# PAMPLIN

COLLEGE OF BUSINESS

FALL 2011

## GOTCHA!

## MBA ALUM LEADS FBI CYBERCOPS

*FBI cyber division assistant director Gordon Snow (MBA '01)*

VirginiaTech
*Invent the Future*

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Virginia Tech's nationally ranked Pamplin College of Business offers undergraduate and graduate programs in accounting and information systems, business information technology, economics, finance, hospitality and tourism management, management, and marketing. The college emphasizes the development of ethical values and leadership, technology, and international business skills. Its centers focus on business leadership, business diversity, and electronic commerce. The college is committed to serving business and society through the expertise of its faculty, alumni, and students. It is named in honor of alumnus Robert B. Pamplin, who died in June 2009 at age 97 and was the retired CEO of Georgia-Pacific, and businessman, philanthropist, and alumnus Robert B. Pamplin Jr.


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# HTM ranks with the best

Pamplin's hospitality and tourism management faculty are among the world's top scholars in the discipline, according to a study in the August 2011 issue of *Journal of Hospitality & Tourism Research*.

The study identified the 50 most prolific institutions and authors worldwide in hospitality and tourism as two separate fields as well as the top 100 authors and universities in the combined field. The rankings are based on the number of article contributions in the discipline's six most influential research journals in 2000-2009.

Pamplin faculty Vince Magnini and Ken McCleary, and emeritus professor Michael Olsen are listed, as is Zvi Schwartz, who joins the department this fall from the University of Illinois at Urbana-Champaign. The study ranked Virginia Tech No. 8 among the top 100 universities for hospitality and tourism research.

Magnini, ranked 19th in the hospitality field and 55th in the combined ranking, focuses on services marketing — communications between managers and potential customers, connections between managerial behaviors and frontline employee performance, and interactions between frontline employees' actions and customer responses.

McCleary, ranked 100th in the combined field, studies marketing strategy and consumer behavior in tourism, restaurants, and hotels. His other interests include wine and winery management, international hospitality marketing, and cultural tourism.

Olsen, 21st in hospitality and 55th (tie) in the combined field, focused on strategic management and financial management in the global hospitality industry. The founding head of Virginia Tech's hospitality and tourism department, Olsen helped guide it to its status as one of the premier programs in the world.

Schwartz, also 21st in hospitality and 47th in the combined field, investigates tourism and hospitality demand forecasting and optimal allocation of units and prices. His work is aimed at improving understanding of revenue management issues, including decisions and behavior of tourists and firms.

# Red Ventures sponsors senior showcase

Charlotte, N.C., marketing firm Red Ventures will sponsor this fall's BIT Senior Showcase Day on Tuesday, Nov. 29, noon to 1:30 p.m., in the Pamplin Hall atrium.

At the event, business information technology majors present website and software development work they did in the Business Analysis Seminar in IT class, a senior capstone course taught by assistant professor Alan Abrahams.

The team and individual projects allow students to apply software discussed in the course, says Abrahams. "Three teams will create an online applicant management and screening tool to allow Red Ventures to test the analytical ability of candidates applying for careers at the company," says Abrahams.


Bill Bradley


Greg Ip


Jack Radke


Robert F. Hogan Jr.


Deborah Petrine

# LOOK WHO'S TALKING

**Cutchins Distinguished Lecture:** Former U.S. senator and presidential candidate **Bill Bradley** discussed American politics, culture, leadership, and ethics in his talk, "Leadership in a Changing World."

**BB&T Distinguished Lecture: Greg Ip**, U.S. economics editor for The Economist, discussed "The Post-Crisis American Economy."

**Business Ethics Conference:** Attorney **Jack Radke** gave the guest lecture, "Ethical Leadership: The Power of One."

**Wachovia Distinguished Lectures: Robert F. Hogan Jr.** (ACCT '78, MACCT '80), president and chief executive officer of AmerCable Inc., discussed his career and the cable manufacturing industry in "Hokie Education — Foundation for Growth." **Deborah Martin Petrine** (MGT '78), president of Commonwealth Care, discussed her career in health care in her talk, "Secretary to Owner: The Road to Ownership with a Few Bumps in Between."

# LEAP into college

Leap students show support.

A small group of Pamplin freshmen started their studies this fall already familiar with the campus, its academic resources, and some of their fellow students, thanks to a new Pamplin program that helps incoming students transition from high school to college. The 12-day summer program called LEAP (Leadership, Excellence, and Academics in Pamplin) offered pointers on how to acquire effective study habits for the college environment, manage change, develop time management techniques, create a positive social network, and locate tutoring, counseling, health services, and other resources. For the full story, please visit: http://j.mp/leap_into_college.

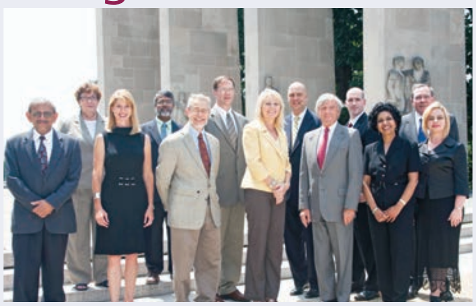
# EMBA Great Falls


Great Falls Cohort visiting Intel in Ireland. The students also visited firms in Turkey. Below: the iconic Suleymaniye mosque in Istanbul.

Executive MBA students in the Great Falls Cohort visited businesses and cultural sites in Turkey and Ireland during their international residency trip in July.

In Istanbul, the 18 students, along with program executive director Charles Jacobina, visited the Istanbul Stock Exchange and Seker Securities (where the group was interviewed by Bloomberg TV), as well as the offices of Deloitte, the U.S. Commercial Service, and the Turkish American Business Association. In Ireland, the group visited Apple, Pfizer, Intel, and Microsoft.

# Bridge to Business



The six graduates of Pamplin's 2011 post-doctoral bridge-to-business program share a celebratory moment with some of their faculty members, dean Richard E. Sorensen, and others. The graduates teach at institutions in the U.S. and abroad.

The annual summer program, aimed at alleviating the critical national shortage of business-school faculty, prepares individuals with Ph.D.s in non-business disciplines for new careers as business faculty members.

For more information about the program, please contact Frank Smith: fmsmith@vt.edu, 540-231-4972.

# HOKIES ON WALL STREET

The college's 11th annual "Hokies on Wall Street" reception in New York this spring drew 84 Pamplin College alumni and friends together for an evening of networking and reconnecting with several faculty members.

Hokies on Wall Street was held at the offices of investment firm AllianceBernstein.

For more information:
www.pamplin.vt.edu/spotlight/spot110606

# Undergraduate scores with *The Extra Point*


This fall's football season at Virginia Tech is the first one Pamplin senior Nik Bandopadhyaya is missing in four years. A self-described "football fanatic," Bando (the last name he prefers to go by), last year helped kick off *The Extra Point*, a campus newspaper dedicated to Hokie pigskin.

In London since July, interning at The Economist Group, he will return to Tech for the spring semester, long after football season is over. He has, however, been keeping tabs on the paper long distance, advising its new staff and assisting in organizing and planning its new partnerships with two student-run organizations, VTTV (Channel 33) and SPPS (photo services).

Bando, who is also advertising director for College Media Solutions, the student-run ad agency at Virginia Tech, says the idea for a campus football paper came out of discussions he had with the editor-in-chief at the time at the *Collegiate Times* and others at the ad agency.

In developing the idea and pitching it to his student-media colleagues, Bando says he drew from his marketing classes on new product launches. "My Pamplin courses taught me the importance of evaluating a market and looking for a potential revenue opportunity." He conducted market research, and put together a business plan.

More than 20 students came together to create *The Extra Point*, Bando says: writers, reporters, editors, photographers, and advertising sales, design, and production staff. "They worked tirelessly while taking a full course load."

The publication, which launched last summer, was "extremely successful in its first season," he says. "We produced nine editions, with 15,000 copies per edition. Many students and Hokie football fans enjoyed the student view of our team. Not only was our audience satisfied, but our advertising clients, whom we rely on in order to operate our business, benefited from the ROI on their ads in our product."

Nik Bandopadhyaya in London.

Bando, who is from Washington, D.C., plans a career that would allow him to merge his interests in communications media, entrepreneurship, and emerging business markets. "Dr. Djavad Salehi-Isfahani's class on Middle East economic policy," he says, influenced him to work abroad and learn more about the world.


JOHN MCCORMICK

# GOTCHA!

## MBA ALUM LEADS FBI CYBERCOPS

Cell phones, cameras, and other electronic devices are forbidden in Pamplin alumnus Gordon Snow's office.

Visitors to his building encounter an obstacle course of electronic scans, passes, and turnstiles before entering a vast lobby where they must wait to be escorted, through more electronically secured portals, into the inner warren of spaces. Hallway decor includes mug shots of America's ten most wanted fugitives, including Osama bin Laden, whose entry was stamped across with a conclusive update: "Deceased."

Snow (MBA '01) works at FBI headquarters in the J. Edgar Hoover Building in Washington, D.C., where he leads the bureau's efforts in combating cybercrime and other computer-based threats as assistant director of its cyber division.

Cybersecurity is a growing worry for businesses and governments and has become one of the FBI's highest priorities. High-profile hacking incidents this year targeted such institutions as the International Monetary Fund, Citigroup, Google, Lockheed Martin, Nintendo, Sony, and Nasdaq.

The number and sophistication of cyber attacks increased dramatically over the past five years and is expected to continue to grow, Snow says. "It's easy for somebody, given enough time, energy, and funding, to penetrate any system that is accessible from the Internet. There really is no secure system out there."

A former Marine, Snow has been with the FBI for nearly 20 years. Before being appointed to his current post in 2010, he worked on counterterrorism, counterintelligence, as well as cyber, white-collar, and violent crime assignments around the country and abroad (See sidebar p. 7).

In this fall's cover story, Snow talks about the FBI's cybersecurity work with guest interviewer Wade Baker, director of risk intelligence at Verizon and a Pamplin doctoral student in business information technology (see p. 9). Topics include the nature and extent of cybercrime, cybercriminals' motives and methods, what businesses can do to manage their risks, and the benefits of his Pamplin MBA education.

**Wade Baker: Is there a standard definition that the FBI uses for a cybercrime? What are the different types of crimes you would investigate?**

Gordon Snow: A cybercrime would be a crime committed using a computer or a computer network. The meat of our program is in intrusion or hacking — the definition of that type of crime would be under title 18 U.S.C. 1030.

We are focused on four strategic objectives related to reducing the cyber threat to the United States while protecting the freedom, privacy, and civil liberties of Americans: first and foremost, to stop those individuals, groups, or foreign powers behind the most serious computer intrusions and spread of malicious code; second, to identify and thwart online sexual predators or groups that sexually exploit children for personal or financial gain; third, to counteract operations that target U.S. intellectual property, endangering our national security and competitiveness; and fourth, to dismantle national and transnational criminal enterprises engaging in Internet fraud.

The division's priorities align with the strategic objectives, within which we stack our cyber intrusion cases, with the highest priority being counterterrorism, followed by counterintelligence — investigating state-sponsored entities seeking to steal information for the benefit of a foreign government — and then criminal intrusions. An individual or group with intrusion capabilities presents the most significant threat to our national security and national computer infrastructures, with the potential to impact the national economy. Child exploitation, intellectual property theft, and Internet fraud complete the cyber portfolio.

As both an intelligence and law enforcement agency, the FBI can address every facet of a case — from collecting intelligence on the subjects in order to learn more about their networks to dismantling those networks and prosecuting the perpetrators. The ability to take action on the information we collect is critical, because what may begin as a criminal investigation may become a national security threat.

**Most of our money moves in zeros and ones across IT lines now, and as business processes become more dependent on information technology, I imagine the scope of what you're trying to protect is increasing all the time.**

Absolutely. Financial crime is a huge portion of cybercrime and, given the potential impact on our financial infrastructure, it is also a national security concern for the country.

**What's the size of this problem? I've read that the financial losses from computer intrusions are larger than the drug trade.**

It's really difficult to put a size on the problem. Many people and many organizations don't report intrusions. They prefer not to disclose that their systems have been compromised, so they absorb the loss, making it impossible to accurately calculate damages.

The best that the government and private sector can offer are estimates. Over the past five years, estimates of the costs of cybercrime to the U.S. economy have ranged from millions to hundreds of billions. A 2010 study by the Ponemon Institute estimated that the annual cost of cybercrime to an individual victim organization ranges from $1 million to $52 million. The cases range from very sophisticated intrusions to what many would consider unsophisticated fraud.

Understand that there really is no secure system, because there are so many vectors of access — remote, proximate, insider access, and supply chain — and all systems are interconnected.

But there are some things that individuals can do if they believe they are a victim of a crime. The FBI's Internet Crime Complaint Center receives complaint information and makes links to other victims across the country. By aggregating these events, law enforcement entities are able to prosecute matters where victims had once been informed "there is nothing we can do to help you." Our website "LooksTooGoodToBeTrue.com" highlights examples of recurring scams, and the

*Reducing cyber threats*

## FOUR STRATEGIC OBJECTIVES

1. Stop those individuals, groups, or foreign powers behind the most serious computer intrusions and spread of malicious code.
2. To identify and thwart online sexual predators or groups that sexually exploit children for personal or financial gain.
3. To counteract operations that target U.S. intellectual property
4. Dismantle national and transnational criminal enterprises engaging in Internet fraud.

**"Many people and many organizations don't report intrusions. They prefer not to disclose that their systems have been compromised, so they absorb the loss, making it impossible to accurately calculate damages."**

J. Edgar Hoover building, Washington D.C.


JOHN MCCORMICK

Gordon Snow, left, head of the FBI's cybercrime effort and Pamplin alumnus, talks with Wade Baker, risk intelligence director at Verizon and Pamplin Ph.D. student, about cybersecurity in business and government organizations.

FBI web page is also a good starting point for people to sign up for fraud alerts and report crime.

**Over the last five or six years, there have been more laws governing what types of cybercrime intrusions must be reported. These vary from state to state. Will there be centralized reporting? An equivalent of the National Transportation Safety Board for cybercrime events? A lot of the reporting now is about regulated data — personal information, payment card stuff; what's not often reported is theft of intellectual property.**

You're right, I think there are 47 different, distinct data breach laws at the state level. Currently, both the White House and Congress are working on legislation to address cybersecurity and data breach.

**What are the main categories of cybercriminals and what drives them?**

**Understand that there really is no secure system, because there are so many vectors of access.**

We break it down to about three different arenas: cyberterrorists who would do damage to our critical infrastructure such as the electricity grid, financial sector, and transportation networks, and who have the same motives as those who carry out traditional physical attacks — they view the U.S. and its allies as their enemy; state-sponsored intrusion from foreign governments interested in the research and development of private industry and the defense industrial base that would give them a global advantage; and then those who do it for pure financial gain.

Cybercriminals have one thing in common — their realm is characterized by low risk, anonymity, and very large potential gain. The potential for considerable profits has resulted in the creation of a large underground economy. The cyber underground is a pervasive market governed by rules and logic that closely mimic those of the legitimate business world, including a unique language; a system of stratification based on knowledge and skill, activities, and reputation; and a set of expectations about conduct — so if you and I enter into an agreement, and you decide not to give me my share of the money, it's a very close-knit community, I can make sure you don't get a chance to work again.

Website forums are one means of communication within the cyber underground. On these forums, criminals buy and sell login credentials, phishing kits, malicious software, access to botnets, social security numbers, credit cards, and other sensitive information. Cybercriminals are increasingly professionalized, organized, and have specialized skills.

**Crime was much more limited 100 years ago, in terms of the physical area or number of targets one criminal could attack. The interstate highway system expanded that territory. Now with the Internet, criminals in one country can attack victims in completely different countries on the same day.**

That's a great analogy. Take, for example, the national and international drug trade and its distribution networks — think of all the material and personnel and logistics involved. On the information super highway, you don't need to find somebody in another state to act as your proxy, you can get to that state from your living room or your business or wherever you operate. The cyber underground facilitates the exchange of resources, enabling criminal operations across multiple countries.

In late 2008, an international hacking ring carried out one of the most complicated and organized computer fraud attacks ever conducted. The group used sophisticated hacking techniques to compromise the encryption used to protect data on payroll debit cards, allowing a network of "cashers" to withdraw more than $9 million from ATMs in at least 280 cities worldwide, within 12 hours.

Not only are criminals advancing their abilities to attack a system remotely, but they are becoming adept at tricking victims into compromising their own systems. Social engineering — techniques based on exploiting human rather than computer weaknesses — is one of the less sophisticated but more effective and more pervasive means of entering somebody's system right now. Find an e-mail that you believe somebody would open, find out a bit more about them, send that e-mail to them, and see if you can get them to click on a link.

**The social engineering aspect is just one of the more difficult things to manage, from an organizational standpoint, because people like to click on things, they seem to like to trust other people.**

Well, trust is inherent in the Internet, it's one of the reasons it's such a great communication medium. Social networking site users fall victim to the schemes due to the higher level of trust typically displayed on such sites. Users often accept into their private sites people they do not actually know or sometimes fail to properly set privacy settings on their profile.

Individuals can misrepresent everything about themselves online, including gender, age, and location. One recent fraud scheme involves hacking into e-mail or social networking accounts to send messages to the users' friends — "I'm stranded in Paris, somebody broke into my hotel room, I need $3,000 now" — and to ask the friends to wire money to an overseas account.

In the Robin Sage incident publicized last year, a security consultant created a fake profile on several social networking sites, posing as an attractive female intelligence analyst. He sent out about 300 friend invitations, mostly to government contractors, military, and other government personnel and got many good responses, including from several high-level government officials and a member of the military, who sent a photo of himself on patrol in Afghanistan that contained embedded data identifying his exact location. The consultant was seeking to make people understand that this is really a concern. But if it had been taken in another direction, it could have been the adversary knowing exactly where the patrol was or maybe their habits, and being able to target them.

**The cyber underground is a pervasive market governed by rules and logic that closely mimic those of the legitimate business world.**

There's always a bricks and mortar analogy: you wouldn't put a big sign on your front lawn advertising that you will be away, that your house will be vacant. Yet, on your social networking page, you say, "Hey, I'm taking off to Europe for two weeks. We're going to have a great time, we won't be back for a while."

**Mining the Internet for information on people is getting easier all the time, especially when we seem to be putting more of our lives up for public view, especially the younger generation. I think this is one of these trends we have to address in cybersecurity. I'm not a huge social networker, and I try to remember that it's not a private medium. A lot of people think: "so I log in, anything I say there is private." That's just not the case. There's a chance that (due to security holes) it may all become public.**

Social networking sites, as well as corporate websites in general, provide criminals with enormous amounts of information to use in e-mails to individual targets who have shown interest in specific subjects. The personal and detailed nature of the information in the fraudster's e-mail erodes the victim's sense of caution, leading them to click on links, which contain malicious software designed

## Public Service
### a natural career choice

A public service career was a natural choice for FBI assistant director Gordon Snow. "I grew up in Detroit, in the city, my dad was a police officer there. Every parent I knew was a police officer, a fireman, or was working in a career that would be beneficial to society."

He enlisted in the Marines and later served as an officer, spending 10 years with the Corps. When it was time to do something else, Snow sought a job with a service focus. "I was always very grateful that I had the opportunity in the Marine Corps to do the things that I did to serve the people and the country, and I hoped that I would find a job like that again."

Snow applied to the FBI, but the bureau was in a hiring freeze. He moved back to Detroit and turned his attention to earning advanced degrees in business and law. He was in his first semester there, in 1992, when the job offer came from the FBI.

He almost didn't accept, Snow said, thinking that he should complete his law degree instead. One of his teachers, a former assistant U.S. attorney, advised him otherwise, noting the new and exciting technologies being adopted by the bureau. "He was talking about automated fingerprint identification systems and things that are routine to us now."

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Snow signed up. He spent his early years in the Birmingham, Ala. division, tracking fugitives and investigating violent and white-collar crime, bank robberies, drug trafficking, civil rights violations, and public corruption. In the mid-90s, he became a member of the critical incident response group's hostage rescue team. He participated in rendition missions, conducted terrorism assessments overseas, and served on various support teams after the bombing of the USS Cole in Yemen and the embassy bombings in Kenya.

After several years with the counterintelligence division's Middle East and Detroit units, Snow moved to FBI headquarters in Washington, D.C., to lead the weapons of mass destruction unit. That assignment was followed by moves to Silicon Valley and Afghanistan, where he served as the FBI's on-scene commander for the counterterrorism division, before returning to Washington to work in the cyber division. He became the division's deputy assistant director in 2009 and assistant director last year.

The diversity of his assignments, Snow says, is a plus in his current role. "Cyber encompasses everything. I believe the different experiences I have had in the organization have assisted me immensely in the position I currently hold."

to give the sender control over the victim's entire computer.

I would love to say to everybody that social networking is a huge security concern, but it would be hard for any organization not to use it. Organizations need to be in the media, they need to get their message out, whatever organization it is, including the U.S. government. Many people don't have social networking web pages, but many people will — it'll be something that's just normal, like having a telephone number.

I think the better message is: make sure you understand the risk. Understand privacy controls and what you're sharing. Somebody going through college right now doesn't want their credit score ruined or their information stolen. When they get out of college, they don't want to be fighting identity theft while looking for a job and trying to pay college bills.

**How do businesses go about managing this problem? There are lots of technical solutions, but I think our biggest problem is in applying them — making business decisions on how to use them to improve security. You work with businesses on investigations, what are their most common mistakes?**

There has to be a cultural shift on how we view security. Traditionally, security has just been an expense that has decreased the bottom line. Also, because of a lack of understanding of what the threat is, many businesses are solving a problem that innovation has already surpassed, when they apply additional security solutions.

If we know there's no such thing as a secure system, that we're going to get hacked, and we may not even know that we're hacked, that we have to prepare for critical information, networks, and processes being unavailable — we have to get to a zone where we manage information more than we manage systems and hardware. Coca Cola's formula is safe. Because it's probably in a safe — on a piece of paper, not accessed by a network.

After 9/11, we watched the whole world try to evaluate the risks terrorism presented, a lot of people asking, "how do I protect my business, my home, my livelihood?" A lot of "what ifs," a lot of good preparedness exercises. I don't think we do that now in cybersecurity. There are many exercises, but they're not an ingrained risk process.

Many of the most important things a business can do look obvious. They really need to see if good security procedures and practices are in place. Many times, we find out they're not doing normal network hygiene. They're not updating, they're not patching, and even if they do or think they're doing it correctly, they don't understand their network architecture, their domain.

I always tell businesses that they need to understand their risk and their domain and then decide what they need to solve for that risk. And what is risk? The threat times the vulnerabilities times the consequence. And if you can move any of those variables to zero, then you can move risk to zero. I don't think the threats are going to disappear anytime soon, and the vulnerabilities are numerous. If we can't bring threat and vulnerability to zero, then what is the impact of the consequences? It has to be a multifaceted approach, using risk analysis.

For the Pamplin school, a point that's very critical is that for any person that's going to run a business or be responsible for information or for their company, to keep it a going concern, it's essential that they understand cybersecurity and what their risks are: what are their threats, vulnerabilities, and consequences of cyber intrusion on their entity and everything they've built.

To truly understand how every facet of the education you are pursuing is integral to and strengthens the businesses you work for or will work in, you have to understand that cybersecurity is not only an organizational responsibility, it is the responsibility of each individual in the organization.

### MOST WANTED
### CYBER INVESTIGATORS

The FBI's current demand for cyber investigators exceeds the supply of qualified applicants. Learn about this and the FBI's growing cyber division on the web.

**WEB EXCLUSIVE!**
Read this article online at
http://j.mp/pamplin_wanted

Get the free phone app at
http://gettag.mobi

# AGENT BULKS UP SKILLS with MBA

Gordon Snow worked on his graduate degrees at night, earning an MBA at Virginia Tech's Northern Virginia Center-National Capital Region in 2001 and a J.D. from Catholic University in 2006.

He chose Virginia Tech, he says, as it had "the best structured" MBA program. "The Pamplin MBA was most challenging," but also "very, very enjoyable," he recalls. "I appreciated all the instructors and the friends I met going through the program. We were all doing the same thing, and you're bonded by the fact that while it's obviously rewarding, it's also tiring and difficult."

His MBA has served him well in "absolutely everything" in his FBI career, Snow says, by expanding his knowledge and skills in finance, management, marketing, and information technology.

Intent on making connections between his night classes and his day job, he used course assignments to explore professional challenges — "I think I wrote all my papers on something that I was trying to do in the bureau" — and concentrated in finance, to better understand such processes as money laundering and the black-market peso exchange system.

"In the bureau, we have historically always followed the money," he says, in tracking criminal activity. He recalls investigating several cases involving funds at one point and being pleased at his ability to understand the more intricate aspects of financial structures and operations and to use his knowledge "to look for new leads."

The information systems classes he took in the MBA program, he says, also gave him a good foundation for the cyber intrusion classes that he would take in his off hours while working at the FBI Academy in Quantico, on the hostage rescue team.

"I was in over my head pretty quickly when I went into the program," he says of the MBA technology courses. "A lot of good instructors there really helped out and put me on track in record time."

# CYBER SURVIVAL

As director of risk intelligence for Verizon Business, Wade Baker oversees the collection and analysis of data that helps Verizon's institutional clients and the security community understand and manage information risk. Baker is the creator, lead author, and primary analyst for Verizon's annual data breach investigations reports, available free to the public. The 2011 report was produced with cooperation from the U.S. Secret Service and the Dutch National High Tech Crime Unit. Baker speaks regularly to the news media on cybersecurity topics and has published articles in academic and trade journals. After completing doctoral coursework in Pamplin's business information technology program and proposing a dissertation on a decision support system for managing information security risk, he joined Cybertrust in the Washington, D.C. area. Verizon bought Cybertrust in 2007.

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Wade Baker says that in his job, he brings "research into the realm of practice."

## Trying to reduce the guesswork

Information security is currently more of an art than a science. Some would call it a religion. We recommend or require various practices that we believe are effective, but we don't often measure exactly how effective they are. Are our "best practices" really the best? The truth is, we don't know. We don't know because we don't have a lot of data, and since we don't have data, our models are immature as well. Without these basic tools, making decisions about managing information risk involves a lot of guesswork. In my research, I'm trying to reduce the amount of guesswork involved in the security decision-making process.

## Intelligence and research

In our role of intelligence and research, we're studying each of those incidents and identifying who did it, what methods they used, how systems were affected, which security practices failed, what types of data were stolen, etc. We collect such data on every incident, aggregate and analyze it, and use that data to support our clients and the general public in managing information risk.

## Something useful and valuable

The project that would become the Data Breach Investigations Report started in 2007 as a way to obtain high quality risk data. Good data in the security space is scarce, and we saw an opportunity to create something useful and valuable. Cybertrust/Verizon's investigative response team had for years handled some of the largest breach cases in the world. They could tell you the kinds of things that happened often, but they didn't have any hard data or statistics on their caseload. We created a framework for capturing that data and, once we saw what we had, decided to publish our findings.

## More surgical strikes

If you ask what "leapt out" at me most during our analysis of 2010 breaches (which form the basis of the 2011 DBIR), it was the extreme changes we saw in the number of incidents and amount of data stolen. In 2010, we investigated more incidents than ever in which consumer data — payment cards, bank accounts, personal information — was stolen. And cybercriminals appear to be changing the way they accomplish this. For example, in years past, we studied some huge breaches of large organizations that affected tens of millions of consumers in a single incident.

We didn't see any of those in 2010 — which is a good thing. Unfortunately, it's not as though the bad guys took the year off; what we did see was a huge number of lighter, faster, and more surgical strikes against smaller organizations.

This may be because many of the criminals behind those massive breaches are in jail, under prosecution, or on the run. This rise in smaller attacks may represent a tactical shift toward less risky and lower-hanging fruit.

## Using what we already have

The core problem with securing information systems isn't a lack of innovation, but rather a quality management problem. Sure, we need to develop better tools and tricks, but what we really need to do right now is get smarter about how we use the ones we have. Ninety percent of our problem relates to known threats with known solutions, yet we continue to fall far too easily and far too often to those threats.

If we got really serious about eliminating the routine defects and mistakes, I'm convinced we'd be in a much better position to figure out how to handle that last 10 percent.

## Five Tips

1 An organization's approach to data security starts with policy and planning. Most large organizations have these in place, but many smaller organizations and franchises don't — or if they do, they're not communicated very well to staff.

2 Moving on from policy are the processes, technology, and people that must be put in place to uphold these security policies. This is the first and critical line of defense. After studying thousands of data breaches, I would wager that an organization's next breach will stem from a failure to do what they have stipulated in policy that they should do.

3 Which brings me to my third recommendation — implement accountability procedures to check and help ensure that policies are actually being met.

4 Fourth, for critical areas, check these things again. Having another set of eyes do this — a third party — is a good idea. In our experience, this helps prevent the overwhelming majority of data breaches.

5 It takes a long time for victims to discover they've been breached and when they do learn of this, it's usually because a third party alerted them. The only way this will change is if organizations increase awareness and visibility into what occurs in their networks, systems, and applications.

# WHEN USERS RESIST PASSWORD SECURITY

Though most organizations have policies and guidelines to protect their information systems from unauthorized access, research has shown that employee compliance is often a problem.

"Even if the policies are mandatory, individual perceptions, interpretations, and behavior vary within the process of complying," says accounting and information systems professor France Belanger, who, with three doctoral students, completed a new study exploring the attitudes and "resistance behavior" of individuals faced with a required information technology security change. Previous studies, she says, largely focused on voluntary behavior.

Using their own institution as a case study, Belanger and her team — Eric Negangard and Kathy Enget (accounting and information systems) and Stephane Collignon (business information technology) — surveyed undergraduate and graduate students, faculty, staff, and administrators at Virginia Tech. The university required its information systems account holders to change their passwords by July 1, 2011, after evaluating password practices in the wake of recurring security problems. Accounts would not be accessible with old passwords after the deadline.

The survey comprised 571 respondents; the study was based on a final sample of 425 participants.

Managers who develop and implement information security procedures may find some useful lessons about change management in the study, Belanger says. It highlights the role of user awareness of the security change in influencing user attitudes toward the change and shows the relative importance of various organizational measures to publicize the change.

"Promoting awareness is an important part of the change management process. Our results suggest that organizations should also consider a number of other factors that can affect user attitudes towards the change and, in turn, their resistance behavior." These include user perceptions about the usefulness and ease of use of the particular information system, their vulnerability to the security threat, the influence of their social network, and their technical competence or ability to perform the protective action.

"By fully understanding these factors and considering their impact on attitude and intention," she says, "organizations can more successfully manage the process of mandatory security policy enhancements."

Belanger notes that a company's physical property was historically its most valuable and most easily safeguarded asset. "Today, one of the most valuable resources is information — information that is kept in a variety of systems and accessed and transmitted from employer as well as personal desktop and laptop computers and smart phones. All these access points or devices are subject to security threats, and their security is, ultimately, the responsibility of the individuals using them."

Belanger says the model she developed incorporates elements from previous studies on technology acceptance and user resistance, including research demonstrating that compliance and resistance are not polarized extremes. "There can be some level of each in the other. The fact that people do not act directly against a policy implementation or change is not sufficient evidence that there is no opposition."

Researchers, she says, have distinguished three forms of compliance: "mandatory," when individuals abide by an external authority; "introjected," when they feel coerced and oppressed and may resist; and "volitional," when they see themselves rather than an external authority as being in control of their own behavior. Volitional compliance, she says, can represent a form of resistance. In observing a password change, for example, individuals view their action as being self-directed ("I'm changing my password because I want to, not because the policy says I have to").

To those who argue that individual feelings do not matter when compliance is not a choice, Belanger says that resistance can take various forms, from mild or passive — expressed by a lack of interest, apathy, inaction or indifference, refusal to accept responsibilities — to active — resulting in actions that include formal or informal protests, complaints, or demands.

In a mandatory change, users may express their opposition by not participating in the spirit of the change — doing only the minimum required and/or waiting until the last minute to comply. "While complying, the individual may remain unmotivated or indifferent," she says, "This can be problematic. Studies have shown that uninvolved individuals are the weak link in an organization's security chain of defense."

For example, she notes that though notification of the Virginia Tech password change began in February 2011, only 63 of the 571 individuals who responded to her survey had changed their passwords before the survey was conducted in April. Among those who had not changed their passwords, the intention to resist ranged from "rather not resistant" to "strongly resistant."

## PRIVACY STUDIES

Very few researchers study information privacy concerns of organizations, according to France Belanger and a colleague who reviewed information privacy studies in more than 500 journal articles. Learn about what they found in our web article "Privacy studies."

**WEB EXCLUSIVE!**
Read this article online at
http://j.mp/pamplin_privacy

Get the free phone app at
http://gettag.mobi

Says Belanger: "Our study shows that resistance can exist while abiding by the rules."

The study team also tracked announcements and other notifications from the university throughout the process. "While the first notification was made on Feb. 8," Belanger says, "the survey revealed that many individuals were not aware of the change for many months."

The university's online course and project management site (Scholar) was the most effective vehicle in promoting awareness of the change to faculty and students. Just over 50 percent of the respondents indicated that they first heard of the change requirement via this site, while 14 percent, the next highest response, cited Belanger's survey.

"Contrary to our expectations, the results indicate that perceived severity of the security threat does not have a significant influence on attitude. In other words, people are conscious that a password breach can have severe consequences, but it does not affect their attitude toward the security policy implementation."

Another surprising finding: the more technical competence respondents have, the less they favor the policy enhancement. Belanger speculates that the mandatory aspect of the policy change may be why. "In a voluntary implementation, that competence may be a vector of pride and accomplishment. In a mandatory context, the individual may feel her competence challenged, triggering a negative attitude toward the process."

These unexpected results, she says, suggest directions for further research.


France Belanger's study may offer lessons about change management

JIM STROUP

# TEACHING INFORMATION SYSTEMS TO TODAY'S LEARNERS

Asked to teach an introductory course on information systems that had long been somewhat unpopular among students, accounting and information systems professor France Belanger knew she was in for a challenge.

The course was a requirement for master's students in her department, but it was clear that "a number of students did not want to be there and did not care about the content." Belanger, an award-winning teacher and researcher with 18 years of experience, brought in cases, having used this approach in other master's classes. "The case discussions went well, but the lecture material was pretty much lost on most of them."

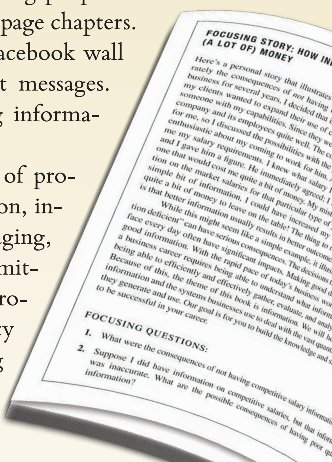
Redesigning the class, she cut back lecture time and introduced "practice" sessions on subtopics that required students to do practical exercises on a technology issue — such as developing a privacy policy, testing their computer's security, or researching an emerging technology.

The result: strong turnout and lively discussions — "students really wanted to know why certain things happened when they acted on some technology-related issue," Belanger recalls.

Inspired, Belanger put her ideas to wider use in a new textbook, *Information Systems for Business: An Experiential Approach*, that she co-authored with Craig Van Slyke, an associate dean and professor at Saint Louis University, who saw a similar response after incorporating short activities and related discussions in his introductory course. The book, filled with experiential exercises and questions, is primarily aimed at juniors, seniors, and non-information systems graduate students.

"Information systems touch almost every aspect of our lives — not only producing information, but helping us make better use of information," Belanger notes. "Yet, students are often detached and uninterested in the introductory course, especially if they are not IS or IT majors and the course is traditionally structured and focused on conceptual knowledge."

The book aims to "connect new information to what most students already know, either from general life experience or material covered earlier in the course." Its 14, tightly focused chapters provide only the necessary information, she says, leaving students to fill in the details themselves through the learning exercises and online materials. "Young people today don't want to read 50-page chapters. They live in a world of Facebook wall postings, tweets, and text messages. They're used to receiving information in small chunks."



Topics cover a range of processes related to information, including evaluating, managing, organizing, storing, transmitting, and securing it; protecting its confidentiality and privacy; developing information systems; and e-business.

Each chapter opens with a focusing story, which helps "ground the content in a concrete example" that also demonstrates the relevance of the material, and ends with activities, including review and reflection questions, many of which integrate multiple concepts.

Actively applying the concepts, reflecting on the discussion, and understanding the topic's relevance increases engagement and deepens the learning experience, she says.

# PRIVACY OR SAVINGS?

## Electronic health records save money, but are they secure?

At Lund University in Sweden on a Fulbright, Janine Hiller furthered her research on EHR systems in Sweden and the EU.

COURTESY OF JANINE HILLER

Electronic health records can potentially save billions of dollars in health care costs and increase patient safety but have considerable risks to individual privacy in the United States, more so than the European Union, says a new study co-authored by Pamplin business law professor Janine Hiller.

"EU countries have adopted electronic health records and systems, or EHRs, and legally protected privacy at the same time," Hiller says. EHRs include a wide range of patient medical information collected in digital format and accessible via computer, most often over a network.

Strengthening the legal and technical safeguards, she says, would significantly minimize the privacy and security risks and address public concerns in the U.S. about EHRs. Her study examines their benefits and drawbacks, the adequacy of U.S. laws to meet the challenges posed by the privacy risks and concerns, and compares the EU's legal approach to EHRs.

The U.S. legal framework for health care privacy, she says, is "a hodgepodge of constitutional, statutory, and regulatory law at the federal and state levels." Differing and conflicting state privacy laws led to the enactment of the federal Health Insurance Portability and Accountability Act of 1996, which was amended by the Health Information Technology for Economic and Clinical Health Act of 2009.

Hiller and her co-authors believe that though federal efforts to protect privacy seem to be a step up from inconsistent state laws, Americans currently still "have no real control over the collection of sensitive medical information if they want to be treated," in contrast to the choice accorded to EU residents.

Hiller does research that is at the intersection of electronic communications technologies, law, public policy, and privacy, security, and trust issues. She is the lead author of the comparative study, which was co-written with Matthew McMullen, a former program director of the Office of International Research, Education, and Development at Virginia

Tech; Wade Chumney, of the Georgia Institute of Technology; and David Baumer, of North Carolina State University.

Their study, she stresses, is the "30,000-foot perspective," an effort to understand a very complex issue by starting at the broad goals and principles.

"The main difference between the two approaches is with the locus of control. In the U.S. system, the patient has little, if any, power in reality. Our legal framework facilitates sharing without empowering the patient."

Americans have access to their medical records, she notes, and can request that errors be corrected. But they have limited individual power to require corrections or prohibit information sharing and must rely on the good intentions and decisions of the health organization.

In contrast, Hiller points out, the EU emphasizes patient control — "the individual has the almost absolute right not to allow sharing of personal health information across systems." Moreover, she says, "the EU places emphasis on pursuing ways to protect personal privacy — such as creating modules for information that can be segregated from particularly sensitive information."

Her study also found similarities between the U.S. and EU. One is in the area of patient redress. As individuals, patients in the U.S. have no legal recourse if their health information is lost, stolen, or misused. They may complain to the Department of Health and Human Services, she says, but "that is not much consolation."

EU patients also cannot take legal action individually, and though they can call on "data inspectors" to act on their behalf, she notes that this is not a simple process. In both the U.S. and the EU, she says, "a stronger accountability framework is needed."

Hiller notes that recent studies suggest that EHRs are currently used in less than one fifth of doctor's offices in the U.S.; however, a 2004 government plan proposed implementing EHRs for the majority of Americans by 2014. "The current emphasis on and incentives to use health information technologies suggest that the timetable for implementing EHRs could be moved up."

EHRs, she says, may offer many benefits: significant cost savings in storing, processing, and transmitting health care records; fewer medical errors; and improved quality of care.

"But do those promised benefits mean we should overlook the potential threats to individual privacy? Health information is considered by most people to be among the most private kind of information. If individuals do not feel that they have control over the sharing of their medical information, they may be less inclined to trust their doctor or health system and therefore could decide not to be completely honest — which would be detrimental to their own health and the purpose of an EHR."

While at Lund University in Sweden on a Fulbright professorship last year, Hiller had the opportunity to expand her research and study EHR systems in Sweden and the EU. Patients in Sweden, she learned, would not give health information to their doctors if they felt that they had no control over the sharing of their records.

Coauthor Matthew McMullen notes that weak privacy and security controls can encourage medical identity theft, considered by some government officials to be the fastest growing form of identity theft. "Medical identity theft harms not only patients, but all taxpayers and citizens, as it is the foundation for many false claims filed for reimbursement under various government and private insurance plans," he says.

Their study, Hiller says, makes it clear that the privacy issue should be central to any discussion of EHR implementation in the U.S. and the technical and policy framework that guides it. Her recent research in Sweden, she says, showed her "that the legal and technical frameworks cannot stand alone; that they should be developed hand in hand in order to design systems that will effectively protect patient privacy."

Until then, she says, "public confidence and trust in EHRs is unlikely."

*"Privacy and Security in the Implementation of Health Information Technology (Electronic Health Records): U.S. and EU Compared" is in the current (winter 2011) issue of the Journal of Science & Technology Law.*



# The power of VISUALIZATION

Whether you are swimming in the Olympics or saving for a vacation, being able to see progress toward your goal will help you reach it. "The easier a goal is to see, the closer it seems," says Rajesh Bagchi, assistant professor of marketing.

Bagchi and Amar Cheema, of the University of Virginia, studied the effect of goal visualization in abstract contexts and report that making goal attainment visual provides motivation for reaching abstract goals just as with physical destinations. Their research appears in the March issue of the *Journal of Marketing*.

Read the story in "The race goes not to the swift ... but to those who can visualize the finish," in the summer 2011 *Research* magazine: http://j.mp/pamplin_visualization.

# FALL is the new SUMMER

Fall is not generally considered prime vacation season, but a case study by hospitality and tourism management professor Ken McCleary and his former graduate student Margaret A. Peercy (M.S./HTM '07) has found that families with children in year-round schools are shifting their traditional summer holiday travel to other seasons, particularly the fall.

"The traditional summer vacation structure is being affected, positively and negatively, as more schools across the nation adopt the year-round school calendar," say McCleary and Peercy, whose study was published in the May 2011 issue of the *Journal of Hospitality and Tourism Research*.

The increasing popularity of year-round school has been attributed to several factors, including a desire to raise educational standards and the need to ease classroom overcrowding, McCleary and Peercy wrote. "When year-round school is implemented, its impact on leisure travel is felt when it comes to who goes on a family vacation, when and where families take vacations, and the length of the vacation."

# SUCCESS *in* TWO WORLDS

## Business & Service

Returning to the United States last December after a couple of years as a volunteer on Nicaragua's Mosquito Coast, Jeff Allison (FIN '91, ENGL '91) moved to the desert of southeastern Washington state for seven months.

There, at the Department of Energy's Hanford Site — home of nine former nuclear reactors built for the Manhattan Project and the Cold War — Allison, a senior pricing policy analyst at Lockheed Martin, led and trained a financial team involved in America's largest nuclear waste clean-up effort.

That assignment over, Allison is back at his company's Rockville, Md. offices, where he heads up a cost estimating team that works on attracting new business. "I am thankful," he says, "to have the opportunity to come back and work for one of the world's leading companies after taking two-plus years off."

Allison had left his job to move to Puerto Cabezas, Nicaragua, to work with its indigenous Miskito Indians on community development projects, including the region's only orphanage. "Puerto Cabezas sits on a cliff that drops off into the Caribbean Sea." It has a population of about 50,000 "but feels smaller than the campus of Virginia Tech," he says, because of its isolated location.

"It takes nearly 30 hours to travel 300 miles by bus to get there from Managua, the capital city. You travel on dirt roads that can be washed out during the rainy season and become impassable until the floods dry. If you are fortunate and have access to a four-wheel drive, you can make the trip in about 18 hours." Flying in via a 12-passenger single-prop plane, he says, takes about an hour and a half.

**He deployed his financial management skills to prepare proposals, budgets, and forecasts while working with American aid groups to support the indigenous church running the orphanage.**

Allison notes that Nicaragua is regarded as the poorest Spanish-speaking country in the world. "When I arrived in Puerto Cabezas, I was taken aback by the level of poverty and the living conditions. Then and still today, the majority of the people do not have clean drinking water, proper sanitation, or adequate healthcare. Families live in one-room wooden shacks where they battle the elements and fight malaria and dengue fever. Many children walk the dirt streets hungry and barefoot."

He primarily worked and lived at the orphanage, assisting its staff members and local leaders in developing a transition assistance program for the older children. With the region's 80 percent unemployment rate, he says, the children will remain in "a world of poverty and despair if they are not equipped with the necessary tools in education, career training, household management, and spiritual grounding."

He deployed his financial management skills to prepare proposals, budgets, and forecasts while working with American aid groups to support the indigenous church running the orphanage. "We are raising funds for a new facility for the 110 children living there. The hope is to build a 200-bed facility so more children at risk can be rescued."

He points to a number of successes, including the

construction of the first transition house. With room for 10, the house gives students an environment in which to study and begin living life outside the structure of the orphanage. "I have big hopes for the young adults," Allison says. "They are very eager to learn and to work their way out of poverty."

He worked with a U.S. organization that underwrote needed repairs and renovations to the boys' dormitory in the wake of Hurricane Felix in 2007. "We were able to buy new beds for every child and do necessary repairs on the facility that houses nearly 40 boys."

Allison and his church (Christian Fellowship Church in

Jeff Allison left his job at Lockheed Martin to work with Miskito Indians in Nicaragua for two years.

Ashburn, which sponsored him during his second year) also established a business in Puerto Cabezas selling high-quality used clothing. “Our company is a for-profit company, but we have written into our by-laws that 100 percent of the profits are to be used for micro-financing, educational, and other community projects and for local ministry work.”

There is a long way to go still, he says, “but I feel that we are walking in the right direction and making strides toward real change in the Miskito nation.” Since his departure, a new team of Americans has moved to Puerto Cabezas to partner with local residents in community development.

Allison is grateful to his family, friends, and church for supporting his volunteer efforts and is particularly appreciative of his employer. “They agreed to give me my one-year leave of absence the day I asked for it. Due to my work record and accomplishments, they granted me the leave and agreed to hold a position for me.”

When he could not return on schedule — there was still too much left to accomplish — he resigned from the company. “It was a hard decision but necessary,” he says, “to ensure that the projects I was working on continued to the point where they are today. Now the locals are managing the projects, which was always the goal. I can help support them from here and visit as often as possible.” When he was ready to return to the U.S., he contacted his former manager and was promptly rehired.

Allison has been “picking up my life where I left off” but remains very connected to his Puerto Cabezas community. “I know I have returned a different man due to the people I lived with in Nicaragua. I try to speak with at least one of my friends on a weekly basis by phone or Skype, when they have Internet service in the area. Being that I took this journey on a leap of faith, I pray for my Nicaraguan family and friends constantly.”

He is helping to raise funds for college tuition for several former residents of the orphanage. “It was my passion to see the children advance to a level of being able to attend college when I first went down there. Now that it is happening, I feel a great peace in their success — as well as a responsibility to see that their opportunities continue.”

Learning Spanish was a must, for Allison and the children at the orphanage. “I was able to pick up some Miskito,” he says, “but we all used Spanish to communicate with each other. Classes are taught in Spanish to help prepare the children for the ‘outside world.’”

He is planning to return to Puerto Cabezas in December to attend an important high-school graduation ceremony. “This is the year my adopted little brother graduates, along with 11 other children living in the orphanage. My prayer is that each of them are able to transition into a new life outside the orphanage and have opportunities greater than those of the generation before them.”

Read the introductory story, “Jeff Allison: A leap of faith brings great rewards,” at http://j.mp/pamplin_allison

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PHOTOS COURTESY OF JEFF ALLISON



# START-UP CONNECTS HOKIES & JOBS

RYAN STONE

Jason Messer takes a break after visiting the Business Horizons Career Fair.

A web site launched by Pamplin alumnus Jason Messer (FIN ’00) has given job-seeking alumni and students and Hokie-seeking employers additional means to connect with one another.

“VTalumni.com has been growing every month, with new resumés, jobs, and visitors,” says Messer, who launched the site in 2009. Messer himself is a senior recruiter at Trademark Recruiting, a private, Tampa-based executive placement firm. “Every resumé is posted by an alumnus or student; every job listed is by someone looking to hire a Virginia Tech graduate or student.”

The site is free to all users, who must register to post items. “You don’t have to be an alumnus to post job openings to our site,” he says, “but you do need to be one to post a resumé.” (When he comes across the infrequent resumé from a non-alumnus, he removes it but also contacts its poster to explain the site’s focus and offer any needed career advice.)

Messer created VTalumni.com from scratch with the help of his software engineer brother Todd, with whom he ran a successful web design firm while working full-time as a recruiter. He came up with the idea for the site, he says, as a way to merge his interests in web design and recruiting and to give back to his alma mater.

“I developed the concept and managed the project, while Todd handled all the coding and developers. We built the custom site, together with a small team of developers, in about eight months, coding every night while managing our day jobs.”

The brothers bankrolled the project themselves, with the goal, Messer says, of one day selling “the platform to other parties looking for a universal, self-maintainable and customizable job portal.”

Though VTalumni.com is self-maintained by design — job posters, for example, can easily delete their announcements by clicking on a “Filled!” button on their screens — Messer spends 4-10 hours a week on site-related work, including promoting it to hiring managers and researching ways to improve it. He recently added features that allow employers easier access through RSS feeds from their sites. “If you are an employer, recruiter, or organization with your own job board and would like to provide us with an RSS feed, please email me: jason.messer@vtalumni.com.”

He also offers career advice through the site’s blog, a newsletter, and tweets. “My goal is to educate users on job opportunities across the country and help them with every aspect of their career, including resumé writing tips and interview advice.”

In one case, Messer went even further, sending the resumé to potential employers and helping the job seeker to negotiate a “top-end” offer. “It was a huge success,” he recalls.

Find VTalumni.com on Facebook at www.facebook.com/vtjobs and Twitter at www.twitter.com/vtalumni.

COURTESY OF ERICA ROBERTSON

# FROM ACCOUNTING *to* AFRICA

## *Pamplin alumna runs school in Rwanda*

Midway into her two-year assignment as education director at an elementary school in Rwanda, Erica Robertson (ACIS '08, M.S./EDCT '09) decided to "re-enlist."

Robertson joined the Rafiki Foundation, which focuses on assisting African children, in late 2009. She moved the following May to Rwanda, where she leads an orphanage school in Nyamata. To raise funds for her next stint (all Rafiki missionaries raise their own support), she returned to America this past summer for a few weeks to speak about her experiences and needs with churches and other groups.

Robertson, who is from Appomattox, visited the church she attended as a student and, during a brief tour of Virginia Tech, marveled at all the changes on campus since she left. Her trip also allowed her to take stock of her work at the school and come up with new solutions to problems she encountered.

One of her biggest challenges continues to be finding teachers who can speak English well enough to use it for instruction. She looks for the best English speakers among the applicants and trains them, a process that requires hiring the teachers many months before they start teaching.

"Since my return to Rwanda, we have started a daily read-aloud time — for all teachers to come together and read in English with each other and myself," Robertson says. "We work on pronunciation, defining unknown words, and using inflexion in reading. Then, we discuss what we have read to keep teachers in the habit of engaging each other in intellectual conversation."

The shortage of English-proficient educators, she notes, is a problem as well for other schools in Rwanda, where most people speak Kinyarwanda, the indigenous language, and a small minority speak French. Moreover, since the government's move three years ago to English as the dominant official language, schools have had to implement the change, she adds, while ensuring that students retain knowledge of their native tongue and culture. Rafiki schools, she says, address the native language dilemma by encouraging students to speak it at home and teaching its proper use in specific classes.

COURTESY OF ERICA ROBERTSON

Robertson leads her kindergarteners out to recess after a Bible lesson.

In recent months, Robertson has helped the school move to "a beautiful building," funded through donations; dealt with inconsistent water supplies; moved a struggling child from first grade back into kindergarten; and admitted two students who had been living with their mothers in prison. "When Claire and Aline came to the village, Aline had respiratory symptoms that often exist in the beginning stages of HIV," Robertson recalls. "We took both girls to the clinic. Aline did have pneumonia, but that was her only illness. It was treated, and now she is happy and healthy. Both girls have made Rafiki their home and love their new mamas very much."

She also managed the finances of the "village" when its finance manager was away (Rafiki training villages include living and medical facilities, in addition to a school, for the orphan children). "My roles mostly consisted of paying our bills, getting the purchasing lists to the right people with the right funds, handling payroll, and keeping the books in order."

Given her accounting background, Robertson says, "this was one of the easiest jobs that has been assigned to me and one I felt very comfortable with." Still, she was happy to return to "putting my whole focus back on the school."

One possible change in duties that excites her is the training of principals in Rafiki's preprimary curriculum, if the curriculum is approved by the government. "We will offer training weeks to local headmasters to learn how to use our curriculum, which is prepared by volunteers in the U.S. with an African audience in mind, and to see it at work first-hand in our classrooms."

Though being a trainer will mean taking on additional work, Robertson is enthusiastic about the prospect of helping partner churches teach English to their youngest students. "As our schools grow, we eventually want to offer training in all levels of our curriculum, which will go through senior secondary school."

Robertson, who is not yet fully funded for her second term, believes that her work in Rwanda is unfinished. "So, until it is complete and the peace I have is gone, I will continue to recommit. I think I am incredibly blessed."

Read the introductory story, "Erica Robertson: Corporate job couldn't satisfy her calling" at http://j.mp/pamplin_robertson.

# Pamplin Campaign Update
# COLLEGE PASSES $80-MILLION GOAL

By any measure, the recently concluded Campaign for Virginia Tech: Invent the Future will be recorded as a resounding success. While the official university campaign totals will not be announced until the celebration event in November, we do know that Pamplin has raised over $85 million during the campaign, compared to its goal of $80 million. This successful outcome is attributable to the efforts of many people, each of whom I wish I could thank personally. Pamplin administrators, development staff, the Campaign Steering Committee, and numerous alumni have all contributed to this wonderful outcome. As we pause to reflect on this achievement, we must begin to shift our focus to the future.

It has been said that the effort to raise critical outside financial support is like running a marathon, not a sprint race. So, it is at this critical juncture, that we look for means to continue our momentum and apply what we have learned from the just concluded campaign to increase annual giving and identify new sources of funding for critical needs and new priorities for Pamplin.

Foremost among current priorities is the establishment of an endowment to fund the Sorensen Dean's Chair. This endowed chair is named in honor of Dean Rich Sorensen for his 30 years of dedicated service to the college. Dean Sorensen has announced his retirement in 2013, and this endowment will be critical in providing supplemental compensation to enable us to recruit his worthy successor. Many other highly important priorities also remain as unfunded initiatives — these include the proposed finance lab, student scholarships, and faculty fellowships and professorships.

While we proudly look back at our achievements, it is with great anticipation that we look forward to what we can accomplish in the future.

It has been my honor to serve as chair of the Campaign Steering Committee, and I am privileged to have had the opportunity to give back to Virginia Tech and to see so many others choose to honor their alma mater by giving back as well.

*–Jim Hatch (MACCT '72)*
*chair, Pamplin Campaign*
*Steering Committee*


JOHN MCCORMICK

# MAJOR GIFTS

**GREGORY C. THOMPSON** (ACCT '77), of Atlanta, Ga., and his wife Kathryn Thompson donated $50,000 to create the Gregory and Kathryn Thompson Dean's Excellence Fund to provide unrestricted support for Pamplin students. Thompson, chief financial officer with Georgia Gulf Corporation, serves on the Pamplin Advisory Council.

**STARLETTE BARKER JOHNSON** (FIN '85), of Dallas, Texas, contributed $50,000 to create the Starlette Johnson Scholarship in Hospitality and Tourism Management and $25,000 to establish the Starlette Johnson Excellence Fund in Hospitality and Tourism Management.

Both gifts will assist the department's current and future students. Johnson serves on the department's advisory board.

**TRACY CASTLE-NEWMAN** (FIN '90), of Westfield, N.J., contributed $25,000 to create the Tracy Castle-Newman Fund for Excellence in Finance to promote educational excellence in finance. Castle-Newman, a managing director of Morgan Stanley, serves on the department's advisory board.

**W. THOMAS CLARK JR.** (FIN '76), of North Salem, N.Y., and his wife Nancy C. Clark have pledged $50,000 towards the establishment of the Nancy and W. Thomas Clark Jr. Excellence Fund in Finance to support finance students. Clark, a retired managing director of Morgan Stanley, is a member of the Pamplin Advisory Council.

**ALPHA NATURAL RESOURCES INC.** has contributed $100,000 to establish the John William Fox Jr. Memorial Scholarship for Pamplin students in memory of John William (Bill) Fox Jr. (BAD '69), of Roanoke. Fox had a successful career at Norfolk Southern Corporation and served on Alpha Natural Resources' board during his retirement.

**JAMES D. PENNY** (ACCT '77), of Houston, Texas, and his wife Pamela J. Penny have donated $25,000 to create the James D. Penny Accounting Excellence Fund to support accounting and information systems students. Penny is an attorney with Vinson & Elkins.

**THOMAS H. DONAHUE JR.** (FIN '79), of Richmond, and his wife Mary Sue Donahue have committed $50,000 to create the Mary Sue and Thomas H. Donahue Jr. Scholarship. Donahue is vice president of human resources at Estes Express Lines.

**JOHN H. SAUNDERS** (ACCT '79), of Great Falls, pledged $100,000 to create the John H. Saunders Scholarship for Pamplin students. Saunders, a managing partner at Aronson Capital Partners, serves on the Pamplin Advisory Council.

# HONORS & AWARDS

## National & International

**Steven D. Sheetz**, associate professor of accounting and information systems, has been appointed to the editorial board of *Issues in Accounting Education* for 2011-12. The journal is one of three primary publications of the American Accounting Association.

**Mahmood A. Khan**, hospitality and tourism management professor, was one of the winners in the Johnson & Wales case study competition at the 2011 International Council on Hotel, Restaurant, and Institutional Education. Khan's case study, co-authored with Maryam Khan of Howard University, was titled "Where is the Beef? A Case Study of Taco Bell."

## University awards

**John W. Bates III** (BAD '63), of Richmond, received the 2011 William H. Ruffner Medal, Virginia Tech's highest honor, in recognition of his loyal and enthusiastic support of the university. Bates, who has a law degree from the University of Virginia, is a managing partner at Richmond-based law firm McGuire Woods. He is a Fellow in the Virginia Bar Foundation and a recipient of many other career honors.

**Randall S. Billingsley**, associate professor and assistant head of finance, received the university's 2011 William E. Wine Award for teaching excellence. A 29-year member of the faculty, Billingsley has a consistent record of excellence in the classroom, reflected in his high teaching evaluations and teaching awards. He also advises the student group SEED, which manages more than $4 million of Virginia Tech's endowment.

**Gregory B. Kadlec**, the R.B. Pamplin Professor of Finance, received an additional professorship, the Russell V. and Arlene F. Oliver Professorship in Investment Management – Research. On the faculty since 1992, Kadlec is an internationally recognized expert on mutual funds. His research findings have been reported in *The Wall Street Journal* and *The New York Times* and cited in government hearings.

**Linda F. Tegarden**, associate professor of management, received the university's 2011 Alumni Award for Outreach Excellence. A member of the faculty since 1994, Tegarden focuses on strategic management in her teaching and research. She has applied her expertise, business skills, and leadership capabilities to serve local community programs, including the Sojourn Center, which provides hospice care.

**David P. Tegarden**, associate professor of accounting and information systems, was named the Darrell D. and Betty R. Martin Junior Faculty Fellow of Accounting and Information Systems. The three-year fellowship was created through a gift from Darrell D. Martin (ACCT '72) to help recruit and retain the best accounting and information systems faculty. Tegarden joined the department in 1994.

**Linda G. Wallace**, associate professor of accounting and information systems, was named the John and Angela Emery Junior Faculty Fellow of Accounting and Information Systems. The Emerys (both ACCT '86) created the three-year fellowship in 2007. Wallace joined the department in 2000. Her research interests include software project risk, information security, knowledge communities, and agile software development.

**Nancy McGehee**, associate professor of hospitality and tourism management, was named the J. Willard and Alice S. Marriott Junior Faculty Fellow of Hospitality Management. She has published 20 research articles. Her awards include Best Paper from the Association for Tourism and Leisure Education, the Travel and Tourism Research Assocation President's Award, and Pamplin's Outreach Excellence Award.

**Zvi Schwartz**, who joined Pamplin in August as associate professor of hospitality and tourism management, has been named the J. Willard and Alice S. Marriott Senior Faculty Fellow of Hospitality Revenue and Financial Management. Previously at the University of Illinois, he has published 38 research articles. He has earned several best paper awards and sits on the editorial boards of six hospitality research journals.

# College awards

**Deborah Martin Petrine** (MGT '78), of Hardy, received Pamplin's 2011 Distinguished Alumnus Award. She is president and chief executive officer of CCR (Commonwealth Care of Roanoke Inc.), which owns and operates 11 long-term-care facilities in Virginia. Petrine founded the company in 2001. In 2009, she also became president of Longleaf Senior Living, which managed 32 assisted living facilities. Petrine has served on the advisory boards of the management department and the Virginia Tech Center for Gerontology.

**Raman Kumar**, professor and former department head of finance, received the 2011 MBA Outstanding Faculty Award. Kumar, who teaches the MBA course, Principles of Finance, was elected by student vote. He has received several other teaching awards. He teaches courses in investments, derivative securities, and international finance.

# In Memoriam

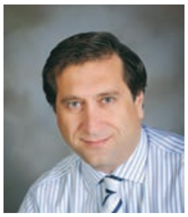
**Meir I. Schneller**, professor of finance, died April 10 in a glider accident. A Virginia Tech faculty member since 1992, Schneller was remembered for being an outstanding teacher and advisor and a generous colleague. "Meir was very giving of his time to his students and fellow faculty members. He was ever willing to assist with departmental activities and always volunteered to serve the department when needed, no matter how inconvenient the assignment," said then finance head Raman Kumar. "You could count on him."

Schneller received a bachelor's degree in 1967 from the Hebrew University of Jerusalem, an MBA in 1971 from Berkeley, and a doctorate from New York University in 1974. He did research in corporate finance, focusing on dividend policy, and taught undergraduate and MBA courses. He served as department head for two years.

**Henry J. Dekker** (ACCT '47), retired vice chairman of Louis Féraud and former rector of the Virginia Tech Board of Visitors, died on June 13 at age 90. He was a member of the class of 1944 but graduated after three years of military service, in the 11th Airborne Division, during World War II.

Dekker's passions were the German Club, the Virginia Tech Corps of Cadets, the Pamplin College of Business, and Virginia Tech. He helped lead major campaigns to raise funds for the German Club and to revitalize the corps. He was a longtime member of the Pamplin Advisory Council and the 1990 recipient of Pamplin's Distinguished Alumnus Award. "He had an untiring love of and support for the college," said Pamplin dean Richard E. Sorensen.

# ON THE MOVE



Reza Barkhi

Robin Camputaro

Garrett Weddle

Kent F. Murrmann

**Reza Barkhi**, associate professor of accounting and information systems and PricewaterhouseCoopers Junior Faculty Fellow, has been appointed department head of accounting and information systems, effective July 10, 2011.

A faculty member since 1997, Barkhi served for three years as head of the management information systems department at American University of Sharjah in the United Arab Emirates, while on leave from Pamplin.

His research interests are in the design of group decision support systems, organizational integration systems, distributed decision making, design of telecommunication networks, and economics of information systems.

He has taught undergraduate and graduate courses, led study-abroad programs, and chaired the college's diversity committee.

Barkhi succeeds Bob Brown, who returned to full-time teaching after eight years as department head.

**Robin Camputaro** has been appointed associate director for MBA marketing and recruiting. She was most recently manager of advertising and concessions for the Jacksonville Aviation Authority and previously marketing manager at General Growth Properties, a mall management firm, and food services company Aramark. She has an MBA from Jacksonville University and a bachelor's degree in journalism from the University of Florida.

**Garrett Weddle** has been appointed associate director of development. Weddle has 25 years of business experience, most recently as a real estate agent and developer. He and his wife own Garrett's Menswear Depot and Meg's Specialty Womenswear in Radford. He was recently named to the board of directors of the Virginia Association of Realtors. Weddle has a bachelor's degree in industrial engineering and operations research from Virginia Tech.

**James R. Lang**, Strickler Professor of Entrepreneurial Studies, was conferred the Strickler Professor Emeritus title. Lang, who joined Pamplin in 1990, retired earlier this year. He taught courses in entrepreneurial leadership and strategic management. He served as director of the Business Leadership Center, director of graduate studies in management, acting department head of management, and department head of hospitality and tourism management.

**Kent F. Murrmann**, associate professor of management was conferred the associate professor emeritus title by the Virginia Tech Board of Visitors. Murrmann, who joined Pamplin in 1979, retired earlier this year. He taught undergraduate and graduate courses on human resources, labor relations, and international management. He taught at Virginia Tech's Center for European Studies and Architecture in Riva San Vitale, Switzerland, for four years.

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# CONNECTING HOKIES *to* JOBS


RYAN STONE

Searching for a job? Looking for a qualified employee? Employers and Virginia Tech alumni now have a new way to connect. In 2009, Pamplin alumnus Jason Messer launched VTalumni.com, a site that helps Hokie alumni and employers find each other. With a growing number of users every month, this free service allows alumni to post their resumés and employers to post job openings.

Read more about it on page 15.

## JOB ADVICE

What's the number one excuse for a job candidate skipping the interview? Messer offers advice on changing jobs in this web exclusive.

**WEB EXCLUSIVE!**
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