research of football helmet impacts and the prevention of concussions from the college level to youth football, and launched a new helmet safety ranking system. He also announced a new study to instrument and map head impact exposures of youth football players ages 6 to 18 years, starting with a program that will instrument more than 240 helmets on six different teams in North Carolina and Virginia.

The new program, announced in late February, comes on the heels of the first-ever publication of data on head impacts from youth football players. That paper was published in a recent Annals of Biomedical Engineering, available online for free download. The manuscript includes the details of more than 700 head impacts measured on 7- and 8-year-old youth football players, and was previewed in a Jan. 30, 2012, episode of ABC's "The View" featuring television journalist Stone Phillips. Its findings: some impacts endured by the children reached magnitudes considered high even for college players.

Duma says the new study, called the Kinematics of Impact Data Set (KIDS), will greatly enhance the understanding of child brain biomechanics and will lead to improvements in youth practice and game techniques as well as the development of improved helmets specifically designed for children. Each team will receive new helmets outfitted with special impact sensors, similar to those used by the Virginia Tech football team since 2003, and then again with the 2011 study that focused on the 7- and 8-year-old players of Montgomery County’s Auburn Elementary School football team. Each time a player impacts his head during play or practice, data is recorded and wirelessly downloaded to a computer on the sideline.

“This new study for 2012 allows for dramatically increased sample size and head exposure mapping for all age groups,” said Duma, professor of biomedical engineering and head of the Virginia Tech–Wake Forest University School of Biomedical Engineering and Sciences.

Duma predicts more than 50,000 head impacts will be recorded through 2012 as part of the KIDS study. Findings from the 2011 Auburn study, in which researchers collected data on more than 750 hits. The highest recorded impact was measured at 100-g, as in

Signature Engineering Building scheduled for 2013 opening

The Signature Engineering Building has been a dream project of the College of Engineering since 2005, designed to allocate crowded academic space for our undergraduate engineering students and provide state-of-the-art, highly specialized laboratories that will support hands-on problem solving and active learning in the engineering disciplines. In 2011, the building became reality. In April, we received a university-record single private donation of $25 million. Architectural plans were finalized, and ground was broken in September. In fall 2013, we will open the doors of the Signature Engineering Building and welcome a new class of future engineers, scientists and leaders. For more on the Signature Engineering Building, turn to Page 2.
The past year has brought much excitement at the College of Engineering of Virginia Tech. After years of planning and fundraising, construction of our new $10 million Signature Engineering Building began in September 2011. If you’ve been to campus during the past six months, or watched the constant live web camera at www.eng.vt.edu/ebay, you’ve seen the frame of the building rise from the ground in just a few short months. As of this writing, we were three weeks ahead of schedule, thanks in part to a mild winter. After the facility opens, it will serve as the centerpiece of the college, and a teaching tool for our students.

The efforts of several present and past members of the College of Engineering Advisory Board during the past five years helped spur this building to reality. Their efforts ranged from fundraising to helping gain attention and support for the building from the Virginia General Assembly and Governor’s Office. Our success was truly based on a team effort. Our message for support of the building and for our college’s efforts was simple and consistent: engineering is a driver in the well-being and future enhancement of the state’s economy, and we are the engine behind that drive, graduating more engineers per year than all other Virginia universities combined.

A special acknowledgment must be paid to our former board chair, Art McKinney, for his efforts in bringing the Signature Engineering Building to life. We engaged McKinney and Company to help with the architectural planning, and as a result we were able to reduce the cost of the building by almost $30 million. Art’s influence on the design was also a persuasive factor in the gift of $25 million from an anonymous donor for the building. This lead gift is the largest ever received from a single individual or family in Virginia Tech’s history.

Additionally, Michael Quillen, another distinguished alumnus, along with his family, donated $3 million to the building. This lead gift is the largest ever received from a single family or individual in Virginia Tech’s history. We also announced we’ve received the University’s largest bequest from a single donor, a gift of $17 million from engineer alumnus Bobby Hord to fund scholarships and professorships in the Department of Mechanical Engineering and the Department of Chemical Engineering.

This support is humbling and signifies the unfading pride Hokies have in their College of Engineering, especially given the economic turmoil that has happened in the nation for the past several years. Related, support for the university as a whole has been tremendous, as well. The university surpassed its $1 billion Campaign for the university as a whole has been tremendous, as pride Hokies have in their College of Engineering, engineering professorships in the Department of Mechanical Engineering and an alumnus, along with his family, donated $3 million to the Department of Chemical Engineering.

The past year has brought much excitement at the College of Engineering. Speaking of finances, in our annual report to the American Society of Engineering Education, we reported $152.7 million in research expenditures for fiscal year 2011. This is a college record, and up 13 percent from $134.8 million in fiscal year 2010. There is much else to tell from the past year, and to talk about for the coming years.

In November 2011, the Virginia Tech Board of Visitors approved a nuclear engineering program for masters and doctoral degrees. As well, two new undergraduate minors, biomedical engineering, and interdisciplinary engineering and science, are currently working their way through university governance. The Institute for Critical Technology and Applied Science (ICTAS), under the leadership of Roop Mahajan, expanded its facilities in 2011 to include approximately 7,000 square feet in the new Virginia Tech Research Center in Arlington. The location is a short distance from many leading federal science and research agencies and many high-technology companies. This new facility is in addition to the three buildings ICTAS occupies on campus, including the ICTAS headquarters at the corner of Turner and Stanger streets, the Nanoscale Characterization and Fabrication Lab at Virginia Tech’s Corporate Research Center, and the newer ICTAS-II in the university’s life sciences corridor.

Looking toward the future, the College of Engineering is preparing a strategic plan for 2012-2018. We already have held several conversations with faculty, staff, and administrators that produced five themes central to our future growth: 1) provide a high-quality environment for teaching, learning, and research; 2) recruit, educate, and graduate a high-quality and diverse undergraduate student body; 3) recruit, educate, and graduate a high-quality and diverse graduate student body; 4) address problems of regional, national, and global importance; and 5) support a diverse community of faculty, staff, and students.

As you read the following pages, you will see we are already blazing new trails for the future. From engineering electric cars to building robots that can fight fires aboard ships, making the sport of football safer for players from the elementary school level to the NFL, our students and faculty are the shining example of Virginia Tech’s mantra: Invent the Future.
College honors new academy members, young alum

The College of Engineering in 2011 inducted eight members into its Acad-emy of Engineering Excellence, an elite group that now consists of 105 people out of its more than 55,000 living alumni.

The 2011 inductees: Paul Barbary, mining engineering, 1959. Employed with A.T. Massey for 18 years and also served as chairman of Elk Run Coal Co., a subsidiary of Massey. He later served as vice presi-dent and general counsel of the Cline Resources Co., where he concentrated on regulatory and energy legal matters.

Charles Gordon Jr., industrial engineering, 1969. Joined the family’s furniture manufacturing business, helped double its size from less than 200 to more than 400 employees in 15 years.

Charles E. Harris, aerospace en-gineering, 1972; engineering science masters, 1972; and mechanics doctor-ate, 1983. Spent his entire career at NASA Langley, where in 2000, he was promoted to the deputy directorship of Structures and Materials Competency. Earned Presidential Rank of Meritorious Executive in 2005.


Don Pemberton, electrical en-gineering, 1956. Spent his career at Reynolds Metals, starting as a mainte-nance foreman, eventually working in its research division to test concepts such as outer aluminum housing for electric motors. Holds several patents.

Don Powers, electrical engineer-ing, 1959. Helped grow IBM into one of the world’s technology giants during a 28-year career, developing software and hardware for large computer mainframes. He later helped turn Control Data Corp. and Empys Systems International into multi-million-dollar successes.

A. Warner Robins, aeronautical engineering, 1949. Joined NASA’s pre-decessor, the National Advisory Commit-tee for Aeronautics as an aeronautical engineer, and later helped lead research of supersonic aircraft at the federal space agency.

John White, Jr., industrial engineer-ing, 1986. Academic career started at Georgia Tech and eventually moved to University of Arkansas where he served as chancellor. In the private sector, started logistics consulting company SystecOn.

The 2011 Outstanding Alum is Lau-rie McNeill, doctoral degree, civil and environmental engineering, 2000. Now an associate professor of civil and envi-ronmental engineering at Utah State Uni-versity. She won 2010 Carnegie Founda-tion for the Advancement of Teaching – Utah Professor of the Year.

Alumni honored for work, lifetime philanthropy efforts

Regina Dugan, director of the federal Defense Advanced Re-search Projects Agency, spoke February 29th at the world-famous TED conference in California. TED is a global conference hosted by the American private nonprofit Sapling Foundation, formed to disseminate “ideas worth spreading.” Past speakers include Bill Gates, James Cameron, Al Gore, and Virginia Tech’s own Den-nis Hong. Dugan, who earned her bachelor’s and master’s degrees in engineering from Virginia Tech, is the sole inventor on a patent for refueling satellites in orbit.

Wijelena J. Glover received a $15,000 Phil-anthropic Educa-tion Organization Scholar Award for 2011-2012. Glover earned her master’s and doctoral degrees in industrial and systems engineering from Virginia Tech, and as of press time was a post-doctoral associate with the Lean Advancement Initiative at the Massachusetts Institute of Technology. Her research interests include: health-care systems performance improve-ment and the integration of organiza-tions within enterprises.

Henriques is unique to a College of Engineering professorship dedicated giving a $1 million gift in 1995 to establish a chaired moster's degree in management at Massachu-setts Institute of Technology. Carson returned first to Roa-noke as an assistant manager for six months, and then moved to Abingdon, Va., to become a division manager. In 1992, Carson was appointed to a vice-presi-dent’s position at American Electric, with responsibility for the company’s rate and contracts, accounting, and government affairs functions. The latter meant acting as a lobbyist. He thrived in the position. Several years later, he returned to Appalachian Power, serving at the top of the company that provides electricity to his home town. In 2010, he retired.

Joe Collie

Collie is a member of the Virginia Tech Department of Chemical Engineering, and is unique to a College of Engineering.

Collie remains an active member of the chemi-cal engineering advisory board, and he and his wife, Barbara, recently established another endowment, the Joseph and Barbara Collie Undergraduate Scholar-ship.

He is a member of the Virginia Tech URF Prosim Society, and also has served on the university’s Foundation Board.

Joe Collie

Cyrus Nejat


Cyrus Nejat, who earned a mas-ter’s degree in aerospace and ocean engineer-ing in 2006, won the Yuri Gagarin Achievement Gold Medal Award from the Cosmonautics Federation of Rus-sia. The group honored Nejat’s for two recent research papers written while at the University of Southern California, where he is a master’s student.
I was another stellar year for Dennis Hong and the graduate and under-graduate students at the Robotics and Mechanisms Laboratory (RoMeLa). The team in July 2011 traveled to Istanbul where they dominated the RoboCup 2011 soccer competition – including winning the coveted grand prix Louis Vuitton Humanoid Cup – against dozens of other countries, including tech powerhouses Japan and Korea, and soccer-obsessed nations such as England and Germany. Its victory was a first for the United States.

The win catapulted Virginia Tech to a new world stage. When CHARLI 2 – a sequel to the first untethered, autonomous, adult-sized, walking, humanoid robot with four moving limbs and a head, built in the United States at Virginia Tech in March 2010 – kicked a winning penalty goal, the RoMeLa team said the indoor arena erupted in chants of “USA! USA!” That never happened before either.

Media around the world took notice, too. Wired wrote a story on its website. Time named CHARLI 2 one of the 50 Best Inventions of the Year. The robot was flown to New York to shake hands with Matt Lauer and company on NBC’s “Today Show.” The Washington Post ran a full Sunday feature on Hong and the work by his students, with the article being circulating around the world, from The Guardian in England, to papers in Arizona, Illinois, and Oregon in the United States. Forbes also wrote about Hong’s work and the future of robots. Korea Broadcasting System and Al Jazeera also filmed long-format stories. A month after the RoboCup won, Hong, associate professor of mechanical engineering and director of RoMeLa, said he was still wowed by the victory. “This has a significant symbolic meaning, showing the shift in the leaders in humanoid robotics in the world.”

Japan had the coveted trophy – worth some $50,000 – for seven consecutive years, with Germany taking it for two years. It soon will be on display at Virginia Tech’s Randolph Hall for the next year.

At the forefront of the wins were CHARLI 2, and six DARwIn-QPs, 18-inch autonomous humanoid robots, all developed by Virginia Tech graduate and under-graduate students focusing in mechanical engineering or electrical engineering. Team DARwIn was assisted with software developed by students and faculty from University of Pennsylvania. Team CHARLI was all Virginia Tech.

Doctoral student Jeakweon Han, chief mechanical architect of CHARLI 2 and its predecessor, CHARLI 1, led the team to teamwork. “Every member had a crucial task,” Han, of Seoul, Korea, said. “We all thought something. If I did something, it will screw up what we have done so far. It made me focus on my task.”

RoboCup is annual tournament that brings together robots from around the world. The soccer playing robots use autonomous Artificial Intelligence to hunt the ball and strategize a goal kick or a steal a ball from an opposing player, with rules mirroring human soccer. The tournament in years, with Germany taking it for two years. Its victory was a first for the United States.

Three doctoral students from the Center for Human Computer Interaction interaction the 3D User Interface Grand Prize competition at the 2011 Institute of Electrical and Electronics Engineers Symposium. This marks the second win in a row for the “Fighting Goblins,” comprised of Felipe Bacim of Porto Alegre, Brazil; Bireswar Laha of Konnagar, India, and Cheryl Stinson of Ottawa, Canada. The team won via a video they prepared for the contest, held in Singapore. The competition required teams to develop a 3D user interface for a difficult virtual interaction task, in this case solving a cube-shaped 3D puzzle in a virtual environment.

Three mining and minerals engineering students won the Carlson Software’s National Senior Mine Design Competition, marking the fifth consecutive year Virginia Tech dominated the event. Class of 2011 seniors Erich Dohn of Gainesville, Ga., and Wilson Lin and Jason Yeager, both of Manassas, Va., won with their project titled “Flat Creek Quarry,” a proposed greenhouse hard rock quarry located in Virginia’s south central Piedmont region.

The Consortium of Universities for the Advancement of Hydrologic Science Inc. awarded a $5,000 research fellowship to Nikoas Apollinis, a doctoral student in civil and environmental engineering. He traveled to the U.S. Army Engineer Research and Development Center’s Waterways Experiment Station in Vicksburg, Miss., to collect data and perform large-scale experiments to better understand the physical processes of scouring around bridge piers.

Mechanical engineering major Melissa Hughes of Blacksburg, Va., became the first Virginia Tech undergraduate to intern with Rolls Royce in the United Kingdom under the auspices of the new partnership between the company and the Commonwealth of Virginia. She was assigned to the Advanced Manufacturing Research Center in Sheffield, England, during the summer 2011.

Computer science freshman Elena Nadelinski of Fairfax, Va., was invited in December 2011 to the White House as a winner of the National Council for Women in Information Technology Award for Aspirations in Computing. At W.T. Woodson High School, Nadelinski was vice president of the Computer Science Club, and president of its Robotics Club.

Reisha Maria Parham, a chemical engineering student from Chesapeake, Va., received a 2011-12 American Institute of Chemical Engineers’ Minority Scholarship Award based on her work as part of a tissue engineering research group and her overall academic achievements.

Hari Pyla, a doctoral student in computer science, received the John Vlissides Award at the 2011 meeting of the Systems, Programming, Languages, and Applications Software for Humanity, the premier conference in object-oriented programming languages and systems. Pyla, of Vizag, India, also won the first place in the Association of Computing Machinery’s student research competition.

Virginia Tech awarded its 2010 Outstanding Dissertation Award for Sciences and Engineering to Mehdi Nikkhah, who earned his doctorate in mechanical engineering that same year. Awards are based on originality of the idea, contributions to the field, presentation of the ideas, and the quality of writing.
Re-engineered car wins international competition

Virginia Tech’s Hybrid Electric Vehicle Team won the international EcoCAR Challenge, a three-year design competition that sought to inspire science and engineering students to build more energy-efficient “green” automobiles.

Competition awards were presented in Washington, D.C., after a two-week finale at General Motor’s Milford Proving Grounds in Milford, Mich., and then the U.S. Department of Energy’s headquarters in the nation’s capital. Virginia Tech won 14 awards, including 10 First Place finishes. The team’s challenge: Best Vehicle Testing Complete Presentation, Shortest Braking Distance, Lowest Fuel Consumption, Best Dynamic Consumer Acceptability, National Instruments Most Innovative Use of Graphical System Design Award, Best Progress Reports, and Fastest Autocross “Fun Run” Time.

Several individual awards also were presented, including for team member Patrick Walsh, who bested General Motors’ own drivers with a quicker run time during an autocross test event.

An estimated 66 graduate and undergraduate students spent three years re-engineering a 2009 General Motors crossover SUV into a hybrid electric vehicle boasting the equivalent of 82 miles per gallon, and despite the cut in fuel dependency, maintained consumer acceptability, stop/start performance, and safety.

Along the way, team members gained in-the-field training, connecting with professional engineers and opening doors to new careers.

“I, along with five other students from the Hybrid Electric Vehicle Team, are going to go work for General Motors,” said Lynn Gantt, student team leader who earned a master’s degree in mechanical engineering. “Several other students have secured jobs in the automotive industry for suppliers.”

Of the 16 teams from the United States and Canada in competition, only six finished all of the dynamic events at the June event. “The team did a great job of getting things done in time to be able to do testing, and in particular, refinement of our vehicle for efficiency, driveability, and reliability,” said Doug Nelson, faculty adviser of the HEVT for 17 years and a professor of mechanical engineering.

Added Walsh, who earned a master’s degree in mechanical engineering in spring 2011 and is now a research engineer at Argonne National Laboratory, an EcoCAR organizer, in Chicago: “It was an intense 2.5 years for me, but in the end I am a far better engineer because of the experience that EcoCAR and HEVT provided me.”

At the start of them 2012-2013 year, a new Hybrid Electric Vehicle Team formed for EcoCAR 2, a new challenge.

Students develop safety lock for ATVs

In 2009, an estimated 32,400 children under the age of 16 were treated at emergency rooms for injuries involving ATVs. The agency studied several ignition locking systems from combination press/toggle switches on the throttle to a weighted spring on the back seat, and a pedal switch. The students implemented the system on a discarded ATV donated by Miller’s father.

The gist: the three-step system requires a rider to be at least 90 pounds and sit far back on the seat, thus pushing the cushion down to activate a magnetic switch. From there, the user must press down and pull a toggle switch, while also pressing a foot pedal. All three devices must be simultaneously activated for the ignition to start, said Ioannou.

The project’s biggest challenge: do it cheaply, for $500 or less, so that ATV manufacturers might voluntarily incorporate the safety system into future models if the process can be shown as cost effective. No regulatory requirement is in place or planned for such a device on ATVs, but Commission employees and ATV manufacturers require one be in place before voluntary action can be taken.

I have been brainstorming for a while, discussing why don’t we do something on ATVs, make them a little more complicated to get them started, whether it be cognitively or physically, so a child could not operate it,” said Sarah Brown of the commission.

Brown is a two-time Virginia Tech alumna, earning a bachelor’s and master’s degrees in industrial and systems engineering and a PhD in human factors engineering.

This is the second year the agency has worked with Virginia Tech students.

Left to right, are Alexia Ioannou, Jeff Howell, Kelly Miller and Clayton Harvey, who graduated in May 2011 after majoring in industrial systems and engineering.

Lynn Gantt, a newly graduated master’s student in mechanical engineering from Yorktown, Va., shows U.S. Secretary of Energy Steven Chu the engine of the HEVT car, as members of the media capture the moment. Gantt will now work for General Motors, a major co-sponsor of the EcoCAR event.
From the devastating earthquake that struck northern Japan in March 2011, to the Aug. 23, 2011, earthquake that originated in northern Virginia and rattled the entire East Coast, such events have been on the minds of people the world over. At the College of Engineering, experts in studying the effects of earthquakes on structures and nature itself were dispatched to lend help, and gather new research data.

After the Mineral, Va.-centered Aug. 23 event that measured 5.8 on the Richter magnitude scale, James R. Martin, a professor of civil and environmental engineering, was tasked by the National Science Foundation to lead a team of U.S. scientists and engineers in investigating and documenting its after-effects. The quake—which damaged several landmarks in relatively nearby Washington, D.C.—was felt as far south as Georgia and as far north as New Hampshire.

Martin’s team had to move fast in taking samples, creating maps and photographing damage to subsurface and infrastructure locations. Martin was tasked as investigative leader on Aug. 26. Hurricane Irene, with flooding rains and high winds, made landfall in Virginia the next day.

The investigative team was comprised of members of the Geotechnical Extreme Events Reconnaissance Association. It coordinated investigation efforts with key agencies such as the Earthquake Engineering Research Institute, U.S. Geographical Survey, Virginia’s state Geological Survey, and the Departments of Transportation in Virginia, Maryland, and Washington, D.C., among others.

The earthquake also triggered the shutdown of the nuclear reactors at the North Anna Power Plant located near the epicenter, in Louisa County, Va., after the loss of electric power. Generators restored power, according to media reports. Inspecting the plant for damage, Martin was joined by fellow Virginia Tech civil and environmental engineering faculty members Matthew Eatherton and Russell Green, and Martin Chapman of the College of Science’s Department of Geology. The plant suffered only minor damage.

As of press time, Martin’s investigation continues.

The National Science Foundation in February 2012 gave preliminary approval to an $80,000 grant for Martin and his team to “identify the specific mechanisms that led to damage at the Monument and the Smithsonian” in Washington, D.C., as both landmarks sustained damage during the Aug. 23 tremor.

Martin also spent several weeks during 2011 in northern Japan, studying after-effects of the massive, under-water 9.0 Tohoku earthquake that registered a magnitude 9.0. The devastating event and a resulting tsunami killed approximately 16,000 people, and damaged or destroyed scores of buildings and homes, literally re-shaping the landscape of the region. Martin expects to visit Japan several more times in the near future.

“The Japan Tohoku Earthquake and tsunami have been the catastrophic event of our generation,” Martin said.

Green, an associate professor, spent large portions of his time in Japan.

Several College of Engineering assistant professors received the National Science Foundation’s Faculty Early Career Development Program (CAREER) award during the past year. The grants are the NSF’s most prestigious award for creative junior faculty considered as future leaders in their respective academic fields.

Douglas Bishe of the Virginia Tech Department of Industrial and Systems Engineering will use his $400,000 award to create mathematical-based computer models that one day could help emergency management officials to better plan, train, and carry out the logistically complex task of evacuating hospitals or entire coastal communities under threat of hurricane or other widespread threats. Computer modeling such efforts is the best option to study such evacuations as full-scale, real-life drills would be logistically impossible and cost-prohibitive. Bishe also will study communication efforts—be it TV, Internet, cell phone, or radio—required to disseminate evacuation plans.

Rafael Davalos of the Virginia Tech-Waste Forest School of Biomedical Engineering and Sciences will use his $450,000 award to continue his trail-blazing research in using irreversible electroporation to treat diseased cells with and without adjacent chemotherapeutics. Davalos works on a collaborative research project by Davalos where he successfully treated a seven-year-old pancreatic cancer patient that suffered from a cancerous tumor.

Davalos will look at the possibility of using his treatment method to shrink or even eradicate special tumors called glioblastoma multiforme, the most common and aggressive type of primary brain tumor in humans.

Douglas Bishe

Rafael Davalos

Rafael De Vita

Raffaella De Vita

Holly Matusovich

Holly Matusovich

Douglas Bishe

Rafael Davalos

Rafael De Vita

Holly Matusovich

Chao Wang

Yaling Yang

Chao Wang

Yaling Yang

Chao Wang

Yaling Yang

Chao Wang

Yaling Yang

Chao Wang

Yaling Yang

Chao Wang

Yaling Yang
The Virginia Tech Board of Visitors at its March 2012 meeting made the following appointments: Stephanie Adams, head of the biomedical engineering department, received the Harry Wyatt Professorship in Engineering; Wu Feng, associate professor of computer science, received a five-year Turner Fellowship; Jason Lambrinidou, adjunct assistant professor of environmental science & technology, was named the Lewis A. Hester Chair in Critical Technology and Applied Science; and Chris Hall, associate professor of mechanical engineering, was the Virginia Tech Board of Visitors’ 2012 Presidents Award by the National Association of Multicultural Engineering Program Advocates.

An interdisciplinary team from Virginia Tech and Shandong University in China. Shandong’s engineering college is a part of the School of Physics at Shandong University, as well as a master’s candidate with the Department of Mechanical Engineering, as well as the Massey Professor in Mechanical Engineering.

The Virginia Tech Board of Visitors at its March 2012 meeting made the following appointments: Stephanie Adams, head of the biomedical engineering department, received the Harry Wyatt Professorship in Engineering; Wu Feng, associate professor of computer science, received a five-year Turner Fellowship; Jason Lambrinidou, adjunct assistant professor of environmental science & technology, was named the Lewis A. Hester Chair in Critical Technology and Applied Science; and Chris Hall, associate professor of mechanical engineering, was the Virginia Tech Board of Visitors’ 2012 Presidents Award by the National Association of Multicultural Engineering Program Advocates.

An interdisciplinary team from Virginia Tech and Shandong University in China. Shandong’s engineering college is a part of the School of Physics at Shandong University, as well as a master’s candidate with the Department of Mechanical Engineering, as well as the Massey Professor in Mechanical Engineering.

The Virginia Tech Board of Visitors at its March 2012 meeting made the following appointments: Stephanie Adams, head of the biomedical engineering department, received the Harry Wyatt Professorship in Engineering; Wu Feng, associate professor of computer science, received a five-year Turner Fellowship; Jason Lambrinidou, adjunct assistant professor of environmental science & technology, was named the Lewis A. Hester Chair in Critical Technology and Applied Science; and Chris Hall, associate professor of mechanical engineering, was the Virginia Tech Board of Visitors’ 2012 Presidents Award by the National Association of Multicultural Engineering Program Advocates.

An interdisciplinary team from Virginia Tech and Shandong University in China. Shandong’s engineering college is a part of the School of Physics at Shandong University, as well as a master’s candidate with the Department of Mechanical Engineering, as well as the Massey Professor in Mechanical Engineering.

The Virginia Tech Board of Visitors at its March 2012 meeting made the following appointments: Stephanie Adams, head of the biomedical engineering department, received the Harry Wyatt Professorship in Engineering; Wu Feng, associate professor of computer science, received a five-year Turner Fellowship; Jason Lambrinidou, adjunct assistant professor of environmental science & technology, was named the Lewis A. Hester Chair in Critical Technology and Applied Science; and Chris Hall, associate professor of mechanical engineering, was the Virginia Tech Board of Visitors’ 2012 Presidents Award by the National Association of Multicultural Engineering Program Advocates.

An interdisciplinary team from Virginia Tech and Shandong University in China. Shandong’s engineering college is a part of the School of Physics at Shandong University, as well as a master’s candidate with the Department of Mechanical Engineering, as well as the Massey Professor in Mechanical Engineering.

The Virginia Tech Board of Visitors at its March 2012 meeting made the following appointments: Stephanie Adams, head of the biomedical engineering department, received the Harry Wyatt Professorship in Engineering; Wu Feng, associate professor of computer science, received a five-year Turner Fellowship; Jason Lambrinidou, adjunct assistant professor of environmental science & technology, was named the Lewis A. Hester Chair in Critical Technology and Applied Science; and Chris Hall, associate professor of mechanical engineering, was the Virginia Tech Board of Visitors’ 2012 Presidents Award by the National Association of Multicultural Engineering Program Advocates.

An interdisciplinary team from Virginia Tech and Shandong University in China. Shandong’s engineering college is a part of the School of Physics at Shandong University, as well as a master’s candidate with the Department of Mechanical Engineering, as well as the Massey Professor in Mechanical Engineering.

The Virginia Tech Board of Visitors at its March 2012 meeting made the following appointments: Stephanie Adams, head of the biomedical engineering department, received the Harry Wyatt Professorship in Engineering; Wu Feng, associate professor of computer science, received a five-year Turner Fellowship; Jason Lambrinidou, adjunct assistant professor of environmental science & technology, was named the Lewis A. Hester Chair in Critical Technology and Applied Science; and Chris Hall, associate professor of mechanical engineering, was the Virginia Tech Board of Visitors’ 2012 Presidents Award by the National Association of Multicultural Engineering Program Advocates.

An interdisciplinary team from Virginia Tech and Shandong University in China. Shandong’s engineering college is a part of the School of Physics at Shandong University, as well as a master’s candidate with the Department of Mechanical Engineering, as well as the Massey Professor in Mechanical Engineering.

The Virginia Tech Board of Visitors at its March 2012 meeting made the following appointments: Stephanie Adams, head of the biomedical engineering department, received the Harry Wyatt Professorship in Engineering; Wu Feng, associate professor of computer science, received a five-year Turner Fellowship; Jason Lambrinidou, adjunct assistant professor of environmental science & technology, was named the Lewis A. Hester Chair in Critical Technology and Applied Science; and Chris Hall, associate professor of mechanical engineering, was the Virginia Tech Board of Visitors’ 2012 Presidents Award by the National Association of Multicultural Engineering Program Advocates.

An interdisciplinary team from Virginia Tech and Shandong University in China. Shandong’s engineering college is a part of the School of Physics at Shandong University, as well as a master’s candidate with the Department of Mechanical Engineering, as well as the Massey Professor in Mechanical Engineering.

The Virginia Tech Board of Visitors at its March 2012 meeting made the following appointments: Stephanie Adams, head of the biomedical engineering department, received the Harry Wyatt Professorship in Engineering; Wu Feng, associate professor of computer science, received a five-year Turner Fellowship; Jason Lambrinidou, adjunct assistant professor of environmental science & technology, was named the Lewis A. Hester Chair in Critical Technology and Applied Science; and Chris Hall, associate professor of mechanical engineering, was the Virginia Tech Board of Visitors’ 2012 Presidents Award by the National Association of Multicultural Engineering Program Advocates.

An interdisciplinary team from Virginia Tech and Shandong University in China. Shandong’s engineering college is a part of the School of Physics at Shandong University, as well as a master’s candidate with the Department of Mechanical Engineering, as well as the Massey Professor in Mechanical Engineering.

The Virginia Tech Board of Visitors at its March 2012 meeting made the following appointments: Stephanie Adams, head of the biomedical engineering department, received the Harry Wyatt Professorship in Engineering; Wu Feng, associate professor of computer science, received a five-year Turner Fellowship; Jason Lambrinidou, adjunct assistant professor of environmental science & technology, was named the Lewis A. Hester Chair in Critical Technology and Applied Science; and Chris Hall, associate professor of mechanical engineering, was the Virginia Tech Board of Visitors’ 2012 Presidents Award by the National Association of Multicultural Engineering Program Advocates.

An interdisciplinary team from Virginia Tech and Shandong University in China. Shandong’s engineering college is a part of the School of Physics at Shandong University, as well as a master’s candidate with the Department of Mechanical Engineering, as well as the Massey Professor in Mechanical Engineering.

The Virginia Tech Board of Visitors at its March 2012 meeting made the following appointments: Stephanie Adams, head of the biomedical engineering department, received the Harry Wyatt Professorship in Engineering; Wu Feng, associate professor of computer science, received a five-year Turner Fellowship; Jason Lambrinidou, adjunct assistant professor of environmental science & technology, was named the Lewis A. Hester Chair in Critical Technology and Applied Science; and Chris Hall, associate professor of mechanical engineering, was the Virginia Tech Board of Visitors’ 2012 Presidents Award by the National Association of Multicultural Engineering Program Advocates.

An interdisciplinary team from Virginia Tech and Shandong University in China. Shandong’s engineering college is a part of the School of Physics at Shandong University, as well as a master’s candidate with the Department of Mechanical Engineering, as well as the Massey Professor in Mechanical Engineering.

The Virginia Tech Board of Visitors at its March 2012 meeting made the following appointments: Stephanie Adams, head of the biomedical engineering department, received the Harry Wyatt Professorship in Engineering; Wu Feng, associate professor of computer science, received a five-year Turner Fellowship; Jason Lambrinidou, adjunct assistant professor of environmental science & technology, was named the Lewis A. Hester Chair in Critical Technology and Applied Science; and Chris Hall, associate professor of mechanical engineering, was the Virginia Tech Board of Visitors’ 2012 Presidents Award by the National Association of Multicultural Engineering Program Advocates.

An interdisciplinary team from Virginia Tech and Shandong University in China. Shandong’s engineering college is a part of the School of Physics at Shandong University, as well as a master’s candidate with the Department of Mechanical Engineering, as well as the Massey Professor in Mechanical Engineering.

The Virginia Tech Board of Visitors at its March 2012 meeting made the following appointments: Stephanie Adams, head of the biomedical engineering department, received the Harry Wyatt Professorship in Engineering; Wu Feng, associate professor of computer science, received a five-year Turner Fellowship; Jason Lambrinidou, adjunct assistant professor of environmental science & technology, was named the Lewis A. Hester Chair in Critical Technology and Applied Science; and Chris Hall, associate professor of mechanical engineering, was the Virginia Tech Board of Visitors’ 2012 Presidents Award by the National Association of Multicultural Engineering Program Advocates.

An interdisciplinary team from Virginia Tech and Shandong University in China. Shandong’s engineering college is a part of the School of Physics at Shandong University, as well as a master’s candidate with the Department of Mechanical Engineering, as well as the Massey Professor in Mechanical Engineering.

The Virginia Tech Board of Visitors at its March 2012 meeting made the following appointments: Stephanie Adams, head of the biomedical engineering department, received the Harry Wyatt Professorship in Engineering; Wu Feng, associate professor of computer science, received a five-year Turner Fellowship; Jason Lambrinidou, adjunct assistant professor of environmental science & technology, was named the Lewis A. Hester Chair in Critical Technology and Applied Science; and Chris Hall, associate professor of mechanical engineering, was the Virginia Tech Board of Visitors’ 2012 Presidents Award by the National Association of Multicultural Engineering Program Advocates.

An interdisciplinary team from Virginia Tech and Shandong University in China. Shandong’s engineering college is a part of the School of Physics at Shandong University, as well as a master’s candidate with the Department of Mechanical Engineering, as well as the Massey Professor in Mechanical Engineering.

The Virginia Tech Board of Visitors at its March 2012 meeting made the following appointments: Stephanie Adams, head of the biomedical engineering department, received the Harry Wyatt Professorship in Engineering; Wu Feng, associate professor of computer science, received a five-year Turner Fellowship; Jason Lambrinidou, adjunct assistant professor of environmental science & technology, was named the Lewis A. Hester Chair in Critical Technology and Applied Science; and Chris Hall, associate professor of mechanical engineering, was the Virginia Tech Board of Visitors’ 2012 Presidents Award by the National Association of Multicultural Engineering Program Advocates.

An interdisciplinary team from Virginia Tech and Shandong University in China. Shandong’s engineering college is a part of the School of Physics at Shandong University, as well as a master’s candidate with the Department of Mechanical Engineering, as well as the Massey Professor in Mechanical Engineering.

The Virginia Tech Board of Visitors at its March 2012 meeting made the following appointments: Stephanie Adams, head of the biomedical engineering department, received the Harry Wyatt Professorship in Engineering; Wu Feng, associate professor of computer science, received a five-year Turner Fellowship; Jason Lambrinidou, adjunct assistant professor of environmental science & technology, was named the Lewis A. Hester Chair in Critical Technology and Applied Science; and Chris Hall, associate professor of mechanical engineering, was the Virginia Tech Board of Visitors’ 2012 Presidents Award by the National Association of Multicultural Engineering Program Advocates.

An interdisciplinary team from Virginia Tech and Shandong University in China. Shandong’s engineering college is a part of the School of Physics at Shandong University, as well as a master’s candidate with the Department of Mechanical Engineering, as well as the Massey Professor in Mechanical Engineering.
New, state-of-the-art foundry named for Kroehling

The College of Engineering once again showed its commitment to hands-on, minds-on education with the April 2011 dedication of the Kroehling Advanced Materials Foundry, a metal casting facility located just off the main campus on Plantation Road.

The 4,500-square-foot, $1.7 million facility includes a 125-kilowatt induction furnace capable of melting aluminum, copper and bronze, iron and steel, various mold making equipment including no-bake and ceramic shell, a rapid prototype, and other high-tech equipment that students likely will use on the job, post-graduation.

On hand for the dedication were John Kroehling, a decorated World War II veteran and 1948 graduate of the College of Engineering, and his wife, Joan. Kroehling, an advisory board member for the Department of Materials Science and Engineering, provided the initial funds of $500,000 for the foundry, overseen by the Virginia Tech Foundry Institute for Research and Education (VT-FIRE) program.

Virginia Tech previously had one laboratory in the basement of Whittemore Hall in which small aluminum castings were made in an introductory-level course. Kroehling’s gift kick-started monetary equipment donations from several corporations. Construction began in spring 2010. “I think it will help this country to do more casting, very high-tech casting, and this foundry is very state of the art,” Kroehling said.

Kroehling spent 20 years at DuPont, working in metal foundries and the refractories industry, and later founded his own company, J.H. Kroehling Associates Inc., which he still operates.

Alan Druschitz, associate professor of materials science and engineering, now serves as director VT-FIRE, overseeing the foundry’s operations.

Helmet

Duma’s development of an adult football helmet star rating system – ranked 1 to 5 stars – that ranks a helmet’s ability to sustain heavy blows while protecting the player also made headlines in 2011. Duma has dubbed this development just the start of what he calls the National Impact Database, a full testing facility and ranking system that will cover other sports that use helmets.

This biomechanical impact data study on helmets represents the first time researchers have provided the public with comparative test results, with no prior ranking stem having existed. Duma has compared it to the safety-testing of automobiles, once considered impossible by industry heads and now required.

In addition to Phillips’ January report on “The View,” Duma’s research has received heavy national coverage from the New York Times, Time magazine, USA Today, and on CNN. In the days preceding Super Bowl XLVI, ESPN dedicated an hour-long show to helmet safety among young football players, and featured Duma’s research.

“How the game is played is changing as we modify coaching and practice schedules to reduce head impacts, as well as rule changes and game officiating,” said Duma. “Those changes are the most important, and beyond that we want to have the best helmets possible.”

Earthquake

Green was on an earlier reconnaissance team that investigated the September 2010 magnitude 7.1 Darfield earthquake, also in New Zealand.