Bits & Bytes

UNIVERSITY OF SOUTH FLORIDA
COLLEGE OF BUSINESS

The newsletter of Information Systems & Decision Sciences — Winter 2011

Chair's Message, Kaushal Chari

Cloud, social media, analytics, smartphone apps — these are the terms that define the new, ever-changing frontiers in information technology. In a never-ending sprint to keep pace with such innovation, the ISDS Department is constantly updating the undergraduate and graduate curricula, supplementing "for credit" learning with boot camps to equip students with relevant, marketable skills. We are providing study abroad programs and experiential learning opportunities through internships and ISDS Practice Center projects.

Our students are better prepared to meet the challenges of the job market and are being sought after by employers. One of our graduate students has been recruited by Microsoft to join its Sharepoint software development team in Massachusetts (read more about that student on page three) and another recently joined Raymond James Financial. These are just two examples of how our students are competing with the very best students from top schools in the nation.

Other notable news items:

- A team of current and former MS/MIS students **placed second in the International Case Competition** on the Strategic Value of IT Management 2011 sponsored by Computer Associates. This competition attracted teams from some of the best schools in the world (page nine). Kudos to the USF team!
- Professor and Eminent Scholar **Alan Hevner** was elected an **AAAS Fellow** by the American Advancement of Science, the world's largest general scientific society. Read more about this prestigious honor on page six.
- For the second year, the ISDS Department organized a very successful **study abroad program to Mysore, India** that was hosted by Infosys, one of the largest IT companies in the world. USF is the only American university collaborating with Infosys in this way. Find out more about this opportunity on page three.
- We recently hosted another **IT Executives Panel** in partnership with the MIS Society. Thanks to panelists **Laura Cuthbertson**, IT manager, Raymond James Financial; **Skip Marshall**, vice president, Intelladon; and **Elaine Myrback**, CEO, EMS Consulting.
- With dwindling state support, it is becoming more difficult to sustain quality programs and provide special experiences to students. I am excited to announce that USF alumna **Phara McLachlan**, CEO of Animus Solutions, recently pledged a **$25,000 endowed gift for student scholarships**. Phara's gift is very special to us, as it is our department's first endowed scholarship. Read more about her generous gift on page five. We hope other proud alumni will follow her lead!

Phara McLachlan (right) and ISDS department chair, Kaushal Chari.

K Chari

Kaushal Chari
Professor & Chair, ISDS Department

ISDS News

Online MS/MIS Program to be Launched

The State University System of Florida's Board of Governors approved USF's proposal to offer an online MS/MIS program on a market-rate tuition basis. USF and other universities are able to charge different tuition for online and continuing education programs that are approved for rates that the market will bear, rather than being limited to current tuition prices. This online program, which would likely be launched mid-year 2012, is pending approval from the Southern Association of Colleges and Schools. It would be delivered in an asynchronous

continued on page 6

Contents

Faculty Focus: Wolfgang Jank

Faculty Profile

Wolfgang Jank joined USF this past August, coming to the ISDS team as the Anderson Professor of Global Management. Previously, Jank served on the faculty of the Robert H. Smith School of Business at the University of Maryland. He specializes in using information gleaned from statistics and data mining to solve problems in electronic commerce, marketing, information systems, and operations management. By mixing case studies, lectures, projects, and independent research, his goal is to help students see the value in "data-driven analysis."

Jank teaches a management decision analysis course for MBA students. Beginning next semester, he will teach a new statistical data mining course to graduate students, where they will learn how to use data-mining methods to evaluate the effectiveness of marketing campaigns using data-driven decision methods by participating in the Google Online Marketing Challenge. The challenge is an opportunity for students to discover how to create and enhance online marketing campaigns using Google AdWords. Jank says the experience will help students better understand online advertising. "Anybody can spend money, that is easy," he said. "But not everyone knows how to evaluate whether the money is well spent. How many buyers did the campaign attract that the business otherwise would not have reached? How much did they spend? Did the campaign justify its costs?"

> "Anyone can spend money, that is easy. But not everyone knows how to evaluate whether the money is well spent."

While at the University of Maryland, Jank was recognized twice as an outstanding faculty member, placing in the top 15 percent of all faculty, a designation based on student evaluations. Jank believes that this was due to his strong desire to make statistics interesting to students.

Jank has been an extremely active researcher, with his work published in statistics, data mining, marketing, information systems and operations management journals. He has authored more than 70 refereed articles, book chapters and conference papers; authored and edited two books; and presented research at national and international meetings. Peers have recognized his high-quality research, awarding one of his co-authored articles the best paper award for 2008. His work attracted significant attention, including mentions in the *New York Times*[1].

Jank's research is at the intersection of statistics and e-commerce. To him, a web page is "more than just a pretty picture." It represents data on products, prices, promotions, and less quantifiable variables, too, such as the company's "look" and "feel," reputation, trust seals, customer buying strategies, and geospatial distribution of customers. Understanding the value and impact of such variables requires skills in statistical modeling as well as other new approaches.

One of his current research projects emerged from his teaching activities in Maryland. Working with a former Executive MBA student, Jank built a model for voter targeting – how a political campaign, at minimum cost, can target voters who are most likely to be swayed favorably. He hopes that the project will lead to a research article in a top peer-reviewed journal.

Jank has also been involved with companies in various capacities, including serving on the advisory board of start-ups and research groups of large firms such as PricewaterhouseCoopers.

His wife, Angel, is an independent risk management consultant. They have two young children, Isabella and Alexander. §

[1] http://bits.blogs.nytimes.com/2008/01/28/tracking-consumer-savings-on-ebay/?scp=1&sq=wolfgang+jank&st=nyt

Student Profile: Moiz Ghadiyali

Student Profile

*MS/MIS student **Moiz Ghadiyali** will be joining Microsoft Corp. after his graduation from USF this month.*

Moiz Ghadiyali's motivation to outperform consistently comes from the belief that through technology he can create a positive impact on billions of people's lives across the globe. In the summer of 2011, Ghadiyali, an international student, served as an intern for Microsoft in Boston, Mass.

During his internship, Ghadiyali was responsible for designing, developing, and testing a feature for Microsoft Sharepoint's future upgrade release. He says USF was pivotal to obtaining an internship with Microsoft, and, after he graduates, he will begin full-time employment as a software development engineer with the company.

Prior to attending USF, Ghadiyali worked as a software developer for Accenture India, a global management consulting, technology services, and outsourcing company.

Ghadiyali, who earned a bachelor's degree in computer technology from Veermata Jijabai Technological Institute in Mumbai, India, chose USF because of the stellar reputation of the ISDS Department's faculty and highly flexible coursework. According to Ghadiyali, the lessons learned in the classroom are easily applied to work in the field, and the skills he acquired at USF have given him an edge over the competition. §

IT Summer School at Infosys Enters the Third Year in 2012

In 2012, the ISDS Department will once again lead a "Summer IT School" with technology giant Infosys at the company's offices in Mysore, India. This will be the third time USF students will visit the firm's training campus. Students participating in this program take a software engineering class delivered by Infosys instructors and receive USF course credit. Students also enjoy a cultural immersion of India.

USF students who participated in the 2011 study abroad program.

Thanks to the financial support of several donors, all students who took part in the program in 2011 received a $1,500 scholarship from the ISDS Department. A similar scholarship is expected to be available in 2012 for up to a dozen students.

"It was amazing to be on the Infosys campus and be surrounded by hundreds of IT professionals," said **Brian Wing**, an MIS senior from Williamston, Mich., who took part in the 2011 program. "India is a major hub for MIS technology. Seeing the work being done in that atmosphere allowed me to see what my future holds."

In this era of globalization, **Kaushal Chari**, ISDS department chair, suggests that it is vital for students to understand the business practices and cultures of other countries, allowing them to be more competitive in the job market.

"Just having Infosys on my résumé gives me an incredible advantage," added Wing. "Every internship and job interview I have had since returning has focused on my time in India. Infosys is such a well-respected company that anyone in the MIS field knows who they are, what it does, and the quality of its work. Going through this experience has definitely given me an edge."

Students spent roughly 12 hours a day taking classes, studying, and working on projects at Infosys' corporate training facility. Last year's participants said that while the majority of the trip was spent in the classroom, they did have the chance to venture out into the country to explore some of its well-known landmarks, including the Taj Mahal, Mysore Palace, Agra Fort, and historic temples at Belur, Halebidu, and Shravanabelagola. They also traveled on a safari through Nagarhole National Park. A video highlighting the program can be found on the USF College of Business YouTube channel: www.youtube.com/watch?v=w_yLx9iGxxM. §

Newsletter Editorial Team: Manish Agrawal and Lorie Briggs

Questions and Answers

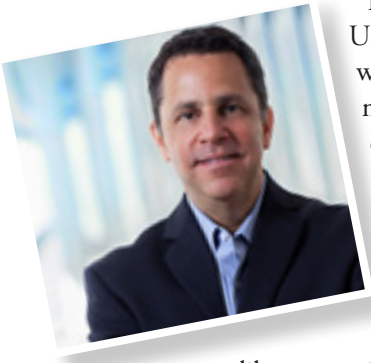
Alumnus Feature: Marc Blumenthal

***Marc Blumenthal** is one of our most successful graduates. The CEO of Intelladon, Marc shares his success story, as well as tips for current students.*

How did you become an entrepreneur?

I have been working since I was about twelve years old. I was always doing something after school, on weekends, and during summers that involved working and earning money.

While I was in high school, I worked on engraving, polishing and sales at the jewelry store my father started the year before I was born. I later worked in restaurants (as a cook and waiter), sold Christmas trees, started a landscape nursery, and went to flea markets to sell jewelry and sunglasses.



By the time I got to the University of South Florida, I was selling handbags at the flea market and learning how to be a college student.

When Dr. Stan Birkin suggested I interview at IBM for a job at their National Accounts Division during my junior year, it sounded like a great idea. I interviewed and got the job, which I quit when I was a senior. That was the last paycheck I received from a company that I did not own.

Tell us about your early experiences as an entrepreneur.

While I was at IBM, the personal computer was very new to the market. Very few IBMers had any idea of what they were supposed to do with the PCs. When a customer in the Tampa area wanted to talk about them, they sent me in because I seemed to know the most about them at the branch. Before I knew it, I was visiting Jim Walter Corp., AC Neilsen, USF, HCC, the Polk County Sheriff's Office, and dozens of other customers around the Tampa Bay area. They were asking for things like PC setup, training, networking, and custom programming.

Each time I went back to the branch to ask my manager how to handle these requests, she said, "We don't do those things." It did not take me too long to start to think that maybe I could "do those things."

My first customer was Celotex. The company wanted a custom program to track its marketing and advertising budget and expenditures. I knew how to sell programs, but could not code my way out of a paper bag! Thankfully, fellow student Lance Raab was a good friend (and a USF MIS Society member) who actually knew how to program in dBase II. Lance and I split the $4,500 we charged Celotex, and we were off to the races.

Over the next two years, we added quite a few clients for training, programming, and networking. The pivotal moment came in my senior year, when IBM was desperately trying to get USF's computer department to agree to sell PCs at a deep discount to faculty, students, and staff.

I watched in amazement as IBM could not convince USF to open a computer store on campus. They (IBM) could not seem to understand why USF did not want the hassle of managing the store.

Once again, I said, " I can do this" and, before I graduated, Progressive Business Solutions was incorporated. I received approval from the University of South Florida, Florida Board of Regents, and IBM to become a third party agent for the IBM Affiliate Program and opened a 500 square foot store in the USF Bookstore, which was in the old University Center. We named it " PC's on Campus." It was a massive success.

I never interviewed with any company, and, over a period of 15 years, built Progressive Business Solutions into a leading Microsoft Solutions Integrator in the U.S. I sold the company in 2000.

What do you remember as the most useful thing about your USF/ISDS experience?

It was mostly called the MIS Department back then, but my time at USF was a wonderful experience. The faculty was amazing. Stan Birkin, Roger McGrath, and Steve Moore ran the computer lab, and they were advisors, friends, and teachers. I learned, I grew and had the time of my life. I would not be who I am or where I am if not for that whacky "band of brothers" in the business college MIS Department and Computer Lab.

My first class was Computers in Business with Dr. Birkin, where 500 students learned about mainframes, punch cards, and all other computer history from a fantastic professor. I was hooked. I quickly declared my major (that was the first year they actually had anything called an MIS major) and joined the MIS Society. We had wine and cheese parties in the COBOL help lab, while line printers were zipping away in the background. It was an amazing time.

Many of the students were going to work for companies such as EDS and going into traditional data processing roles. I was working at IBM in sales and came to school every day in a suit with a brief case.

I later became the president of the MIS Society. We had an office (a modified broom closet) on the first floor of the old business building.

What do you look for when hiring new employees?

I look for passion, commitment, the ability to work in a team, and the ability to learn quickly.

What are some of the most significant trends you see in the IS/ IT landscape?

The foundational skills and competencies remain the same, but there are certain technology skills that bring incredible opportunities. Mobile and Cloud computing are two incredibly hot areas that are driving a tremendous amount of opportunity for both companies and employees. The Cloud makes it so much easier to deploy, sell, and integrate an application that there are new categories of applications coming out each week to solve business problems.

Other areas: social media, help desk, CRM, ERP, BI, HRIS, talent management, and every niche in between.

Share one of your career highlights.

Selling my first company was an amazing experience, but, for me, working with a great group of people and solving problems for clients and partners is my passion and makes every day a "highlight."

Any advice to current students?

- Get part-time work or internships in companies and areas that are of interest to you.
- Find your passions and make connections with people in the business community as early as you possibly can.
- Once you have some sense of your passion and areas of interest, find out what skills people have in the jobs you want. Start to build them.
- If you want to be a mobile application developer, start taking courses in IOS, Droid and other tool sets, even if you have to find those courses online or at another school close by.
- Look for smaller companies that are growing, and consider seeking employment with them, or internships if you are still in school. You can learn about these companies through organizations like Tampa Bay Technology Forum and other business groups. Most of these companies are hiring at a greater pace than the larger ones.
- Don't be shy about asking for help. Almost every person who will be hiring you or working with you has been in your shoes and genuinely wants to see you become successful. §

News Feature: Alumna Endows a Scholarship in the Department

ISDS alumna **Phara McLachlan**, chair and chief executive officer of Animus Solutions, Inc., recently announced a $25,000 endowed gift for student scholarships. This is the first major gift to the department by an alumnus.

"Education is power. As an ISDS advisory board member, I saw that the department didn't have as many scholarships as other areas, and our organization wanted to be involved and help in as many ways as possible," said McLachlan, a 1999 graduate.

While a student in the management information systems program, McLachlan credits the professors for having an impact on her future and getting her to "think outside of the box" in critical and logical ways, skills that have been useful throughout her professional career.

"I'm happy to help other students knowing that they will now have different opportunities to advance and have access to more tools to succeed."

"Students shouldn't feel limited by their inability to pay for tuition or their degree," said McLachlan. "Just as I learned from my faculty mentors, my advice for graduating students is to not become discouraged or limit yourself to a certain industry based on your major. Instead, think of alternative ways to use your degree and apply your knowledge base to different areas." §

manner and accessible to students worldwide, meaning that USF students across the globe would be able to learn at their convenience. Admissions requirements, as well as program content and quality, would be the same as the on-campus MS/MIS program. This program is likely to promote the USF brand, increase the global footprint of the department, and bring in additional, much-needed, revenue.

Alan Hevner Elected Fellow of AAAS

Professor Alan Hevner

Business professor and ISDS Eminent Scholar **Alan Hevner** has been elected by his peers as a Fellow by the American Association for the Advancement of Science, the world's largest general scientific society. He is one of four USF faculty members to receive this honor this year.

Hevner is among 539 new fellows from around the world, receiving the honor as a result of his substantive research in the fields of computer sciences, design science research, and distributed database systems.

AAAS Fellows are elected annually by the AAAS Council for meritorious efforts to advance science or its applications. Fellows have made significant contributions in areas such as research, teaching, technology, services to professional societies, and the communication of science to the public.

"This is a prestigious, international honor that recognizes the importance of business research," said Robert Forsythe, dean of USF's College of Business. "Dr. Hevner is a widely respected scholar and a 'thought leader' for the use of design science research in the information systems field. His efforts have made contributions in this industry, particularly in the areas of design science research, cleanroom software engineering, and database systems."

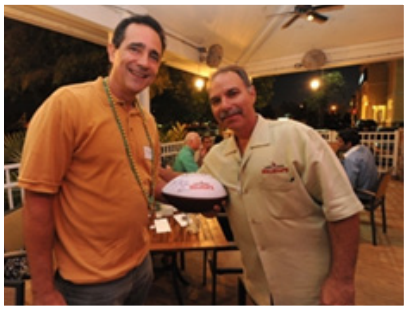
A highly-rated professor who teaches courses in software architecture, software testing, and advanced systems development, Hevner recently completed a two-year assignment as a program manager at the National Science Foundation.

"This is the caliber of faculty that students at USF deal with on a daily basis," added Forsythe. "He is teaching the next generation of database engineers, business leaders, and IT specialists."

Hevner, who holds the Citigroup/Hidden River Chair of Distributed Technology, was honored with a Lifetime Achievement Award for his contributions to the field of design sciences at the 2009 International Conference on Design Science Research in Information Systems and Technology. During the past decade, he has been an influential leader in the design science arena. An internationally recognized scholar and sought-after lecturer, his research interests include information systems development, software engineering, distributed database systems, health care information systems, and telecommunications.

AAAS is an international non-profit organization dedicated to advancing the sciences. In addition to organizing membership activities, AAAS publishes the journal *Science*, as well as many scientific newsletters, books and reports, and spearheads programs that raise the bar of understanding for science worldwide. The newly-elected fellows will be awarded a certificate and a rosette pin during the AAAS Fellow Forum at the 2012 AAAS annual meeting in Vancouver, British Columbia, in February.

Inaugural Alumni Social



MIS alum Mike Delucia (L), the lucky winner, receiving a football autographed by the late Lee Roy Selmon from John Ponzo (R), Managing Partner of Lee Roy Selmon's.

Nearly three dozen MIS graduates from USF attended the inaugural USF MIS Alumni Association social at Lee Roy Selmon's sports restaurant in September. Aiming to establish a way for MIS alumni to build stronger relationships with one another, the event provided recent and not-so-recent alumni an avenue to network and socialize over food and drinks, while cheering as the USF Bulls football team took on Pittsburgh Panthers. Many raffle prizes were awarded that evening, but the most valuable prize was a football autographed by the late **Lee Roy Selmon**, a staunch USF supporter and friend who died just weeks before the event. The lucky winner of the autographed football, which was donated by **John Ponzo**, managing partner of Lee Roy Selmon's, was MIS alumnus **Mike Delucia**.

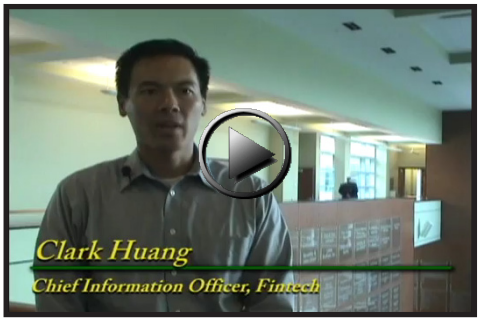
Brian Day is president of the group, which will host yearly social events and may help with other MIS-specific programs. Alumni can join the association's LinkedIn group by sending an email to mis_alumni@usf.edu.

New Graduate Track in Business Intelligence

Responding to market needs, the ISDS Department plans to offer a business intelligence track in the MS/MIS program, beginning in the fall of 2012. To complete the track, students will be required to take four of the following five courses: Advanced Database Systems, Data Warehousing, Data Mining, Statistical Data Mining, and Applied Multivariate Statistical Methods.

Students who complete four of the above five courses and use SAS Enterprise Miner (or an equivalent SAS analytics package in the data mining and statistical data mining courses)will receive a joint SAS/USF Certificate in Analytics and Business Intelligence. The SAS software will be provided for class at no cost by the SAS Institute.

Practice Center Partners with Local Companies



Many students had the opportunity to work on ISDS Practice Center projects in 2011. The projects were sponsored by JPMorgan Chase, Citigroup, Raymond James Financial, and Fintech. Practice Center projects provide a way to recruit high-quality students. A video published in the College of Business newsletter recently spotlighted the work these students have done for area business, which can be found at http://bit.ly/szUgYe, and more information about the center can be found at http://business.usf.edu/faculty/isds/practice/index.asp.

ISDS Faculty Featured in *USF Magazine*

Two ISDS faculty members, **Alan Hevner** and **Balaji Padmanabhan**, are featured in the current issue of *USF Magazine*. Spotlighting a research project the two are working on with FedEx, the article illustrates the importance of business research and how the findings enhance education. "As we prepare students for careers, such research can showcase real-world analytics," says Padmanabhan. "Students understand real-world usage directly from firms that use predictive mining to answer operational questions." *USF Magazine* can be found at http://magazine.usf.edu/2011-winter/.

Nadia Khouri Receives College of Business Award

ISDS Office Manager Nadia Khouri

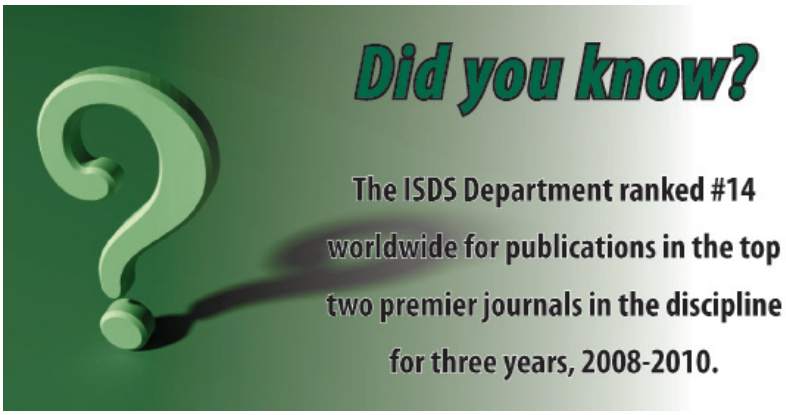
Nadia Khouri, ISDS office manager, and Michelle Jenkins, director of undergraduate advising, were recently named the inaugural recipients of the College of Business Performance Bonus Award. The one-time, $5,000 award recognized Jenkins and Khouri for their willingness to go above and beyond in the workplace.

Khouri is responsible for supporting the day-to-day operations of the ISDS Department, as well as assisting with events and projects. She has worked at the College of Business since 2007, previously serving as an office manager in the College of Education for 13 years.

Khouri is praised for her enthusiasm, friendly attitude, and work ethic. According to colleagues, she is always willing to help others – whether that person is a faculty member, student, or guest.

"When a new international doctoral student arrived during Christmas break, Nadia helped this student settle in Tampa,"explained **Kaushal Chari**, chair of the ISDS Department. "She arranged for this student to be picked up from the airport, helped him book a hotel room, and even provided transportation to the Social Security Administration's offices so he could handle much-needed business there."

This isn't the only time she has gone "above and beyond" to assist students. She has also invited international doctoral students to spend Christmas with her family.



Research Spotlight

One of the premier journals in the IT field, INFORMS Journal on Computing *recently accepted a research paper co-authored by USF's* ***Balaji Padmanabhan.*** *The article, "Discovery of Periodic Patterns in Sequence Data: A Variance-Base Approach[1]," examines how web users interact with certain sites or applications. Changes in such patterns could potentially be used to improve web functionality, or, perhaps, signal fraud alerts. A summary of the forthcoming paper is below.*

A motivation for this research is the study of periodicity in web-browsing data. The data below shows a set of sessions for a user where {cnn.com, facebook.com} is a "periodic pattern" with period two, since it occurs exactly every two user sessions, i.e., the user visits CNN and then visits Facebook. This example also shows {cnn.com} to be "almost" periodic with period 1:

S1: cnn.com, yahoo.com, facebook.com
S2: nytimes.com
S3: cnn.com amazon.com, gmail.com, facebook.com
S4: amazon.com, gmail.com, cnn.com
S5: gmail.com, cnn.com, yahoo.com, facebook.com

There are some interesting web applications where periodic patterns can be useful. Web content likely to be accessed at regular intervals may be downloaded automatically. Further, content that is not recently accessed, but known to be accessed periodically, may be retained to improve information access times. Periodic patterns (or the absence thereof) can be of use in fraud-detection applications. If there is a significant deviation to a regularly occurring periodic pattern, fraud alerts may be triggered. On the other hand, observing a user's periodic pattern in a session may signal confidence in a user's revealed identification, and it can serve as another factor in multi-factor user authentication systems.

Motivated by such applications, the research addressed the following questions:

Q1. How can a pattern be determined to be periodic?
Q2. How can periodic patterns be identified from sequence data?

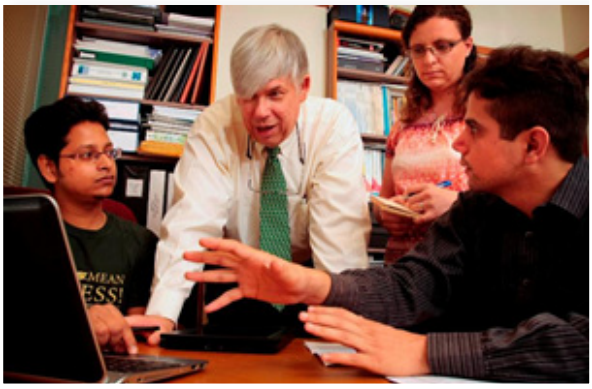
Related to the first question, a pattern is usually deemed periodic if it repeats at regular intervals. One approach is to simply check if a pattern occurs every x units, where x may also be defined as the period of the pattern. In some contexts, such as user behavior, such exact approaches can be restrictive. A more forgiving definition may require the pattern to occur every x +/- δ units, where δ is a user-defined tolerance parameter. However, this still requires a hard cutoff determined by the chosen δ parameter. For instance, consider the time sequence <0, 5, 10, 15, 20, 27, 30, 35, 40> at which a pattern occurs. While this pattern will be flagged periodic with a period of 5 when δ =2, it will not

continued on page 9

USF Team Places Second in International Case Competition

USF was one of 10 global universities invited to compete in the 2011 Computer Associates' (CA) International Case Competition Finals and took second place. The global case competition brings together top students in business and information technology to demonstrate and evaluate the strategic value of information technology management for an organization. **Ravi Dhanwani**, **Karthik Sekhar**, and **Telma Frege** won the regional competition for the North American Region 2, which was held in a virtual environment, against teams from Purdue University, Texas A&M University, and University of Arizona. A dozen universities from North America participated in the regionals, and 10 additional teams from universities across the globe took part. "It was an honor to have the opportunity to participate and represent the USF College of Business," said Frege, a recent alumna of the MIS program who is currently pursuing a master's degree in bioinformatics and computational biology. "Making it to the top ten was exciting, and we were looking forward to climbing that ladder even higher during the finals."

Prior to arriving at the CA World conference, the student teams were provided with a case study of a company that is in the midst of change. They then evaluated the company's IT department and infrastructure and made recommendations for improvement. During the competition, each team presented recommendations on how the company can adapt and align technology to better support the changing business environment. However, upon arrival, the teams were given a "twist" (new information that might change the teams' recommendations); they then had 24 hours to adjust their presentations as appropriate. The twist represented the fluctuating business environment and the need for students (and future employees) to be able to think on their feet.



USF students (L to R Kartik Shekhar, Telma Frege and Ravi Dhanwani) with faculty advisor, Grandon Gill (second from left).

"I strongly feel that we had significant technical depth at our disposal, compared to most of our competitors, and we tried to capitalize on that attribute just as we did for the preliminaries," said MIS/MIS student Sekhar, explaining the team's strategy.

"Looking at the schools that qualified for the finals, we didn't expect anything less than fierce competition, and we were excited for this opportunity."

With the help of faculty advisor **Grandon Gill**, an MIS professor, the team prepared for the case competition by looking at everything from leading consulting companies' different successful approaches to reading several research papers on industry best practices.

"We also paid close attention to budding technologies such as cloud computing and various consulting frameworks," explained Dhanwani, an MIS/MIS student. "We worked to understand the latest consulting trends, technological changes, and market behaviors to come up with a better, leaner, and cheaper solution for the clients."

Presentations were judged by a panel including leading academics, CA Technologies employees, and high-level technology executives from CA International's clientele.

"While seated in the front row of the auditorium waiting for the winners to be announced, the anticipation and excitement was overwhelming," said Dhanwani. "The CEO of Computer Associates, CTO of Visa, and many other top senior executives were present to congratulate the ten teams from across the globe that made it to the finals."

A team from the University of Calgary received first place. The top three teams received $10,000, $5,000, and $2,500, respectively. §

Research Feature, *continued*

be the case if $\delta = 1$. In this research, we investigate a different approach to periodicity that is based on the statistical variance of the gaps at which a pattern occurs in data (i.e., the variance of the inter-arrival times of the pattern). Variance is a natural concept to capture periodicity. A strictly periodic pattern will occur at exactly regular intervals, resulting in zero variance. When the inter-arrival gaps are "more or less the same," the variance will be low, signaling likely periodicity. At the extreme, when these gaps are very different, the sequence will have high variance, indicating lack of periodicity. §

1 Y. Yang, B. Padmanabhan, X. Wang, and H. Liu, Discovery of Periodic Patterns in Sequence Data: A Variance-Based Approach, forthcoming in the INFORMS Journal on Computing. Research done with collaborators from USF, University of California, Davis