COVER STORY:
Patrolling Coastal Waters

ALSO INSIDE:
Lessons from Katrina
Virtual Reality Rehab
Evidence of a Bright Future

Dear Readers,

Each issue of Quest gives me new reasons to be bullish on the future of Old Dominion University. The range of accomplishments of our faculty and students reflected in this issue asserts yet again that the institution is rising upon four key pillars: 1) world-class, fundamental research; 2) contributions to policies and services that improve quality of life in southeastern Virginia and elsewhere; 3) innovative and engaging teaching; and 4) our profoundly multicultural campus community.

Take, for example, the cover story on marine ecologist Mark Butler. It profiles a scientist who is based in Norfolk, but whose laboratory essentially extends across the world. He is participating in a World Bank Global Environmental Fund research initiative to protect coral reefs. At the same time, he is funded by the National Science Foundation to study the effects of an infectious disease that is taking a toll on blue crabs in the mid-Atlantic. Other research he is conducting from his satellite base in southern Florida is designed to stabilize populations of Caribbean spiny lobsters, which are threatened by a virus. Fishermen whose livelihoods depend upon catches of blue crabs and spiny lobsters would be the first to praise the real-world service that this academic scientist provides. You can be sure, too, that the ODU students who get to spend time on—and under—coastal waters with Professor Butler find their lessons to be stimulating.

Work at ODU’s Virginia Modeling, Analysis and Simulation Center (VMASC) is explained in one feature story about the center’s director of research, John Sokolowski, and in another about a joint VMASC-College of Health Sciences venture to apply virtual reality to physical therapy and rehabilitation. Martha Walker, the associate professor of physical therapy who is leading the rehabilitation effort, reports outstanding success using virtual reality—like a virtual walk in Paris—to encourage therapy patients to use a treadmill.

Contributions of ODU professors to public policy are evident in two articles. One about the government’s response to Hurricane Katrina was written by John C. Morris, associate professor of urban studies and public administration. Tami Al-Hazza and Robert Lucking, faculty members in the educational curriculum and instruction department, advocate in an interview story for inclusion of Arab children’s literature in American schools to promote cultural sensitivity.

The worldwide fights against diseases borne by ticks and mosquitoes get assists from two young ODU researchers, Holly Gaff from the College of Health Sciences, and Roland Cooper, from the College of Sciences, and there is a report here, as well, about our 2008 State Council of Higher Education for Virginia (SCHEV) Outstanding Faculty Award winners: Bridget Anderson, assistant professor of English and Shaomin Li, professor of business management.

Spend a little time with Quest and learn for yourself why I’m bullish on the future of ODU.

John R. Broderick
Acting President
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ON THE COVER

Old Dominion University’s Mark Butler,
professor of ocean, earth and atmospheric
sciences, ready to conduct research in
coastal waters of southern Florida.

Photo by Donald Behringer

Other photography by Mark Butler,
Chuck Thomas and Ian Bradshaw
Two from ODU Win SCHEV Outstanding Faculty Awards

An assistant professor of English who has pursued research on dialects since growing up in the mountains of western North Carolina, and a professor of business management who as a youth had to teach himself as a result of living in Mao’s China, are Old Dominion’s latest winners of the Outstanding Faculty Award sponsored by the State Council of Higher Education for Virginia.

Bridget Anderson and Shaomin Li were among 12 college and university faculty from across the commonwealth who were honored Feb. 20 in Richmond. They each received $5,000. This marks the 10th consecutive year that ODU has had a winner in the highly competitive program, which is funded by the Dominion Foundation. Twenty-two university faculty have been selected for the prestigious award since the program was established in 1991.

Anderson, a sociolinguist who won in the “Rising Star” category, earned her doctorate in 2003 and is in her third year of teaching at ODU. A recorder of oral histories and personal narratives of residents from the Great Smoky Mountains, Anderson has also conducted linguistic analyses of Cherokee English, Detroit African American English, and Southern English in Roswell, Ga.

“I want my classroom to be characterized by creative excitement and creative thinking,” said Anderson, who teaches undergraduate English language and linguistics, as well as courses on Phonology and Sociolinguistics at the graduate level.

Like Anderson, who resisted advice that she abandon her rural Appalachian accent, Shaomin Li didn’t let others’ opinions and actions get in the way of his educational pursuits. After Mao Tse Tung came to power, Li’s family was one of many driven to the countryside. “I was sent to a farm when I was 13 and taught myself,” he said.

Against all odds, Li completed his pre-college education through self-learning and ultimately passed a nationwide college entrance exam with the highest score in his region.

Li teaches international business, a subject that not only integrates a wide range of social and administrative theories, but also requires extensive practical experience. His rich business background enables him to shed light on how international trade and investment are actually conducted. He served as a director at AT&T in charge of developing the East Asian market and founding CEO of an Internet firm in Hong Kong with two subsidiaries in China.

His students are familiar with his “look forward, reason back” advice, which asks them to look forward to figure out what they want to do with their life, and reason back to prepare themselves step by step.
Bayse’s Molecular Modeling Tests Selenium Against Cancer

Craig Bayse, an Old Dominion University chemist, has received a $240,000 grant from the National Science Foundation to study how the trace element selenium affects biochemical signaling in the human body. The research relates to the potential use of selenium to fight cancer and cardiovascular disease.

Bayse’s theoretical studies in recent years have shed light on the biological activity of selenium, which is found in high concentrations in onions and garlic, as well as in Brazil nuts. Antioxidant properties of the trace element have been shown to protect against diseases such as prostate and lung cancer and the side effects of stroke.

But the use of selenium has been limited by its potential disruption of normal biochemical signaling pathways, especially those that are zinc-mediated and lead to such beneficial outcomes as DNA repair. During the three-year grant period, Bayse will use molecular modeling to determine the mechanisms of both the beneficial and harmful effects of selenium.

“With this large grant for a computational chemistry study, Professor Bayse is addressing a very important area of medically related biochemistry,” said Richard Gregory, chair of the Department of Chemistry and Biochemistry. Bayse, who joined the ODU faculty in 2001, is an associate professor of chemistry and biochemistry and his department’s graduate program director.
A unique, collaborative classification system proposed by three Old Dominion University researchers is designed to give Internet browsers more access to historical documents and photos archived by the U.S. government.

Harris Wu, assistant professor of information technology and decision sciences in the College of Business and Public Administration, is principal investigator for a $403,000, three-year grant from the National Science Foundation. Working with him will be two computer science professors in the College of Sciences, Kurt Maly, an eminent scholar, and Mohammad Zubair.

The focus of the classification system will be documents and other items in the U.S. government’s photograph and multimedia collection. Content that is not in a textual format is difficult to classify—or tag with search-friendly descriptive words. But the ODU team is devising a system that allows anyone who searches within the government collection to contribute key words that will enable the classification system to evolve and stay up-to-date.

This scheme is likened by the researchers to social tagging systems utilized by flickr.com and wiki classification interfaces. Users suggest keywords, and by their choices they can also accept, reject or modify the “soft” preliminary classifications that originate with the system.

But because user efforts alone cannot adequately classify documents, Wu offers an automated—algorithmic—control approach that imposes global order over the overlapping hierarchical classifications manually created by users.

Wu, Maly and Zubair recently performed a prototype implementation on an image subset of the government’s multimedia collection titled “American Political History.”

Just a few weeks before he learned of the classification system grant, Wu also won a $300,000 NSF grant for a project titled “Supporting Case-Based Design for Packaged Software Implementations.”

The case-based design project falls within NSF’s interdisciplinary Science of Design program. The research project focuses on case-based design, a method for leveraging prior experiences to identify current problems or decisions and developing solutions for those problems based on prior experiences. Wu believes better designs can be achieved at lower costs with lower risks by using the collective power of a large group of people. Therefore, the project proposes to develop and evaluate an open-source tool to support case-based design in packaged software implementation.
Failing Eyesight Does Not Stop Snake Researcher

Julie Ray’s deteriorating vision has left her unable to drive a car or use a high-powered microscope. But the Old Dominion University Ph.D. student in ecological sciences has not given up her dream to establish a center for the study of snakes and other wildlife in a remote jungle of Panama. Her adventures were the subject of an Associated Press news story that was picked up by media throughout the United States and in Latin America late in 2007.

In May 2008, Ray planned to return to Panama—where she has spent a total of about 16 months over the last couple of years—to do more field studies and advance her plans for a $1 million research facility in mountainous Coclé Province, about 125 miles from Panama City and the Panama Canal. Already, she and a few colleagues—including assistants she has trained from among the local population—have captured 667 snakes of 42 species, indicating that this jungle region may be one of the best places in the world to study snakes. Government agencies in Panama are working with her to plan the station, which will include a clinic to treat snakebite victims.

The 29-year-old woman has prevailed against great odds since she arrived in early 2006 at Panama’s Parque Nacional General de Division Omar Torrijos Herrera. She is blind in the center of her right eye. In her left eye she has lost nearly all of her central vision, leaving her mostly colorblind and with blurred remaining vision. She also spoke little Spanish when she first tried to explain to the park’s officials and residents of the nearby village of El Copé why she was there. Based on tips she had gotten from fellow herpetologists, she believed the park might be the snake-rich territory that she needed to promote her research.

Today, Ray speaks Spanish with ease, she has come to be known as the Parque Omar’s unofficial biologist, she is invited to lecture about ecology at Coclé Province schools and she has performed enough bare-handed captures of her prey to prove that the territory is, indeed, teeming with snakes. Those captures, and the fact that most of them are accomplished at night in the jungle, have gotten the attention of locals.

“Most of the people in the community where I live (El Copé is about five miles from the Parque Nacional) think I am ‘loca’ for working with snakes. Some of the kids said I was a ‘bruja’—or witch—for working with snakes and frogs, especially because I go out at night to do the fieldwork.”
From Disaster to Lessons Learned: What Went Wrong in the Response to Hurricane Katrina?

BY JOHN C. MORRIS

The Storm of the Century

In late August 2005, a small but powerful hurricane made landfall near Miami, Fla. This storm, named Katrina by the National Hurricane Center, killed six people as it made its way across the Florida peninsula and into the warm waters of the Gulf of Mexico. Steered by upper level winds, the storm turned northward toward the Florida Panhandle. Within a couple of days, it became apparent that the storm would make landfall west of the original prediction, and a hurricane warning was issued for a stretch of the Gulf Coast from Pensacola, Fla., to Beaumont, Texas. The storm was also strengthening considerably, with its top winds measured at more than 125 miles per hour.
On the morning of Aug. 29, 2005, the storm made its final landfall at Pass Christian, Miss. The resulting tidal surge, estimated at over 20 feet, leveled structures all along the Mississippi Gulf Coast. The water also breached a series of protective levees in New Orleans on the east and north sides of the city, flooding more than 70 percent of the area.

The story of the preparation and response to Hurricane Katrina is multifaceted and complex. Nearly all observers concluded that government, and governance, had failed badly in this case. The net result was a tremendous loss of life and property. A more important question, however, is: Why did the official response seem so haphazard? That question is the subject of research published by the author in several leading journals. This article summarizes that research, examining lessons drawn from what worked (and what didn't work) in the response.

**Complex Structures and Confusing Goals**

The systems in place to respond to disasters are as complex as the intergovernmental structures tasked with action. Disaster response in the United States, according to Coast Guard Commandant Thad Allen, is based on a system of “cascading failures.” Disaster response is addressed first at the local level; if the problem proves too big or difficult for local governments, state government is called in. If the state government is in turn overwhelmed, the national government steps in with its significant resources. The key, however, is that responsibility moves up the chain only as lower levels fail in their response.

Historically, the threat of a major hurricane has spurred action to issue a federal disaster declaration. This action allows the national government to begin to pre-position both people and materiel in the area prior to the storm. State governors make the request to the Federal Emergency Management Agency (FEMA), which studies the request, makes a recommendation and passes the documents to the White House. The president is the official charged with issuing the declaration of disaster.

When the Department of Homeland Security (DHS) was formed in 2003, FEMA was one of the agencies relocated to the new department. Formed in 1979, FEMA had for many years been the victim of poor leadership and presidential ambivalence. A kind of political “football,” FEMA had seen 15 different directors come and go in a period of 14 years. In 1993 President Bill Clinton appointed James Lee Witt as director, who enjoyed an unprecedented eight years as director. During this period FEMA experienced several years of relative success and stability. In 2001 President George W. Bush appointed his 2000 campaign director, Joseph Allbaugh, as FEMA director; Allbaugh was succeeded by his hand-picked protégé, Michael Brown. Neither Allbaugh nor Brown was a professional disaster manager.

The formation of DHS, and the inclusion of FEMA in the new federal department, signaled an important shift in priorities for FEMA. Since 1979 the primary mission of FEMA has been to respond to natural disasters, and to engage in pre-disaster mitigation programs, such as the national flood insurance program. In the days following the terrorist attacks of Sept. 11, the focus changed from natural disaster to manmade disaster (terrorism). This change directed critical resources, including agency personnel, away from the traditional core mission of the agency.

**Responding to the Storm**

As the storm strengthened in the Gulf of Mexico, the governors of Louisiana, Florida and Mississippi asked the White House for a disaster declaration, which was quickly granted. Almost immediately, FEMA contractors began moving supplies of water, ice, generators and other critical supplies into the region. At the same time, the Coast Guard began to shift helicopters, airplanes and small boats into areas just outside the storm’s predicted path. The Navy began loading specialized ships based in Norfolk, Va., with food,
water and other supplies, and sent the ships toward the Gulf of Mexico. The governors of Louisiana and Mississippi moved to activate their National Guard units, and the U.S. Army’s Northern Command began to draw plans for a response by active-duty troops, should the president request them.

Meanwhile, mandatory evacuation orders were issued for the Mississippi Gulf Coast, coastal Louisiana and the city of New Orleans. The mayor of New Orleans, Ray Nagin, hesitated for several hours before issuing the evacuation order; when the order came, it was implemented haphazardly. Many residents left the city, but many who remained were those without the means to leave on their own. Other residents in the path of the hurricane ignored the mandatory order and chose to stay in their homes.

In the immediate aftermath of the storm, it was not clear that the levees around New Orleans had been breached. One of the first reports came from a FEMA official at the New Orleans Superdome, who used his satellite telephone to inform his superiors in Washington, D.C., about the flooding. Rather than act immediately, FEMA officials in Washington tried to confirm the flooding reports with the Army Corps of Engineers, which was out of contact with its people in New Orleans and thus responded that it had received no reports of flooding. A delay of several hours ensued, even though anyone with a television could see satellite news video of the rising waters. By the time Washington acknowledged the reports, the water had already flooded large portions of the city.

Saviors From Above

However, not all government agencies were inactive. As soon as the winds calmed enough to allow flight, the Coast Guard launched several helicopters from its air station at Mobile, Ala., to survey the damage from the storm. The first reports received detailed the devastation along the Mississippi coast; as the helicopters made their way toward New Orleans, the tragedy unfolding in the city became more apparent. The Coast Guard immediately began to launch its helicopters to begin search and rescue operations in the city. For many residents, the first visible sign that help was on the way was the sight of the white-and-orange helicopters hovering overhead. Over the next seven days, the Coast Guard would airlift more than 4,700 people from rooftops, and rescue thousands more using a flotilla of small boats deployed throughout the city. Before long, additional military helicopters joined in the rescue efforts, as did boats from the Louisiana Fish and Wildlife Service, and even private boats.

Prior to the storm, thousands of the residents unable to evacuate the city had made their way to the New Orleans Superdome. Originally conceived as a “shelter of last resort,” the facility quickly filled. The same scenario played out at the New Orleans Convention Center several miles away. As the city began to flood, and power, water and wastewater systems shut down, conditions in the facilities quickly became untenable. With the city now flooded, there was nowhere else to go, and no way to get there.

The Dissolution of Government

As noted earlier, disaster response in the U.S. is predicated on a system of “cascading failure,” in which successively higher levels of government are called in as lower levels are overwhelmed. However, the system requires some government to be in place. When the storm hit, local government in New Orleans, for all intents and purposes, ceased to exist. Both politicians and administrators had evacuated prior to landfall, and what little structure was in place was immediately rendered ineffective. The severity of the disaster also paralyzed state government and stunned federal government officials. A period of many hours passed before coherent calls for help began to travel up and down the system; even then, they were generally unfocused and nonspecific. Mayor Nagin’s media appeals for the federal government to “send everything” were heartfelt, but were so general they were difficult to act upon.

Meanwhile, at higher levels of government, a political showdown was brewing between the White House and Gov. Kathleen Blanco of Louisiana. Louisiana’s National Guard was heavily deployed to Iraq at the time of the storm, and the governor had activated pre-existing agreements with other states to “borrow” National Guard troops prior to landfall. These troops were quickly moved to the area, but the White House wanted to federalize the troops, while Gov. Blanco wanted to keep them under state control. The White House also disputed the timing of the governor’s request to release active-duty military troops into the area, although later evidence showed that the request had come much earlier than initial White House claims.
An Ounce of Prevention

So what can be done to prevent a similar performance? Congress held a series of hearings in the wake of the storm, and concluded that the proximate causes of failure were professional incompetence and poor execution. While these were contributing factors, the organizational structures in place prior to the storm, along with the mindset of public officials from New Orleans to Washington, were also important elements.

FEMA was conceived as a directive agency – that is, it was given authority to direct other agencies and organizations to accomplish certain tasks in response to the storm. FEMA itself is often mischaracterized; it is a very small agency that has few resources of its own. Instead, FEMA acts as a coordinating body to direct the resources of others as needed. Bureaucracies are notoriously selfish with their resources, however, and FEMA spent as much time cajoling behavior as it did coordinating behavior. In addition, the significant mission change in FEMA as a result of moving to DHS – away from natural disasters and toward terrorism response – had many officials “looking the wrong way” when the storm hit. While natural disasters were not ignored, they were de-emphasized in an agency that was given a new threat to ponder.

On the other hand, the Coast Guard was on the scene and operating without waiting for orders. It was able to do this in part because search and rescue is a core mission of the Coast Guard, and in part because its organizational culture encourages collaboration and cooperation with other agencies. It was no surprise to many observers when the Coast Guard’s then chief of staff, Vice Adm. Thad Allen, was named Principal Federal Official to replace FEMA chief Michael Brown several days into the response. Allen demonstrated that collaboration and cooperation were effective means to organize the response.

The active-duty military services also acquitted themselves well. Although many blamed the delayed response on the military, long-standing federal law prevents the active-duty military from performing certain functions without the express consent of the president and the governors of the affected states. Various military organizations began planning a response and pre-positioning assets before the storm made landfall; the delay in deploying those forces was political rather than operational.

To prevent future problems like the ones experienced during Katrina, a comprehensive review of our country’s disaster response system is required. While several changes have since been made to the National Response Plan, the changes are largely superficial. The challenge is to balance the need for effective response while respecting the authority of state and local governments. Likewise, state and local governments need to develop comprehensive plans not only to protect their citizens in times of disaster, but also to maintain the continuity of government to ensure that duly constituted authorities are in place to act. Finally, additional attention needs to be focused on how to make existing organizations more amenable to collaborative activities, and to break down traditional “stovepipes” that tend to fragment action.

Ongoing research by the author, as well as other faculty and students in Old Dominion University’s Department of Urban Studies and Public Administration, focuses on how public organizations can better prepare for the next disaster, whether natural or man-made. These approaches include studying organizational design, policy implementation, collaboration, contracting and federalism. By carefully analyzing past actions, we can offer prescriptive guidance to policy-makers at all levels of government to assure the continuity of the administrative functions of government in times of disaster. Likewise, by avoiding narrow partisan political agendas, we can offer sensible solutions to improve the performance of our critical public agencies, and build theory that is applicable to other public functions.

John C. Morris is an associate professor in the Department of Urban Studies and Public Administration, where he serves as graduate program director for the Ph.D. program in public administration and urban policy.
Home-Grown Talent in Modeling and Simulation

John Sokolowski is Expanding the Scope of Research at VMASC

By Jim Raper
John Sokolowski was an active duty Navy captain when he read a newspaper story in 1997 about an engineering center that was to be established by Old Dominion University in the up-and-coming field of modeling and simulation, or simply M&S.

With his retirement from the Navy not far away, Sokolowski decided that this facility, which was named the Virginia Modeling, Analysis and Simulation Center (VMASC), might be the place he would like to work as a civilian. His education—a bachelor's degree in computer science from Purdue University and a master's in engineering management from ODU—was good preparation. Also, he had been a submarine skipper and during one tour of duty he had worked with M&S in the development of self-guided submarine models.

So in 1998, Sokolowski took two steps to seal his future. He began a doctoral program in engineering management as a part-time student at ODU, and he sought and won the top job in the M&S division of the U.S. Joint Forces Command.

By the time he retired from the Navy in 2001 he was ready to step in as a project scientist at VMASC. The fit turned out to be perfect, so much so that Sokolowski now is seen as a measure of the center's rise from a humble startup in makeshift quarters to a world-class operation in a $12 million, specially designed facility. "As John grows, so grows VMASC," says Mike McGinnis, the retired brigadier general who has been executive director of the center since June 2006.

"Professor Sokolowski represents, without question, the finest combination of leader, educator and researcher I have ever known."

Right out of the box, Sokolowski helped to put VMASC on the academic map. He had the prescience in 2000 to request that he be allowed to switch from engineering management to the doctoral program in modeling and simulation that ODU's Frank Batten College of Engineering and Technology had just launched. He got his wish, and three years later he became the first person in the world to be granted a Ph.D. in modeling and simulation/engineering.

New Research Clusters Added

Today, Sokolowski is a research professor and director of research for VMASC. Since he took the high-level administration position in the fall of 2006, he has helped to expand externally funded research at the center along dual channels. He is the lead investigator on a half-dozen studies with topics ranging from emergency evacuation of Hampton Roads to insurgency concerns in foreign countries. He also has oversight responsibilities for the projects of the nearly 30 researchers who are assigned full- or part-time to the VMASC team.

"I look at the opportunities and trends, and the problems that modeling, simulation and visualization can solve, and I try to match our research effort to those issues," Sokolowski explains. (MS&V, rather than M&S, has become the more accurate acronym for the expanding work of VMASC.)

Expertise clusters at VMASC have expanded from two to seven under his direction. Eighteen months ago the center's MS&V research focused on the medical/health care cluster and the military/homeland security cluster. Since then, formal clusters have been added in transportation, serious gaming, social sciences, computational sciences and artificial intelligence, and enterprise engineering.

He speaks enthusiastically about fundamental, or pure, research. He wants VMASC scientists and engineers to follow their own stars, so to speak, devising projects that take full advantage of the unique professional experiences they have had. This initiative expands upon the basic VMASC research mission, which is to be application-focused, responding to specific needs of partners and clients. "On the pure research side, these areas are really based on individual researcher's backgrounds and expertise," he explains. "They help grow the MS&V body of knowledge and expand the discipline of MS&V into a major research field."

International Awards for VMASC Engineers

One example of pure research being conducted at VMASC involves computer simulation interoperability issues and proposed solutions that have captured the attention of the world. In 2007, VMASC researchers won three of the eight "SIWzie" awards given to the most highly rated papers presented at the Simulation Interoperability Workshop (SIW) semi-annual conferences in Genoa, Italy, and Orlando, Fla. (See related Research Sampler, page 13.)

McGinnis gives Sokolowski credit for setting the conditions and standards that have promoted research at VMASC. "The growth we have experienced in the past two years in our
research clusters is directly attributable to John's efforts,” McGinnis says. “He also has been responsible for hiring many of the top VMASC researchers and academic faculty for ODU tenure-track modeling and simulation positions.”

Sokolowski is especially proud of the center’s increasing application of MS&V in “soft” research areas having to do with human behavior. He is doing some of that himself in a project for the Marine Corps that draws upon an eclectic combination of disciplines—mathematical modeling, religious studies, world history, economics, sociology and psychology, to name a few—in an attempt to take some of the mystery out of what causes and perpetuates insurgencies.

Together with Catherine Banks, a VMASC research professor who holds a Ph.D. in international studies, Sokolowski has developed a “qualitative to quantitative” modeling scheme to make predictions about insurgencies. Popular uprisings dating back to the Greek-Persian Wars 2,500 years ago, and as current as recent Muslim insurgencies against the Philippines government, are examined by Sokolowski and Banks in their paper, “From Empirical Data to Mathematical Model: Using Population Dynamics to Characterize Insurgencies.”

“We provide the capacity to analyze policy decisions that affect the nature of insurgencies in particular countries,” he explained. He and Banks look at issues related to how safe people feel, how economically stable they feel, what their religious beliefs are and what their cultural influences are. Sub-categories that are considered include such determinants as loss of leadership, violent acts and propaganda. The information that is gathered, of course, is not quantitative, so the researchers must convert “soft” human behavior and group dynamics evaluations into “hard” mathematical models. As Sokolowski put it, “It’s difficult to find exact measures, so that’s why we don’t rely so much on exact measures.”

**Decision Making Can Be Modeled**

It is not unusual for Sokolowski to change hats several times a day. After a morning of working with insurgency or crowd behavior models, he might turn in the afternoon to an altogether different project analyzing traffic flow in Hampton Roads or sit in on a conference about VMASC research in the areas of artificial intelligence and automobiles that drive themselves. He smiles when he notes that “smart” automobiles that proceed on automatic pilot at a steady 55 miles per hour through the Hampton Roads Bridge-Tunnel would offer a nifty solution to traffic congestion in southeastern Virginia. “We certainly have found that if anyone slows down to less than 55, you will have a backup, and the answer may be for algorithms and sensors to take control of the vehicles.”

With his doctoral thesis, Sokolowski proposed a way to improve upon existing mathematical models of how leaders—such as military commanders—make decisions. Many models have been keyed to rigid logic and stereotypes. Because of this, the models could not provide realistic decision representation, which limited the military’s ability to conduct war-fighting experiments with modeling and simulation. Sokolowski found a way, on the other hand, to account for a decision maker’s
experiences and characteristics, such as attitudes toward risk, and his research showed this model to be more realistic in predicting how a human would make decisions.

But MS&V is not only about predicting human decisions. As Sokolowski points out, the broader benefit of this tool is to help humans make better decisions. “It provides insight. It provides new ways to look at, and to solve problems,” he explains.

The virtual operating room developed by researchers at VMASC and Eastern Virginia Medical School, for example, is designed to help medical students make the right decisions when they are performing surgery. Military commanders learn to make better decisions by studying war-fighting simulations. And state officials who must decide where to invest road and bridge money can get valuable insights from transportation research going on at VMASC. One legislative proposal, in fact, would require certain state road projects to be vetted by VMASC modeling and simulation experts in order to make sure the transportation funds are being used where they are most needed.

Sokolowski finds the variety and challenges of his work stimulating, and he says he never second-guesses his decision a decade ago to venture out where no doctoral candidate had gone before. “I saw it as an opportunity to help shape the program for those who would follow,” he says. “I think it was a good decision.”

VMASC Current Research Sampler

“Development and Validation of a Physical Performance Prediction Model,” a $1 million project for the Office of Naval Research to help the military understand the effects of physical training and predict mission readiness. Stacie Ringleb, who directs medical modeling and simulation at VMASC, leads the project. Other investigators are James A. Onate, assistant professor of exercise science and director of ODU’s Sports Medicine Research Laboratory; David Swain, professor of exercise science and director of ODU’s Wellness Institute and Research Center; and Dr. Marlene DeMaio and Dr. Donald Carr of the Naval Medical Center Portsmouth.

“Hampton Roads Hurricane Evacuation Study,” a $300,000 project for the Virginia Department of Emergency Management (VDEM) involving simulations to test the adequacy of emergency evacuation plans for southeastern Virginia. John Sokolowski, the VMASC director of research, leads the project, working with Asad Khattak, ODU’s Batten Endowed Chair in Transportation Engineering. The study is addressing the complicating incidents—wrecks, vehicles running out of fuel, debris in the road, lapses in emergency response coordination and irrational behavior of motorists—that have reduced the efficiency of hurricane evacuations elsewhere.

“Integrated Battle Lab and Modeling and Simulation Support,” a nearly $5 million grant from the U.S. Navy for a broad range of research projects, such as ones involving computer modeling of crowd behavior, and support services.

“Data, Models, Federations and Conceptual Links via Common Reference Models,” an international Simulation Interoperability Standards Award-winning paper about research and development focusing on a new, holistic approach to solving interoperability problems in computer simulations. The authors are Andreas Tolk, ODU associate professor of engineering management and systems engineering and a senior research scientist at VMASC; Saikou Diallo, VMASC project scientist; and Charles Turnitsa, VMASC project scientist.
Arab Storybooks in American Schools

Education Professors Promote Diversity with Children’s Literature

Tami Al-Hazza and Robert Lucking from the educational curriculum and instruction department at Old Dominion University’s Darden College of Education won the national Virginia Hamilton Essay Award presented in April 2008.

The award recognizes a published article that makes a significant contribution to the professional literature concerning multicultural literary experiences for youth. Al-Hazza and Lucking were selected for their superior scholarship in “Celebrating Diversity Through Explorations of Arab Children’s Literature,” an article published in the spring 2007 issue of Childhood Education. The award was presented at the 24th Annual Virginia Hamilton Conference on Multicultural Literature for Youth at Kent State University.

According to the article’s introduction, “The five years since the 9/11 attacks … have brought about huge shifts in the collective global view of Arabs, and it is certainly timely to examine how educators treat the literature of the people in that part of the world. While language arts teachers may feel like throwing up their arms in frustration at being asked to learn about yet another body of children’s literature, it has never been more important to represent a clear-headed and balanced view of a people, their culture, and their literature.”
William Graves, dean of the Darden College said, “The Hamilton Award is an important national award. It recognizes the pioneering work that Dr. Al-Hazza and Dr. Lucking have conducted in Middle Eastern children’s literature. I am delighted that their scholarly contribution is receiving critical acknowledgment.”

ODU education faculty member Kaavonia Hinton-Johnson, who serves on the National Council of Teachers of English Racism and Bias Committee, and whose research focuses on multicultural literature for children and young adults, said the Al-Hazza and Lucking article is an important contribution to the field of multicultural children’s literature: “They focus on an area that has been overlooked in the field of children’s literature, and their expertise in texts and guidelines for selecting Arab children’s literature is noteworthy, to say the least.”

Al-Hazza and Lucking discuss the origins and scope of their work in the following interview:

**Quest: How did you develop your interest in this topic?**

**Al-Hazza:** My interest in the Middle East first developed when I married my husband who is of Middle Eastern origins, and we moved to Kuwait and lived for over a decade. I taught there in the educational system at both the K-12 level and university level, and I became very involved in cultural activities. During my stay, I developed a deep appreciation for the culture and the people of the region. However, my interest in researching and writing about Arab issues began with the events of 9/11. I noticed a change in American attitudes toward Middle Easterners and a level of mistrust directed at people believed to be from that region of the world. Arab Americans became the “minority of suspicion,” a term we have used in our recent articles. At the same time, my daughter was going through the American school system, and I realized that except for an occasional token unit on ancient Egypt, Arabs were not represented in the literature of the classroom, nor for that matter, in any other part of her curriculum.

**Lucking:** My Ph.D. work was concentrated in English education, so I’ve been involved for a number of years in issues related to literature teaching in K-12 schools. I’ve always held that young people are most likely to become interested in reading good literature when they identify most clearly with the characters they read about. Accordingly, I’ve long advocated the need for introducing students to a variety of characters representing a broad spectrum of cultures, even in the works intended for younger readers. The importance of personal identification becomes even more critical for minority youngsters since there has traditionally been little literature in the typical school curriculum or school library that reflects characters with whom they can identify.

**Quest: Tell us about your research and how it led to an award-winning article.**

**Al-Hazza:** The focus of this article is an appeal for American educators to broaden their global perspectives to include literature from the Arab world in their classroom. In this work, we examine the cultural values of the Arab society such as the centrality of the family, putting the needs of others before oneself, the forms of requisite social generosity, the value of hard work, and the fulfilling of one’s role in society through kindness toward others in need, and we examine these themes as they are represented within Arab children’s literature. We discuss works of literature whose plots reveal an accurate portrayal of Arab life and narratives that contain realistic and believable characters with whom children can relate. The article included examples of traditional literature, contemporary realistic fiction and historical fiction from the Arab world.

**Lucking:** We tried to set the directions for the potential study of prospective and practicing teachers because we have found both groups to be exceedingly unaware of Middle Eastern cultures and world events. When we ask simple questions of fact, for example, on the distinction between Arabs and Muslims, our students reveal to us some terribly mistaken notions. They tend not to know the geography of the region, and they know almost nothing of the religious beliefs of the people who live in that area of the world. I am advising a new graduate student in history-education who completed his undergraduate degree at a prestigious liberal arts university, and he readily admits that he had never been required to study the history of this portion of the world. He has completed an entire four-year degree at a good university without once having to turn his studies to the history of this region.

Another force we were attempting to deal with was Hollywood’s use of stereotypes of Middle Easterners to establish predictable villains in films. In recent years, the film industry has become particularly insistent at painting people
of Middle Eastern ancestry as the villain of contemporary pictures, and the evolution of their sinister qualities has grown over time. These films would have us believe that it’s only through raw teeth-gritted determination and brawn that American film heroes overcome demented Middle Eastern extremists. An entire people are vilified by these formulaic movies produced for mass consumption in which evil is reduced to swarthy bad guys, and young people are fed a consistent diet of such fare.

Al-Hazza: The driving force behind our research is the desire to help educators create classrooms that accurately reflect the ethnic landscape of the American population. Sitting in classrooms across America are Arab American children who have completed 12 years of education never having encountered a literary work that reflects their culture and their heritage. Including Arab literature in the curriculum allows Arab children to learn from a familiar cultural base, to acknowledge their ancestors’ accomplishments, lifestyles, traditions and customs, and it enables all students to develop an understanding and acceptance of the Arab culture.

“Including literature of diverse people is vital as a means to help students develop understanding and tolerance.”

The term, “multicultural education,” has become a painful cliché causing a rolling of the eyes among many teachers who feel put upon by yet another demand on their time. Accordingly, we argue for the inclusion of more than a token teaching unit on another isolated feast or festival of a people in some far off place. Examinations of other cultures, including the Arab culture, should not be a marginalized issue to be relegated to the confines of a token filmstrip on ancient Egypt or to an annual multicultural fair; American education should pride itself on a constant examination of the fabric of society as reflected by the individuals who make up its classrooms. Including literature of diverse people is vital as a means to help students develop understanding and tolerance for others whose sociocultural framework differs from their own.

Lucking: We look to establish ways of allowing all students, be they elementary or college-age students, to feel a part of classroom events and the instruction that leads to personally meaningful learning. I’ve been involved in a line of research for the past half-dozen years on some of these affective dimensions of learning among university students that we have called “sense of community.” What we have learned is that there is a considerable difference in the degree of cohesion and feelings of connectedness that occurs among students from classroom to classroom and in some forms of distance-based learning. We’ve learned that not only do these differences impact students’ comfort in the classroom but also the degree to which students judge the quality of their learning experiences.

Concurrent to this research, we have also examined whether these differences exist among K-12 students, and it is no surprise that they do. Learning takes place within a social context, so to become preoccupied with standardized test scores alone is to miss a great deal of the true dynamism of what we hope is occurring in schools. Good teachers develop an intuition about these matters, but our data also reveal that it is possible to identify distinct threads of some of these dimensions of learning.

Quest: Have your media surveys turned up any news you view as positive?

Lucking: Yes, since we are interested in attitudes toward contemporary world events involving people of the Middle East, we believe that America is served well today by its legacy of being a nation of immigrants. Anyone who watches the nightly news on public television will be familiar with one of the contributors, the Pew Charitable Trust; and the Pew Research Center is responsible for two enormous studies which we often cite. In this case, we are referring to research involving Muslims, not Arabs, but the results give us hope. In 2006, the Pew Center’s “Global Attitudes” survey, carried out in 13 countries, found that among Muslims most were generally positive about the conditions in their host nations; however, European Muslims expressed more reservations about blending in than their American counterparts, and the majority reflected resistance to assimilation. On the other hand, the situation in the United States was more hopeful. In

Studies offer considerable optimism for this country, particularly if we take the extra effort to recognize all cultures, including those of the Middle East, through the literature that children read, even in our elementary schools.”
a more recent study in this country, the Pew researchers conducted more than 55,000 interviews in Arabic, Farsi, Urdu and English and concluded that Muslim Americans were “mostly mainstream.” Pew estimated that the total population of Muslim Americans in the U.S. was 2.34 million and that the majority were “highly assimilated.” In our view, these studies offer considerable optimism for this country, particularly if we take the extra effort to recognize all cultures, including those of the Middle East, through the literature that children read, even in our elementary schools.

**Quest:** What books would you recommend for adult readers to develop more knowledge on this topic?

**Al-Hazza:** There are several interesting and informative books on the market today about Arab cultures and the Middle East. “Understanding Arabs: A Guide for Modern Times” by Margaret K. Nydell is an excellent book to acquire an understanding of the customs and traditions of the Arab world. For a more historical perspective, I recommend “A History of the Modern Middle East” by William Cleveland. The book is superbly written, giving the reader an in-depth analysis of the modern Middle East history. My colleague, Katherine Toth Bucher, and I have also written a new book just recently released titled “Books About the Middle East: Selecting and Using Them with Children and Adolescents.” Aimed at teachers, this book contains an overview of historic touchstones of the Middle East, guidelines for selecting young people’s books, selection recommendations and teaching ideas for the classroom. It is written to help K-12 classroom teachers and library media specialists choose quality Middle East literature for the classroom.

**Lucking:** Another good source for understanding the historical events that have led to many of the present-day points of tension is “A History of the Middle East” by Peter Mansfield. Mansfield’s book traces how many Middle Eastern countries were constituted in the 1920s, ’30s and ’40s after nearly 200 years of colonialism. The boundaries of these countries were many times drawn up by former colonial powers as expeditious ways of withdrawing their interests. The author also places in bold relief how very different many of the cultures are within the arbitrarily drawn boundaries of single countries, sometimes creating an admixture of cultures. Understanding these pages of history helps us comprehend the clashing of interests.

**Quest:** What will be the focus of your future work in this area?

**Al-Hazza:** We believe that educating teachers is a first step. Although the majority of negative stereotyping is directed toward Arabs, the entire Middle East region is often misunderstood and largely overlooked in K-12 schools; therefore, part of our future work will include an examination of literature of other peoples of the region. Our goal is to help create a global perspective among students and an attitude of understanding and acceptance toward peoples of other cultures, particularly peoples of the Middle East.

**Lucking:** The war in Iraq, the conflict between the Palestinians and Israelis and the action of the Kurds will all have a continuing impact on world events for some time, so the call for action in schools has never been more needed. We recognize that the K-12 curriculum is packed and that teachers have a responsibility to treat all groups from all parts of the globe equally, but this is an extraordinary time in world affairs. Potentially explosive events at this very moment in history are likely to shape how Americans are viewed around the world for years to come, and these events inevitably shape how we view our own citizens, as well. The pending election will likely influence the timing of the withdrawal of our troops from the region, and the eventual return of tens of thousands of veterans will influence American perspective for decades. This legacy will impact many, many families, and we hope to contribute to better schools of tomorrow for their children.
Old Dominion University marine ecologist Mark Butler likes to retell the story he has heard many times from his parents. As a toddler, he came face-to-spray with the Atlantic Ocean for the first time when his family moved from Ohio to Florida. "I had never seen the sea before, but they tell me that I ran straightaway to the water and jumped in."

Pretty regularly ever since, he has been repeating the feat, often wearing scuba gear in order to study coastal marine life such as crustaceans and sponges. "I am one of those odd fellows who always knew what he wanted to do," Butler says. "Where it comes from, I don't know, but it's always been there."

His interest in good stewardship of coastal marine environments led him to Florida State University, where he received his Ph.D. in biological sciences. He began a research program there investigating the ways that marine life is affected by human activities. Since joining the ODU faculty almost 20 years ago, he has always had at least one foot in the water around the Keys and in the Caribbean. He rents a home and keeps a truck, boats and mobile lab in the Florida Keys because he is down there so often. He usually has half a dozen ODU graduate students in tow and sometimes is joined by his wife and 15-year-old son, Quint. They call their compound "ODU South."

Butler has long been interested in the effect that humans have on tropical sea ecosystems through fishing, coastal development and pollution. He is especially interested in how these influence reproduction processes, recruitment (that is, the ecology of young organisms), and the condition of nursery habitats that sustain coastal marine species. For decades he has studied marine ecosystems from Florida to New Zealand.
Marine-Life Research Weighs Global Warming

More recently, he has begun investigations of how young marine life responds to global warming. Together, his many research projects keep the tall, rangy marine biologist busy.

In the spring of 2008 he was working on five funded projects, including a new $2.4 million grant from the National Science Foundation and National Institutes of Health that allows him for the first time to study something local – a disease infecting blue crabs of the mid-Atlantic. He also was taking part in a $12 million World Bank Global Environmental Fund initiative aimed at conservation of coral reefs and building the marine stewardship capacity of developing countries.

“Rarely have I focused on one project at a time,” he says. “I typically have multiple balls in the air.”

Butler is working on the five-year blue crab project with his longtime collaborator, Jeffrey Shields, a professor at the Virginia Institute of Marine Science. The research, which is taking place in small coastal estuaries of the Delmarva Peninsula, focuses on the effects of environmental change and fishing pressures on outbreaks of the pathogenic parasite Hematodinium, which can be especially deadly to young blue crabs.

Key goals of the project are to define the roles that salinity levels—which can be affected by climate change—and fishing levels play in Hematodinium epidemics. Over-harvesting of adult crabs, which are more resistant to the parasite, increases the relative abundance of the more susceptible juvenile crabs and may alter the natural dynamics of this infectious disease, Butler says.

“The effect of fishing pressure on disease has received little attention, which is surprising given the increasing reports of disease in marine populations that experience significant exploitation.”

Chris Platsoucas, dean of the College of Sciences, lauds the scope and importance of Butler’s work. “His research involving infectious disease, such as with blue crabs and Hematodinium, certainly deserves the external funding and recognition that it is getting.”

Unexpected Product of Lobster Studies Makes Media Stars of Researchers

Connect-the-dots investigations, the kind that appeal to ODU marine biologist Mark Butler, can lead to unexpected findings and even the limelight.

Caribbean spiny lobsters have been a research focus for him for more than a decade, and he has found how a virus called PaV1 can take a toll on the juvenile populations of the lobster, especially when the infections are spurred on by environmental degradation.

Fishermen who trade in the crustacean complain about the virus and the losses it causes them, but Butler and his research colleagues noticed that the highly infectious disease didn’t kill nearly as many lobsters as might be expected. The creatures are highly sociable, thus susceptible to passing the disease among themselves, but only about 7 percent of any given population would die.

Were some lobsters immune? Did behavioral characteristics help some avoid infection?

Enter an ODU postdoctoral researcher, Donald Behringer, who was working with Butler off the coast of Florida. He noticed what seemed like a quarantine habit among the young lobsters; healthy lobsters would shun others that were infected. Several months of tests in open waters and in controlled labs proved that the quarantining did, indeed, happen and that the healthy lobsters could somehow tell which to shun even before symptoms were exhibited. The findings were the first ever to show that creatures in the wild shun neighbors of the same species that have contracted an infectious disease.

“That was sheer serendipity,” Butler says of the discovery, which happened in 2006. He, Behringer and collaborator Jeffrey Shields of the Virginia Institute of Marine Science wrote articles about the quarantining for the prestigious journal Nature, as well as for other scientific publications. Those spawned a literal blitz of publicity for the researchers, with the New York Times, Washington Post and Science magazine’s Science Now Daily News Web page leading the charge.

(Behringer is now on the faculty at the University of Florida. The researchers have since shown that healthy lobsters detect the infection in others by chemical means.)
Coral Reef Study Keyed to Connectivity

For the coral reef project off Mexico, Belize and Honduras, Butler is part of a working group studying “Connectivity and Large-Scale Ecological Processes,” in short, how the planktonic larvae of coral reef-dwelling animals are dispersed and in turn influence the replenishment of coral reefs perhaps as far away as thousands of miles. That word, connectivity, is particularly apt in Butler’s case, he says. “What really drives my hodge-podge of research interests is simply my curiosity in so many aspects of marine ecosystems, understanding how all the parts work together.”

Coral reefs, which compose the world’s richest repository of marine biodiversity, are obvious subjects for connectivity research because with so many life forms—from corals, to fish, to lobsters—the full range of larval life histories and behaviors that affect dispersal distances, and thus the connectivity of species among reefs, is on display. To further complicate matters, the peculiar traits of those life forms and the swirling sea currents that transport them, react to environmental change—to warmer water, higher salinity or pollutants, for example. So scientists may know that coral reefs are in deep distress worldwide and that larval connectivity is key for their survival, but they are not sure of the origins or destinations of each reef’s life-sustaining larvae, nor how to cobble together a remedy for these iconic, but rapidly deteriorating ecosystems.

Butler’s connectivity assignment for the World Bank project centers on a species with one of the longest plankton-dwelling larval stages in the Caribbean and one that supports the most important fishery in the region—the Caribbean spiny lobster. He has been studying lobsters for years and fondly calls them “my lab rats.” Once hatched from clusters of orange eggs carried beneath a female lobster’s tail, the lobster’s tiny, spider-like larvae are carried on ocean currents for nearly a year, eventually returning to settle in shallow, coastal nursery areas often far from home. “Lobsters, indeed most marine animals, aren’t like chickens. Their planktonic larvae can potentially move across great distances, and so are a lot more like windblown seeds than the young of barnyard animals. Traditionally, it’s been thought that lobsters in the Caribbean were one large population—one big mixing bowl of widely dispersing larvae. But we’re finding that the larvae don’t float passively and this greatly affects where and how far they travel.” The larvae of lobsters and fish, for example, can move up and down in the water column, where currents move at different speeds and directions at various depths. So by making minor navigation adjustments in response to light and chemical cues, the larvae can control to some extent where they travel.

Fishermen Hurt by Lobster Disease

Nutrients, sediments and pollutants, on the other hand, are simply at the mercy of moving water. It will take a very sophisticated model, therefore, to replicate the hydrodynamic and demographic factors that create a spiny lobster ecosystem. Understanding these complex relationships on large, ocean basin scales are matters for computer modeling that would otherwise be brain busters. As it happens, Butler has a knack for designing experiments whose data can be merged into simulation models. Along with marine ecology, he teaches a biostatistics class at ODU.

While Butler and two colleagues from the University of Miami, Robert Cowen and Claire Paris, are studying spiny lobster connectivity using modeling, others in the World Bank project are applying molecular genetics, chemical tags and even tiny magnetic beads to study the dispersal of corals and fishes. Indeed, one goal of the World Bank Connectivity project is the development of advanced tools to better measure demographic connectivity in all sorts of species all over the world.
A third project under way for Butler involves Caribbean spiny lobsters and a virus called PaV1, which kills enough juvenile lobsters each year to take a bite out of the valuable industry that markets the delectable crustacean. Butler and Shields have been awarded two NSF grants over the past seven years for a continuous study of how factors related to ecology, fishing and the lobsters’ behavior influence the infectious disease in the species.

Similar to the way that Hematodinium outbreaks can strike blue crabs after heavy fishing removes a major portion of the adult population, the PaV1 infections may rise along with fishing pressures. Also, water management in the Everglades and environmental changes can start a chain reaction that promotes PaV1. Butler says large sponges he has studied off the Florida Keys can fall victim to blooms of phytoplankton due to changes in their environment, and, as it turns out, this is bad for lobsters. The sponges are like apartment buildings for juvenile spiny lobsters. As sponges die, more and more juveniles must crowd into the sponges that are still living, and the lobsters’ tighter quarters hastens the spread of the infectious PaV1. “We sometimes say that the loss of sponges creates a rural-to-urban shift in lobster living,” he explained. (See sidebar on page 19.)

**Balancing Act in the Everglades**

Yet another related study in which Butler is involved, and has been on and off for 15 years, is for the South Florida Water Management District. They oversee a large conservation project, the Comprehensive Everglades Restoration Project, which essentially involves “replumbing” of the Everglades—work that is supposed to return the Everglades to a more pristine state—but may have some negative impact on spiny lobsters. The conservation work is changing drainage patterns out of the Everglades, back to those before the turn of the century, before humans cut channels and drained the Everglades for flood control, farming and urban use. The restoration plan will shunt large quantities of freshwater back into the sea at places where this hasn’t happened in many decades. Some of those points now serve as spiny lobster nurseries and, again, this can stress populations of the young creatures. In this case, what is good for the ecosystem as a whole is likely to be detrimental to lobsters and the lobster fishery.

The ecological connectivity among species and ecosystems, complicated processes that in various forms drive his zeal for research, can yield counter-intuitive results, Butler maintains. That’s why we need science; that’s why we need experiments and statistical analysis, he adds.

He uses fishermen to make his point. “Fishermen are wonderful observers of the natural world. They have a vested interest in it. But they’re not scientists and therefore not trained in making connections between cause and effect—what you observe and what is causing it. Often they will get the effect right but the process wrong. Our field and laboratory experiments are necessary to understand processes such as disease transmission, then we build ecological models to pull all the information together to address ecological problems at scales larger than experiments allow. That’s where science comes in.”

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Mark Butler
The School of Physical Therapy at Old Dominion University is teaming with the university’s Virginia Modeling, Analysis and Simulation Center (VMASC) to give walking-impaired stroke victims a virtual reality path to recovery.

A group of researchers led by Martha Walker, chair of physical therapy in ODU’s College of Health Sciences, has recorded an impressive success rate through the first 18 months of the project.

The rehabilitation strategy being employed was illustrated by the visit of a 62-year-old Portsmouth man to a Health Sciences Building lab in February of this year. He is the seventh client of the research project and he appropriates for himself the name Patient 007. But the fact is, he has some work to do before he is in “special agent” form. He has hardly walked at all since he was disabled by a stroke in 2007. He says he does not have confidence in his balance, but he has told the researchers that he knows he must rise from his wheelchair and practice getting around on his own two feet if he is to get his balance back.
Toward the end of the 90-minute visit, Patient 007 will take a treadmill walk in a make-believe environment displayed on a large-screen television and driven by computer software. “It’s more like you’re out for a stroll than on a treadmill,” Walker says. And it’s not a routine stroll. The virtual environment follows a sidewalk along a busy boulevard, and as patients walk they see on the horizon the Arc de Triomphe. Could this be the Champs Elysees? Are we in Paris? A virtual walking mate named Chris urges patients to keep going so they can get a close-up look at the celebrated Arc.

**Virtual reality therapy plays to ODU’s strengths**

Virtual reality has long been used for military and pilot training. More recently researchers have been looking at ways to adapt the technology for rehabilitation uses. Some groups have developed programs to enhance hand function or ankle function. Walker and her team decided to work on the whole-body task of walking. The combination at ODU of rehabilitation professionals and techno-wizards, made this a perfect place to carry out this research. (See sidebar story for another virtual reality physical therapy application being tested at the College of Health Sciences.)

The School of Physical Therapy is known for its fully accredited and thorough program leading to a doctorate, as well as for the high rate of licensure of its students. The school moved during 2006 into state-of-the-art facilities in a remodeled Health Sciences Building. Furthermore, Walker wanted to take advantage of ODU’s VMASC, which specializes in simulation and visualization applications, such as one that teaches a medical student how to perform in a virtual operating room. Finally, Walker knew that she could tap working relationships already in place between her college and experts at the local Eastern Virginia Medical School and Sentara Norfolk General Hospital.

For startup funds, she turned to a multidisciplinary seed grant competition sponsored by the ODU Office of Research. She proposed a team of investigators including two colleagues from the College of Health Sciences, George Maihafer, associate professor of physical therapy, and Gianluca De Leo, assistant professor of medical laboratory and radiation sciences. Stacie Ringleb, a biomechanical engineer and VMASC researcher, and Jessica Crouch, an assistant professor of computer science, signed on as well, and so did Bonnie Van Lunen, assistant professor of exercise science, sport, physical education and recreation at ODU’s Darden College of Education. From outside of ODU, Walker recruited Jean Shelton, chair of the physical medicine and rehabilitation department at EVMS, as well as Robert Walker, attending physician for the stroke rehabilitation unit at Sentara Norfolk General Hospital.

The impressive lineup of investigators and the novel idea helped the project—which Walker dubbed “Virtual Reality in Gait Rehabilitation”—win $75,000 of the ODU seed money. The goal of the Office of Research is to fund startup research that can quickly evolve into projects that win external funding.

**Project is successful right from the start**

With the seed funding, the researchers began assembling their hardware: a personal computer, a 50-inch flat-screen television, a professional-grade treadmill and a harness-and-hoist device that can steady patients and, if necessary, support a little of their weight while they are gaining strength. Next came the software phase. Some of the simulation software could be purchased, but it had to be integrated into an overall program.

Early in 2007, Walker and Maihafer began to see patients. When Walker made the progress report that the Office of Research required in the summer of 2007, she told her audience that four patients had been seen, and that all four had made significant progress. She seemed amazed herself by the results. These patients were recovering stroke victims who for one reason or another had stopped making progress in their physical therapy, and yet were not walking as well as they wanted to. But put them on the Champs Elysees and, Voila! they walked and walked and walked, gaining strength with every visit to the lab.

Similar success was recorded for patients five and six in the second half of 2007. But Walker did not know what to expect from Patient 007, who arrived on that February 2008 morning in a wheelchair, attended by the two home nurses who look after him for most of the day at his apartment in Portsmouth. Patient 007, as was clear from the preliminary tests that Walker performed, was unsteady. His left
leg seemed almost useless. “He is the most impaired patient we have had” in the project, Walker says.

Still, Patient 007 has a good attitude. He has a sly sense of humor and obviously enjoys trying out his lines on the half-dozen people in the lab. He was a cornerback and punt returner on the football team at the old Crestwood High School in Chesapeake, he says. He thinks if this therapy is successful he just may take up football again. But maybe that’s asking too much. At the least, he wants to be able to dance at his son’s wedding, which is only a few months off. And he really would like to be an usher again at his church.

**Patient is skeptical at first**

Walker’s goal for Patient 007 on this February morning is a five-minute walk in the virtual environment. She tells him this as she is putting him through the preliminary medical and dexterity tests. Without losing his ready smile, he shakes his head in skepticism. “I can’t even walk to my refrigerator when I’m hungry,” he quips. He looks over at the virtual reality pod in the corner of the lab and his eyes settle on the harness that will keep him steady as he walks. He says it looks like something the Marquis de Sade would invent.

Patient 007 felt the stroke coming on last year while he was driving to work at WalMart. He says his left leg started to feel heavy and he began to drool. He drove straight to a hospital, where he was helped onto a bed. The next thing he remembers, he wanted to get up but his body would not respond.

He tells Walker that he has gained confidence in his balance in recent weeks. But he warns her yet again not to expect too much walking from him. The time has come for his introduction to the treadmill, and he steps onto the machine only with a lot of help from Maihafer. The harness is strapped around him, and he turns to give his nurses a big grin. He says the harness isn’t so bad after all. He is asked to select an ODU baseball cap from a box of new ones in several colors, including pink. He has to wear a hat to hold the sensor that triggers an alarm if he looks away from the screen. The researchers want him to give himself over to his virtual environment, not look at his feet. Patient 007 tells Walker he’ll take a beige hat. “That pink one is just not me. You can keep the pink,” he says.

The treadmill starts at a slow roll. Although Patient 007 is walking only about a half-mile an hour, he seems awkward. His left leg can’t get with the rhythm. Chris, the virtual companion, is only a voice that comes from a side speaker. “Hi, I’m Chris. I’m here to walk with you around town.”

Slowly the speed increases and Patient 007 settles into a gait that pleases the researchers. He seems to get a second wind. The Arc de Triomphe appears in the distance and gets larger as he walks. “You’re doing well today,” Chris says. And a few moments later, “The more you walk, the stronger you’ll get.” Patient 007 wants to know how long he has been walking. Walker tells him three minutes. He wants to stop, but she encourages him to keep going for a little while longer. “Excellent, keep walking to the finish line,” Chris intones. “Take nice slow breaths. We can get there.” The Arc de Triomphe is only a block or two away.

**“It’s for my own good.”**

The feeble left leg starts acting up again just shy of the destination, and by the time Walker yells, “Five minutes!” Patient 007 is pooped. Nevertheless, when he sits back down in his wheelchair he is beaming like a kid who just returned a punt for a touchdown. “Terrific job. We work you hard, don’t we,” Walker says. “Yes, but I know it’s for my own good,” he replies.

This is just the start of Patient 007’s therapy. With each visit to the lab over the late winter and early spring, he will be encouraged to exercise for longer stretches of time on the treadmill. Walker is hopeful about his results. This is just the start, too, of the overall research project. Walker believes the research will be sustained by additional funding, which will allow the team to conduct more tests of the concept. She wants to tweak the concept, too. What if there were a selection of virtual environments from which the patients could choose? “We could say, ‘Where would you like to go today?’ My favorite is a zoo,” she confesses. “The patient could make a virtual visit to a zoo.” Also, she would like to present graphics on the screen that are more lifelike.

But she steadfastly maintains that she wants neither the hardware nor the software to get too sophisticated or expensive. “The idea is for this to be inexpensive enough so every clinic can afford to have one of these systems,” she explains. Right now, the system in use, which is producing excellent results, can be had for under $10,000 if used with an existing treadmill and harness. A fancier setup with three-dimensional imagery or holographs could cost many times that, putting it out of reach for the average clinic to buy. “Our goal,” says Walker, “is to create a gait rehabilitation system that is effective and affordable so that all patients who need it can get the benefits.”

Added Maihafer, “So far the pilot study has demonstrated remarkable promise. I do hope, with proper funding, that we can broaden it.”
Walking Skills Grow for Children with Cerebral Palsy Who Play Dragon and Princess Game on Treadmill

Gait rehabilitation by means of a virtual reality stroll near the Arc de Triomphe is not the only research application of the television-and-treadmill pod in Old Dominion University’s College of Health Sciences.

Karen Kott, associate professor of physical therapy, and Gianluca De Leo, assistant professor of medical laboratory and radiation sciences, are testing game-based virtual reality as a way to improve the ambulatory capabilities of children with cerebral palsy. The children try to save a princess from a dragon as they walk—on the treadmill—in game environments that include forests, parks, towns and castles.

The researchers won a Summer Experience Enhanced Collaborative Research grant of $17,000 from the ODU Office of Research in 2007 to get the project off the ground. So far, collaboration between the College of Health Sciences, the ODU Center for Learning Technologies, and Virginia Modeling, Analysis and Simulation Center (VMASC) has produced a total of nine hours of simulated environments and background music that gives children a fun reason to walk on the treadmill.

As the children walk they can collect rewards for carrying out tasks that will help win freedom for the princess. Gems or coins are tacked to the special shirts the children wear, like medals being awarded for heroism.

A progress report completed after two boys, one 4 and the other 8, had completed the test regime, showed that the game environment did encourage faster and longer therapeutic workouts on the treadmill. Gross function motor tests are administered before the therapy starts and three weeks later when it is completed, and each boy displayed improvement in some test categories.

Kott said in early March that a third child had completed the regimen, also with positive results, and that other tests were planned. She and De Leo are discussing other funding possibilities with the Office of Research to extend and expand the project.

Assisting with the project have been Katrina Lester, a physician from the physical medicine and rehabilitation department at Eastern Virginia Medical School; physical therapy students Valerie Southfield, Nicole Ellis, Sherita Wilson and Shawn Rosengrant; and multimedia production staffers Brian Williamson, Stuart Gordon and Jacky Edwards.

Rosengrant presented a winning paper at the VMASC national Capstone Conference in April 2007 outlining the project objectives: 1) design and development of a virtual reality system to enhance treadmill training for interventions for children with cerebral palsy, 2) test the use of virtual reality as a motivational tool to enhance training on the treadmill in children with cerebral palsy, and 3) determine if there is any improvement in the participants’ functional ambulation using a Standardized Walking Obstacle Course.

“Incorporating game-based, virtual-reality treadmill training into the treatment of children with cerebral palsy is proposed to improve their ability to develop to their highest ability and may prove to have benefits that last throughout their lifetime,” the article stated.

Kott is an expert in the use of the Standardized Walking Obstacle Course for measuring ambulation in children. She said she expects to design future studies that will use virtual reality to test children with other disabilities and with other goals for the development of motor skills.

De Leo, who has a joint appointment to the College of Health Sciences and VMASC, has expertise in health and biomedical informatics and virtual reality.
Young Researchers Stalk Diseases Spread by Ticks and Mosquitoes

Major NIH Grants Support Their Studies

Diseases spread by ticks are a growing health hazard in the United States and elsewhere in the world.

Malaria, which is spread by mosquitoes, also is a lethal threat today—especially to children in developing countries—despite more than a century of concentrated efforts against it.

Two young Old Dominion University researchers, mathematical ecologist Holly Gaff and biologist Roland Cooper, have undertaken projects to combat insect-bite diseases, and the National Institutes of Health (NIH) has made significant investments in their projects.
Holly Gaff’s Modeling of Tick-Borne Disease Attracts Prestigious Grant

Gaff, who is on the faculty of ODU’s College of Health Sciences and also affiliated with the university’s Virginia Modeling, Analysis and Simulation Center (VMASC), is working under an NIH career development grant of $500,000. It supports her innovative research, which uses mathematical modeling to study human monocytic ehrlichiosis (HME), an emerging tick-borne disease.

There has been a dramatic increase in tick-borne diseases throughout the United States and worldwide over the last 10 years, Gaff said.

“While many Americans are familiar with Lyme disease and Rocky Mountain Spotted Fever, other lesser known tick-borne diseases occur with increasing frequency, causing additional morbidity and mortality,” she said. HME, which has been tracked only for a couple of decades, jumped from 142 reported cases in the United States in 2001 to 506 in 2005, and the geographic range of the disease also has expanded, she said.

The NIH award to Gaff was made last year, not long before she joined the ODU faculty. The university’s Research Foundation announced early in April 2008 that administration of the grant had been moved to ODU.

She is the third young ODU faculty member whose research is being promoted by a major career development grant from a national funding agency. Currently supported by National Science Foundation (NSF) career development grants are Michael Nelson, assistant professor of computer science, and Min Song, assistant professor of electrical and computer engineering.

ODU administrators and colleagues pointed out the research boost Gaff is providing both to the College of Health Sciences, where she serves as an assistant professor of community and environmental health, and to VMASC, where she is part of the medical and healthcare modeling and simulation cluster.

Mohammad Karim, ODU vice president for research, said Gaff’s work is cutting-edge. “Mathematical models of how diseases spread and transform over both time and space are becoming vital to our efforts to combat diseases,” he explained. Andrew Balas, dean of the College of Health Sciences, agreed. “We are proud that our colleague, Dr. Gaff, is in the forefront of this exploration.”

“She is an impressive young researcher,” added Stacey Plichta, the chair of the School of Community and Environmental Health. “We are delighted that she has this award.”

Gaff, whose NIH project is titled “Spatially-Explicit Mathematical Model of Human Monocytic Ehrlichiosis,” said one of the biggest challenges to understanding tick-borne disease outbreaks is that they seem to occur unpredictably. “Given the unique and very complicated life history of ticks, it is difficult to study the disease in nature,” she explained. “Many scientists have spent their lives devoted to exploring these fascinating creatures. Mathematical models provide an invaluable tool to explore the dynamics of tick-borne diseases such as HME.”
“Mathematical models of how diseases spread and transform over both time and space are becoming vital to our efforts to combat diseases.”

MOHAMMAD KARIM, ODU VICE PRESIDENT FOR RESEARCH

The researcher began working on mathematical models of HME during her graduate work at the University of Tennessee, Knoxville, where she received her doctorate in mathematics in 1999.

Following an outbreak of HME at a retirement golf facility in Cumberland County, Tenn., Gaff worked with the Entomology Department at UTK to predict the impact of tick eradication efforts on the long-term risk of HME in the area. Although the work used a simple model, it was effective to predict that the eradication efforts would reduce the risk of HME at a greater percent reduction than even the reduction in tick population, she said.

This work led Gaff to pursue mathematical modeling of tick-borne diseases as a larger part of her career research interests. She began exploring options to obtain funding for work in that area, and was successful with NIH. Her grant, which extends until the spring of 2011, provides support for halftime academic year release as well as summer salary.

The results of her modeling work will be new insights into the spatial and temporal distribution of human tick-borne disease outbreaks, she said. Insights into the distribution patterns can be helpful for notification of medical professionals to be watchful for influxes of patients with tick-borne diseases, which otherwise may be misdiagnosed. Additionally, the analysis of the model will provide guidance for more effective control strategies aimed at reducing the numbers of HME cases, she said.
In the United States, human diseases caused by *Ehrlichia* bacteria have been recognized since the mid-1980s, and they have been identified mainly in south central and southeastern states. HME is caused by *Ehrlichia chaffeensis* and is spread by the Lone Star tick, *Amblyomma americanum*.

HME sometimes is deadly, but it more commonly causes damage to kidneys, lungs or other organs. It is treated with antibiotics.

Gaff’s work benefits from the expertise of ODU’s long-time tick researcher, Daniel Sonenshine, emeritus professor of biological sciences, who serves on her mentoring committee. Other mentors include Steve Dumler of the Johns Hopkins University School of Medicine; Abdu Azad of the University of Maryland, Baltimore; Rick Ostfeld of the Institute for Ecosystem Studies; and Denise Kirschner of the University of Michigan School of Medicine.

**Roland Cooper Investigates Malaria Parasite’s Resistance to Drugs**

Cooper, assistant professor of biological sciences at ODU, is one of three researchers who will share in a $1.25 million grant from the NIH to study the drug resistance of *Plasmodium falciparum*, the lethal human malaria parasite.

The principal investigator on the grant is Michael Ferdig of the University of Notre Dame. Cooper and Paul Roepe of Georgetown University are co-principal investigators. Their project, “Determinants of Growth and Fitness in Drug Resistant Malaria Parasites,” will be funded beginning in the spring of 2008 and extend over five years.

“We will be studying how 60 years of intense drug pressure has reshaped the genome of *P. falciparum*, which kills about 1 million people each year, mainly children in sub-Saharan Africa,” said Cooper.

The malaria parasite infects the red blood cells of its host and is transmitted from person to person by mosquitoes. No vaccine for malaria exists, and the lack of affordable, effective drugs for people of developing countries is the main reason for the large numbers of annual deaths.

“Roland Cooper’s malarial drug resistance work is significant and timely and is evidence of ODU’s expanding research portfolio in lifespan biology,” said Karim, the university’s vice president for research.

The three researchers have collaborated for a decade and produced numerous publications on aspects of drug resistance in human malaria, Cooper said. The team will use new approaches such as complete genome hybridizations and quantitative trait mapping to reveal the gene networks that confer physiological adaptations in the parasite in response to drug pressure.

Drug resistance mutations can decrease parasite fitness when the drug is actually not present, but the parasite bounces back, Cooper said. “The plasticity of the parasite’s unique genome allows it to quickly adapt and thrive. A thorough understanding of the biology of the multidrug-resistant malaria parasite will allow more rational approaches to clinical drug therapy and development in the future.”

This project for Cooper follows a career development award that he received from the NIH for malaria drug research as well as a postdoctoral fellowship that he served in the NIH’s malaria genetics division. He received his doctorate in pharmacology and toxicology from the University of Arizona in 1996 and the next year he returned to the classroom at Harvard University to earn a master’s in tropical public health. He joined the ODU faculty in 2003.

Two of Cooper’s graduate students at ODU, Carmony Hartwig and Jennifer Spence, won national awards from the American Society of Tropical Medicine and Hygiene in 2006-07 for their studies of the antimalarial drug artemisinin. Compounds such as artemisinin have been used for centuries against malaria, but scientists still do not have a good understanding of how it kills the parasite. Furthermore, according to Cooper, as use of artemisinin grows, parasite resistance to it is likely to emerge as well.
**Kuhn Wins ODU Research Award**

Sebastian Kuhn, professor and eminent scholar of physics (Quest, Vol. 9, Issue 2), was named the winner of Old Dominion University’s 2008 Faculty Research Achievement Award at the fifth annual Research Expo held April 9, 2008, at the Ted Constant Convocation Center.

Kuhn is a nuclear physicist who conducts experiments at the Thomas Jefferson National Accelerator Facility in Newport News. His work on the spin—or angular momentum—composition of the proton and neutron has had an important influence on our understanding of matter.

At Jefferson Lab, Kuhn has led collaborations of close to 150 physicists from 35 institutions, and the experiments have produced data of unprecedented accuracy. He was elected a Fellow of the American Physical Society in 2007 “for his leadership on measurements of the nucleon structure functions, in particular in the non-perturbative and valence region.”

Gail Dodge, chair of ODU’s Department of Physics and a nuclear experimentalist herself, said Kuhn was instrumental in developing the scientific motivation for the proposed $310 million upgrade of the continuous electron accelerator at Jefferson Lab.

“Sebastian’s work has led to a significant improvement in our understanding of the distribution of quarks inside protons and neutrons,” Dodge added. “He is an outstanding physicist and a wonderful colleague. We are thrilled that his work has been honored by ODU in this way.”

**Day’s Minority Mentoring in Wetland Science Gets New Funding**

A Society of Wetland Scientists (SWS) minority undergraduate mentoring program that Old Dominion University ecologist Frank Day (Quest, Vol. 7, Issue 2) has directed for the past four years has won a second round of funding from the National Science Foundation (NSF).

Day was the principal investigator for a grant titled “Undergraduate Mentoring in Wetland Science With a Focus on Underrepresented Groups” that served 21 students from 2003-07. The latest grant, which he also leads, is worth almost $60,000 and will continue the mentoring program through 2011.

The program provides travel and other expenses enabling undergraduates to attend the SWS annual meeting and be exposed to graduate degree programs and career possibilities in wetland science. Eligible students are African American, Hispanic, Latino, Native American, Native Hawaiian, Pacific Islander or persons with disabilities.

In 2002, during Day’s term as president of the SWS, he delivered an address calling for action to increase racial and cultural diversity within the organization. “We are composed of a dynamic mix of academics and government and private-sector scientists and practitioners,” he told the membership.

“However, a quick look around at SWS meetings and other professional ecology activities reveals very low racial and cultural diversity in our memberships. I do not believe this is a result of willful omission, but I do think more can be done to be more inclusive with regard to underrepresented groups.”

The call to action led to the launch of a SWS Human Diversity Committee and the successful bid for the initial NSF grant.
Second Edition of Kersey’s Award-Winning CD-ROM Released

The second edition of the award-winning “The 101’s: A Guide to Positive Discipline,” a multi-media/interactive program produced by Katharine Kersey (Quest, Vol. 8, Issue 2) and Old Dominion University’s Office of Academic Technology Services, has been released.

Based on research by Kersey, professor of early childhood education and former chair of ODU’s Department of Early Childhood, Speech-Language Pathology and Special Education, the guide is a user-friendly training tool offering solutions to child care providers, teachers and parents to help children become happier, better equipped to settle differences peaceably and more self-directed.

The original CD-ROM set, which showed the “101’s” used with children 8 weeks to 6 years of age, came out in 2004 and has since had a wide distribution. The winner of a 2005 Videographer Award, a Bronze Telly Award and the Aegis Video & Film Production Award (Training and Education), it has been translated into Chinese and a Spanish language version is forthcoming. The new guide focuses on children ages 5 to 12.

Available in CD-ROM for individual use, and DVD and VHS formats for groups, the second edition of the “101’s” costs $40, compared to the $250 price tag for other training programs offered to schools to help train teachers in classroom management. The sets can be purchased online at www.dl.odu.edu/101s.

Journal Award Notes Laroussi’s Leadership in Cold Plasma Research

A paper about the germ-killing potential of cold plasmas authored by Mounir Laroussi of the Old Dominion University engineering faculty (Quest, Vol. 3, Issue 2, and Vol. 9, Issue 2) has been selected by the New Journal of Physics (NJP) as one of the most significant articles it published during the last decade.

The paper, “Plasma Interaction with Microbes,” which was published in 2003, was included in a special collection of article summaries commemorating the 10th anniversary of the journal. NJP debuted in 1998 as a publication of the Institute of Physics and the Deutsche Physikalische Gesellschaft.

In this paper, Laroussi and his co-authors demonstrated a correlation between electrostatic forces caused by charging effects in a plasma and experimentally observed morphological changes in bacterial cells. After its publication, this paper became one of the most downloaded papers and was added to the “select” list of the Institute of Physics.

Laroussi, ODU associate professor of electrical and computer engineering and director of the university’s Laser and Plasma Engineering Institute (LPEI), has been a pioneering researcher in cold plasmas and in biological applications of plasmas. The plasma pencil, a hand-held device like a miniature light-saber that Laroussi introduced in 2005, was the subject of news reports in National Geographic and numerous other publications around the world.
American Accounting Association Elects Bagranoff as President

Nancy Bagranoff, dean of Old Dominion University’s College of Business and Public Administration, has been elected president of the American Accounting Association (AAA). Bagranoff will serve as president-elect for one year and become president in 2009.

The AAA, founded in 1916, has more than 8,000 members worldwide, most of whom are accounting academics.

As president, Bagranoff will become a national spokesperson on accounting research and education. She will chair the organization’s Executive Committee and Council, which includes a vice president of practice, typically a managing partner of a “Big Four” accounting firm. She also will preside over the AAAs annual meeting of more than 2,500 attendees and will be responsible for the meeting’s technical program.

Bagranoff’s election as AAA president brings international attention to ODU’s College of Business and Public Administration.

“Nancy is an outstanding leader who is able to bridge the academic community and accounting profession,” says Candy Duncan, mid-Atlantic area managing partner - audit for KPMG. “Nancy takes over leadership of this organization at an exciting time for the industry and offers the right blend of skills to be a big success.”

Bagranoff will officially assume the duties of president-elect at the AAA’s annual meeting in August 2008 in Anaheim, Calif.

New Book by Yetiv Examines U.S. Policy in Persian Gulf


Yetiv, who has traveled widely in the Middle East and is a frequent media commentator on the region, argues in the book that the distinguishing feature of the United States’ experience in the Gulf has been the absence of a grand strategy. He gives examples of how the U.S. government has employed shifting, improvised and reactive policies that were responses to unanticipated and unpredictable events and threats.

In a review, Patrick James, director of the Center for International Studies at the University of Southern California, wrote: “This book makes an original contribution and is a welcome relief from much of the polemical writing on the subject of American foreign policy. The scholarship is excellent. It will be essential reading for those in securities studies and international relations.”

Yetiv also is the author of “Explaining Foreign Policy: U.S. Decisionmaking and the Persian Gulf War,” also published by the Johns Hopkins University Press.

Mellon Foundation Invests in Nelson’s Research

The Andrew W. Mellon Foundation has invested $25,000 in computer science research being done at Old Dominion University to improve access to Web pages that are related to each other.

Michael Nelson, assistant professor of computer science (Quest, Vol. 10, Issue 1), will apply the grant to his work on the international Open Archives Initiative-Object Reuse and Exchange (OAI-ORE). He is on the technical committee of the project and co-editor of specifications that will result from OAI-ORE.

The grant will support the development of prototype applications to test the coherence and utility of the emerging protocol for the reuse and exchange of digital objects. OAI-ORE is providing specifications for “resource maps,” which define aggregations of Web resources. The maps allow Web crawlers to understand what is in and out of aggregations such as scholarly e-prints, photo packages in Flickr, blog entries and the like.

“My research group is interested in digital preservation,” Nelson said. “Understanding the boundary of an aggregation of Web resources will help us quantitatively evaluate preservation of such things as university classes and blogs.”

As an ODU faculty member since 2002, Nelson has won more than $2.5 million in research support from the National Science Foundation, NASA, the Library of Congress and the Mellon Foundation. His project, “self-preserving digital objects,” is supported by more than $500,000 from the NSF’s Early Career Development program.
Take a Guess—
Will the New Book by Larry Weinstein and John Adam Sell Like Hotcakes?

Larry Weinstein and John Adam work in rarefied realms of science, the former as a nuclear physicist who conducts atom-smashing experiments and the latter as a mathematician who develops mathematical models of how tumors grow and wounds heal. But the colleagues at Old Dominion University in Norfolk have written a new book about numbers that almost anyone can find interesting.

“Guesstimation: Solving the World’s Problems on the Back of a Cocktail Napkin,” which arrived in bookstores in April, generated enough advance orders to cause Princeton University Press to bump up its initial press run to 7,500.

In 12 chapters and more than 80 “guesstimation” examples, the authors explain how to make useful ballpark estimates by breaking complex problems into more manageable ones. To the question, “How many circus clowns can fit into a Volkswagen Beetle?” they establish a low bound for the answer (1 clown) and high bound (100 clowns), and then find the approximate geometric mean of those two numbers, 10, which is their guesstimate.

Brisk and entertaining prose makes the science and mathematics of the book easy for the layman to grasp. Illustrations by Patricia Edwards, a lecturer in ODU’s art department, also brighten up the pages.

Behind the fun puzzles and fetching qualities of the book, however, is plain usefulness. Policymakers dealing with complex numbers about pollutants in the atmosphere or businessmen struggling with investment decisions can learn from the authors to keep their thinking on plausible tracks. Endorsements on the book jacket reveal its broad appeal.

Businessmen and workplace performance strategists have been quick to realize the book’s potential usefulness as a problem-solving tutorial. In his review, Martin Yate, the author of the “Knock ’Em Dead” job-search and career-management books, wrote: “Wow, I suddenly grasped concepts that have eluded me for a lifetime. If you work anywhere in the professional world and are aiming for the corner office, this little book could have significant impact on both your analytical abilities and the way you are perceived by others.”

Weinstein, who conducts research at the Thomas Jefferson National Accelerator Facility in Newport News, was elected a Fellow of the American Physical Society on the strength of his original contributions to the study of nucleon-nucleon correlations in nuclei.

Adam’s research involves mathematical modeling in areas ranging from biology to astrophysics. He was a 2007 winner of a State Council of Higher Education for Virginia (SCHEV) Outstanding Faculty Award, which is given for teaching, research and service.
Kaplan Orchid Conservatory Opens on Campus

ODU students Heather Murphy (left) of Norfolk and Heather Barnes of Hampton take a break from their spring studies to visit the Arthur and Phyllis Kaplan Orchid Conservatory that opened on the Norfolk campus in April. The $2.1 million facility, which holds nearly 300 species of orchids, includes a display room with waterfall and pools that is open to the public from 10 a.m. to 2 p.m. weekdays. Special visits can be arranged by contacting Stephen Urick, conservatory director, at surick@odu.edu.

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