Meet the SEAS faculty members hired since 2008:

Front row, seated left to right:
- Professors Timothy Wood, Lijie Grace Zhang, Zoe Szajnfarber, Claire Monteleoni, and Pinhas Ben-Tzvi

Second row, seated left to right:
- Professors Tianshu Li, Michael Clarkson, Howie Huang, and Guru Venkataramani

Third row, standing left to right:
- Professors Yongsheng Leng, Zhenyu Li, Samer Hamdar, Chunlei Liang, and Adam Wickenheiser

Fourth row, standing left to right:
- Professors Ergun Simsek, Evan Drumwright, Gabriel Sibley, Royce Francis, Kausik Sarkar, and Taeyoung Lee

Back row, standing left to right:
- Professors Philippe Bardet, Nan Zhang, Gabriel Parmer, Michael Plesniak, and Elias Balaras

Not pictured:
- Professors Stephen Hsu, Tian Lan, Megan Leftwich, Joost Santos, and Hoeteck Wee
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The Softer Side of Research

Professor Samer Hamdar knows most of the traffic congestion patterns between GW’s Foggy Bottom Campus and its Virginia Science and Technology Campus (VSTC). He knows all the back roads between them and when to use them. With a research lab at the VSTC and classes on the main campus, Hamdar sometimes has to be at both campuses on the same day.

“I started experimenting with different transit systems, and I’m trying to be as creative as I can,” he says with a smile.

Hamdar studies transportation engineering in the Department of Civil and Environmental Engineering, and as he sees it, all transportation users are simply decision makers whose behavior should be studied in order to develop better transportation infrastructure systems. And Hamdar is seeking a holistic theory that explains these behaviors.

To do this, he is pushing beyond the transportation research areas for which GW traditionally has been known. “GW is known for the hard transportation side—crash analysis and investigation, intelligent transportation systems, and vehicle dynamics and controls, for example,” explains Hamdar. “The soft transportation side works on problems that deal mostly with the system—the control logic, traffic flow theory, and other areas. My thought is that we’re in Washington, D.C., which has so many transportation-related problems, but it’s also home to different transportation agencies. This makes D.C. an interesting area to be in, engaging both users and decision makers.”

From this wide array of problems, Hamdar has chosen to study four: pedestrian detection and modeling; evacuation modeling; sustainability; and driver behavior and the safety impact of geometric and weather-related characteristics. He and colleagues from Louisiana State University (Drs. Dixit Vinayak and Brian Wolshon) and Cal Polytechnic University (Dr. Anurag Pande) have a National Science Foundation grant to analyze how different geometric characteristics (such as curvature, median types, and grades) and weather-related characteristics (such as visibility and precipitation) will impact driver behavior. Specifically, they want to know how drivers perceive and react to certain driving conditions, and they are using a model based on cognitive theory to try to capture how much risk drivers are willing to take in these conditions.

Eventually, Hamdar wants to study a multi-modal transportation system, one that looks simultaneously at pedestrians, bikers, transit users, and drivers. He sees this as a growth area for study because it fits under the umbrella of sustainability. Hamdar is striking out into new territory as he tries to claim part of the soft side of transportation engineering research for GW, and he is very optimistic about his prospects. “This is an opportunity. We have fertile ground for growing a research program with our new building, our new dean, and our growing faculty. It’s a challenge being the only person here in this field, but with challenges come great opportunities.”
A Different Philosophy

“What makes my research unique is more my philosophical approach than anything else,” says Professor Evan Drumwright of the Department of Computer Science. Drumwright studies the control of autonomous robotic systems in order to program them to perform specific tasks, and he is especially interested in humanoid or manipulator robots and in robots that could be used as ground or flight vehicles.

“Many researchers will get deep into an area and produce in that vein for a very long time,” he says. “My philosophy has been that an understanding of the entire domain of robotics, at some depth, is necessary for real progress. I’ve made contributions in humanoid robotics, perceiving human motion, planning collision-free movements, modeling robot dynamics, and simulating robots. I have a fairly holistic vision of the field and where it is going, in contrast to many other researchers who are concerned with only a small aspect of robotics.”

Along with his research on autonomous flying vehicles, Drumwright has recently begun working on simulations in the area of mobile manipulation. He and many others are studying mobile manipulator robots in the hopes that people can one day use them as personal robots. In particular, he foresees robots helping the elderly retain their independence by doing tasks for them that they may no longer easily be able to do.

To assist in that effort, Drumwright recently led GW in acquiring a PR2 mobile manipulator robot, and he secured a $120,000 grant from Willow Garage to help purchase it. Only a handful of universities have the PR2, and all of them, including GW, are trying to program it to do various tasks.

To ramp up the PR2 research program, Drumwright and his new colleague, Professor Gabriel Sibley, have created a new course this semester offered to both undergraduate and graduate students. The course is built around the PR2. Drumwright and Sibley have developed a list of possible student projects and will also allow students to come up with their own ideas. “We’re really hoping to kick-start research with the robot through this course and to use it as an incubator for our research,” states Drumwright. “I’m covering the control—the physics and modeling—and Gabriel’s expertise is in perception for autonomous systems, so together we have a cohesive unit for approaching this research.”

Drumwright anticipates that the PR2 will be very helpful in research and teaching and in being a high-profile project for the school. “I’m hoping to use the robot to bring publicity to SEAS and GW,” he adds with a smile.
The Beat Goes On

During a heart attack the flow of blood to a section of heart muscle suddenly becomes blocked by a clot. Some people survive a heart attack and make it to the hospital in time to have the clot removed. Others are not so lucky: a deadly storm of electrical activity in the heart causes an arrhythmia, an irregular rhythm of the heartbeat, and they die before they can be treated.

Why do deadly arrhythmias develop during a heart attack in some people and not others? This is the question that Professor Matthew Kay of the Department of Electrical and Computer Engineering and his colleagues are trying to understand. Although there is nothing unusual about grappling with this question—other researchers around the world are doing the same—Kay and his team are taking a unique approach to trying to solve the puzzle.

The state-of-the-art for basic science arrhythmia research revolves around fluorescence imaging, a way to optically map out the flow of electrical potential during an arrhythmia. The imaging is conducted using hearts taken out of animals, but still supported, so that the entire surface of the heart can be clearly seen. A limitation of fluorescence imaging is that information is lost when the heart contracts. As long as the heart is motionless, good imaging data can be obtained, but as soon as it begins to contract the data are distorted. Most researchers, therefore, shut down that mechanical activity when using fluorescence imaging. Kay's team takes a different approach.

“We want to understand how cardiac metabolism changes before and during an arrhythmia. The contraction of the heart is the main consumer of energy and, therefore, is the main player in metabolic activity. Stopping the process of contraction is probably the worst thing we can do if we want to understand how metabolism causes electrical disturbances,” explains Kay. “One of our goals is to make fluorescence imaging work without shutting down the mechanical activity.”

To do this, he and his team have built instrumentation systems to keep the heart contracting and to simulate a heart attack. The heart is then imaged to record simultaneously the electrical and metabolic processes. “We’ve developed a heart support system that provides a warm, oxygenated blood substitute to each atrium. When the heart contracts, it generates pressure, circulates the solution, and pumps the blood substitute to itself. Basically, the instrumentation supports the heart almost as if the heart were in the body,” says Kay.

This unique approach puts GW at the forefront of conducting studies that link metabolism and electrical alterations within the context of contraction. As Kay says, “We are probably just one of just a very few labs in the world that are conducting these kinds of experiments. This is the first system of this type ever built. This is where we are diverging from others who are studying arrhythmias; this is where we are charting new ground.”
The Ice Cream Change

“If you listen to any ’50s doo-wop music, there’s one progression of four chords that was extremely common,” explains Professor Michael Duffey of the Department of Engineering Management and Systems Engineering. “It’s called the ‘50s progression’ or the ‘ice cream change.’” So, naturally, when Duffey gave his undergraduate students a systems engineering senior design project that required them to build a programmable thermal organ that could play this progression, they called the project the “ice cream change.”

Duffey is a strong proponent of “hands-on” learning as a complement to the applied mathematics of optimization and stochastic modeling that is the core of the systems engineering curriculum. “To teach core systems engineering principles to undergraduates, they need to get their hands dirty with projects,” he says. To accomplish this, he created a new approach last semester to the department’s senior design course and came up with the thermo-acoustic organ project.

The project combines simple robotics and a small, table-top energy device called a thermo-acoustic laser to produce an integrated “system of systems” that can perform a piece of music. The energy sub-system consists of a series of test tubes, each with a piece of honeycomb ceramic, which when heated make a loud sound. The robotics sub-system consists of servo motors with crank-and-piston mechanisms controlled by the microprocessor. The pistons vary the lengths of the tubes. “The idea was that they could hook the motors up to a computer, and a piece of software could control the changes in frequency,” states Duffey. “It’s kind of like a trombone.”

While a project called the “ice cream change” may at first glance seem less than serious, Duffey is very serious about the project. “We tried to treat it just like a real world design project,” he says. He divided the students into various sub-teams with each working on a different sub-system: some worked on the structure, some on the software programming, some on the robotics system. “We put up a schedule for the whole semester that included developing the proof of concept designs, procuring parts, and conducting formal design reviews. We structured it like a project at NASA and we used the format NASA uses to review projects.”

Duffey hopes that projects such as this will introduce students to some of the same techniques and methods that are necessary to make large technical projects work. He uses the recent Deepwater Horizon oil spill as an example. “You had all the best engineers in the world trying to figure out how to plug that darn hole,” he remarks. “Part of engineering is being able to work in a team where you have a lot of unknowns. You’re drawing from your core technical knowledge, but some of it is improvised. You can’t learn that from a textbook but it is engineering.”

HANDS-ON: “You can do a lot in a hands-on context, and as students sort of ‘play’ with the projects, they learn some pretty hard-core engineering,” muses Professor Duffey.
So Much Potential

Working with adult stem cells can be likened to working with an extremely bright but undisciplined child: one sees all the potential inside the child but getting him to do what he is supposed to do can be exceedingly difficult. This is one way to think of the task Professor Lijie “Grace” Zhang of the Department of Mechanical and Aerospace Engineering faces.

Adult stem cells are promising progenitor cells for tissue and organ regeneration, because they have the potent ability to differentiate into multiple cell types and tissues in the human body. They can become bone, cartilage, blood vessels, or other tissues. The problem with this great potential—the potential to differentiate into many cell types—is understanding how to control the differentiation to get the type of cells and tissue that one needs.

Zhang, who joined the SEAS faculty last year, has established the Bioengineering Lab in Nano-medicine and Tissue Engineering at SEAS to work on this and other bioengineering challenges. The main objective of her research is to design novel nanostructure tissue and organ substitutes to replace damaged parts in the human body. To do this, she and her doctoral students are working to understand how nano and chemical environments control stem cell differentiation, which they hope will be a significant step toward improving stem cell therapies.

"In the human body, tissue and organs include two parts: the cells and the surrounding materials in which the cells are embedded," Zhang explains. "The stem cells are very sensitive to the nano-environment in which they live. This environment includes the scaffolds—which are nanometers in dimension—surrounding the cells, and bioactive factors such as hormones that can ‘talk’ to the stem cell to regulate its behavior.”

Zhang and her research partners want to find the optimum conditions to develop stem cells for tissue regeneration—that is, they want to be able to better control the stem cell behavior so that it will change to the specific tissues they are trying to regenerate. “We want to use nano-materials to create a 3-D scaffold that mimics the structure of the cell’s real surrounding materials and later put the stem cell into it and observe its behavior inside the nanostructure scaffold,” she states.

According to Zhang, current research in tissue engineering generally is split between biomaterial-based research and cell-based research. Her research, however, combines the two, which she believes is an approach that very few others are taking. She has already had a good deal of success, receiving five awards last year alone, including a pilot project award from Children’s National Medical Center to design biologically inspired, nano-structured bone substitutes for bone repair and regeneration in children.
GW Breaks Ground for Science and Engineering Hall

Gathering on the site where the Science and Engineering Hall (SEH) will be built, nearly 500 guests joined GW President Steven Knapp, the GW Board of Trustees, SEAS Dean David Dolling, and Columbian College of Arts and Sciences Dean Peg Barratt for the GW Science and Engineering Hall groundbreaking ceremony on October 20, 2011.

The groundbreaking marked the official beginning of the construction process, with anticipated completion by 2014. The building will nearly double the amount of space currently available at GW for science and engineering, and it will serve faculty and students in SEAS and the Columbian College of Arts and Sciences.

“This is a really great day,” said Mr. Nelson Carbonell, SEAS BS ‘85, a member of the GW Board of Trustees and a long time advocate for the SEH. Mr. Carbonell challenged the audience to imagine the contributions that GW engineers and scientists will be able to make by combining their talents with the research resources available in the Washington, D.C. metropolitan region and the new “world-class facility” that will be available to them when the SEH is completed in 2014.

Board of Trustees Chairman W. Russell Ramsey, BBA ‘81, called the event the “culmination of months and years and in some cases decades of planning and thinking” by numerous people to bring GW to this day.

Recognizing the contributions of the many individuals and groups who have led and supported efforts over the years to build the SEH, President Knapp thanked GW faculty, the Board of Trustees, donors, members of his administration, GW students, neighbors, and others. He also acknowledged the support of Mr. A. James Clark, board chairman and CEO of Clark Enterprises, Inc., and remarked that Mr. Clark was “so inspired that we were taking this step that he created a scholars program” for SEAS students (see page 16).

The highlight of the event was the ceremonial groundbreaking by various members of the GW faculty, administration, and Board of Trustees, and by donors and students. The SEAS groundbreaking line (shown in the picture below) included Dean David Dolling; SEAS department chairs Kim Roddis, Abdou Youssef, Julie Ryan, and Michael Plesniak; Professor Hermann Helgert; university trustees Scott Amey, Nelson Carbonell, David Karlgaard, and Mark Hughes, along with his wife Susan; SEAS National Advisory Council members Nicholas Paleologos and Howard Tischler; and SEAS alumni and donors Aran Hegarty, Sassan Kimiavi, Andre Rogers, and Robert Truland.

When the moment came for the SEAS participants to take their turn in the groundbreaking, Dean Dolling called them to the stage to take shovels and turn the ground, saying, “SEAS group, show them how shovels are used!”

EDITOR’S NOTE: Portions of this article are excerpted from “University Breaks Ground for Science and Engineering Hall,” published by GW Today.
Whenever I’m asked to give a “status report” on SEAS, I invariably begin with—or come back around to—the SEAS transformation. It encompasses everything we are doing here. But what does it look like? How can a person capture and describe an ongoing transformation: by examples, by images, by metaphors or analogies?

I try all three in this update, beginning with an analogy.

Think of a living cell. As we all know, cells are very sensitive to their environment, and they need a healthy environment in order to grow and sustain themselves. Likewise, our students need a healthy environment in which to grow. What kind of “environment” do we provide for SEAS students, and how are they able to thrive because of that environment?

By “we,” I mean all of us: faculty, leadership, and alumni. By “environment,” I mean the quality of faculty and teaching; the facilities; and the opportunities inside and outside the classrooms and labs to grow, to be stretched, and to be challenged.

That is what this “status report” is about: it’s about updating you on what is happening in the environment you and I know as “SEAS”—through the photos and faces and examples of the SEAS transformation that dot the pages of this article.

Faculty
All of us know from our own experiences the difference that a good teacher can make for a student. Good teaching can ignite a passion in a student that he didn’t even know he had. At a minimum, it helps pass on the foundational knowledge that is necessary for a student to continue on in that particular field of study.

For me, one of the exciting aspects of our SEAS transformation has been our faculty recruitment. Watching our multi-year faculty recruitment plan unfold during the past three years at SEAS has been exhilarating and gratifying.

Since fall 2008 we have recruited 32 new faces to SEAS, and we are recruiting six more for fall 2012. More than half of them earned their doctoral degrees at universities ranked among the top 20 engineering schools in the U.S. by US News & World Report, or from other leading national graduate programs and highly ranked universities in Europe and Asia.

Every department is benefitting from this rapid strengthening of our faculty. The Department of Computer Science has added eight new faculty in the last three years—five in the past year alone—creating critical masses in cyber security, in robotics and artificial intelligence, and in systems. Over the same period, the Mechanical and Aerospace Engineering Department has added 12 new faculty, including two new associate professors who are providing leadership to growing areas of computational fluid dynamics, with particular emphasis on biological systems. The Engineering Management and Systems Engineering Department has added two new faculty members and this year will add two more, in anticipation of a growing undergraduate program in systems engineering. The Department of Civil and Environmental Engineering has added faculty in transportation systems and materials science and is now actively recruiting in the rapidly growing areas of water resources and environmental engineering. In the Electrical and Computer Engineering Department, new faculty in high-performance computing, network security and communications, the integration of nanophotonics and microfluidics in medicine, and electromagnetics and optics are adding new classes and research programs.

Our students are benefitting from this rapid strengthening of our faculty, too. These talented and energetic new faculty members bring with them new ideas, new courses, new research programs in which SEAS students can participate, and even new opportunities for...
igniting the spark I mentioned above through classroom discussions, lab discoveries, and mentoring sessions.

Recently, we tried to bring all of our new faculty together for a photograph—to give you a visual of the new “face” of SEAS. With faculty so busy teaching, mentoring, doing research, and even travelling to conferences and workshops to present their work, it was impossible to get all of them together at one time, so our photograph shows only 25 people. Still, I think it makes the point—and it is more proof of the old adage that a picture is worth a thousand words: their enthusiasm and energy is almost palpable.

**Science and Engineering Hall**

A very important factor in our ability to recruit such talented young faculty is the promise of the new Science and Engineering Hall (SEH), on which GW officially broke ground on October 20th. The scale and scope of the SEH is unparalleled at GW: it is the largest investment the university has ever made in facilities. That is a telling comment on the commitment the university has to strengthening engineering and science at GW.

I often speak of the SEH as a magnet of sorts that will help us attract world-class faculty and promising young students. This is not just hopeful rhetoric; we’re already seeing it happen with our faculty. As I mentioned above, many of our new recruits have come from top engineering and computer science programs, and they had very good job offers from which to choose. Many of them have told us that the SEH was a major factor in their decision to come to GW. The SEH will provide: state-of-the-art labs for their research; teaching and research “neighborhoods” that foster collaboration (a key ingredient in research today); sophisticated and flexible classroom and lab spaces that allow for newer approaches to teaching; and symposia space to hold local, national, and international events. They see this, and they understand very clearly that the new SEH will foster their progress.

In short, the SEH will allow us to do things in the labs and classrooms that we either cannot do currently or that are more difficult to do currently. Or, returning to the question of the environment that we provide our students, I think it’s fair to say that the SEH will make it easier for our faculty to ignite that spark in our students. As they walk up and down the stairwells, students will be able to look through the glass walls of centrally-located labs and see the research happening inside; with classrooms and labs side-by-side, they can take a discussion that they started with a professor in the classroom and continue it in the adjacent lab; and with symposia space that allows us to host speakers and events that we cannot currently host, our students will have more opportunities to interact and network with external guests brought in for these events.

If you would like to know more about the SEH, I encourage you to read the next article, which begins on page 12.

**Students**

The most fruitful college experiences—the experiences that push students to grow, to stretch, and to be challenged—are those that include activities and opportunities outside the classrooms and labs, as well as inside them.

In recent years, we have really ramped up these opportunities for our students. Building on some of the strong programs and activities we’ve traditionally offered at SEAS, such as the New Student Getaway orientation, the steel bridge competition, the senior design seminar, and others, we have broadened the base of our programs and activities so that all of our students can find something that excites them and complements their classroom learning.

One of the programs I am working hard to develop and expand is study abroad. In an increasingly interconnected world, I believe it is important for our graduates to know how to work in teams with people from other cultures, and we do them a disservice if we do not do our best to provide them with these “training” opportunities. As I reported last year, we have established and are developing our programs with University College, Dublin in Ireland and Korea University in Seoul, Korea.

Spring semester 2010 was our first at University College, Dublin, and 16 students participated. Nineteen went in spring 2011, and 23 have signed up for spring 2012. The new program in Seoul kicked off in spring 2011 with eight SEAS students at Korea University; 12 students are planning to study in Seoul in spring 2012. A unique feature of both programs is that our students take a full course load, transfer credits back to GW, and do not skip a beat on the path to graduation. Presently we also are exploring opportunities in Europe and in Asia.

This past spring, I was thrilled to be able (with your help!) to support another group of our students when they won a place aboard NASA’s microgravity airplane flying out of Houston, Texas. Mentored by Professor Charles Garris and flying under the name “ZeroGW” (as in zero “G’s” of gravity), this team of four undergraduates was one of only
department, and they have the opportunity to present their designs to an audience of faculty, classmates, administration, and alumni at this year-end competition.

Finally, in January of last year, we were fortunate to receive a large gift from Mr. A. James Clark, chairman of the board and CEO of Clark Enterprises, Inc., to establish the Clark Engineering Scholars program. Our inaugural class of six scholars was selected from the freshmen class this past spring and includes Liam Cusack, John Donahue, Geneva Goldwood, Molly Olsen, Sarah Rood, and Janeen Williams. If you would like to learn more about them, please visit www.seas.gwu.edu/ClarkScholars.

Come spring, we will select another class of scholars from this year’s freshman class. Once fully operational, the program will have a total of 15-18 scholars, as current scholars graduate and new scholars are selected. We have recently recruited Captain Murray Snyder, USN Retired to direct the program, and he will join SEAS in 2012. Captain Snyder, the former commander of the nuclear submarine USS Nevada, will develop a signature program for the scholars focusing on leadership, professional responsibility, ethics, and entrepreneurship.

Few engineering schools can offer such an opportunity to its students, and we are very grateful for the generosity of Mr. Clark and the confidence that he has in us to graduate students who will become leaders in the engineering profession. His gift and others like it are essential to our ability to offer what they have learned in their engineering courses by requiring them to complete a “real-world” project that uses the concepts and information introduced in their courses. While SEAS has offered the senior design seminar for some time, we recently raised it to another level when retired SEAS professor Joe Pelton established the Pelton Award for Outstanding Senior Project. The Pelton Award created our first-ever, school-wide senior design competition. One student or team of students is selected from each 14 teams nationally to win a spot in NASA’s Microgravity University program. The SEAS team (see photo above) developed an experiment to investigate how microgravity affects the Plateau Rayleigh instability, which explains why a fluid falling under gravity breaks into small droplets, a phenomenon important in ink jet printers and 3-D prototyping machines. Comments from team members can be found in the article on page 17 and show clearly what a valuable and unforgettable experience this was for them.

As for research conducted back on the ground, we offer the SEAS Student Research and Development Showcase, now in its fifth year, to shine the light on the innovative work that our students are doing. This very successful event was created initially to showcase the research of our graduate students, but it now has a rapidly growing undergraduate division. Poster presentations are judged by a panel of faculty, alumni, and other experts; prizes are awarded; and commercialization potential is judged by personnel from the GW Office of Entrepreneurship. In addition to this, the SEAS National Advisory Council has initiated new entrepreneurship programs that complement the showcase and give our students a unique range of opportunities to test and improve their research and ideas. A key component of our undergraduate programs is the senior design capstone seminar. It allows our students to synthesize
these programs to our students; they are also critical to our success in recruiting such students in the first place. We can debate the “chicken and egg” nature of enhanced programming and student recruitment, but at the end of the day we can’t give these wonderful opportunities to students who don’t first apply to and enroll at GW.

Alumni
This fall we hosted our fifth GW Engineering Hall of Fame celebration, which honors alumni who have distinguished themselves in their professions and through their service in a sustained and significant way. Six alumni names were added to the 28 already on this coveted list. Added were Ms. Anousheh Ansari, first female private space explorer and entrepreneur; Mr. Nelson Carbonell, an entrepreneur, member of the GW Board of Trustees, and an eloquent spokesperson and leader in support of the SEH; Dr. Randy Graves, a former NASA leader in aerospace technology research and development; Professor Arnold Meltzer, SEAS professor emeritus and “father of computer science” at GW; Mr. Asghar Mostafa, a serial entrepreneur; and Mr. L. William Varner III, a corporate leader in cyber security solutions.

Meeting this highly distinguished group of alumni reinforced in my mind yet again the vast array of paths taken by SEAS graduates. As I have said many times to students and parents of SEAS students, and firmly believe, no other educational experience better prepares a person for success over a broad spectrum of careers than engineering or computer science. SEAS alumni serve as wonderful role models for our students, and as I remind our Hall of Fame inductees each year, their examples help inspire the next generation of engineering leaders.

Our alumni who are already engaged with the school serve as role models and mentors of one sort or another simply by the examples they set, and they help our students develop, mature, and make the transition from college to the work world. Our alumni do this through their presence at resume review night and entrepreneurship activities, through internships they sponsor, through their support of our Student Research and Development Showcase, and in many other ways.

I started this status report with an analogy, and I’d like to end with one, too. At our 125th anniversary celebration back in 2009, I made an analogy between SEAS and an orchestra: I said that SEAS is like an orchestra and that each of us plays an instrument in it and has a role in creating the music. The past three years have shown me how true that is. We do all have a role to play.

If you have been engaged these past few years in helping bring us to this point, please accept my sincere thanks. I hope that you have seen the changes for yourself during your visits to Tompkins Hall, or if you haven’t been able to make it to campus, I hope you’ve heard the “buzz” that we’re starting to generate. To those of you who have not yet “taken up an instrument” in our orchestra, please consider doing so. Great things are happening here. The transformation truly is underway, and we’d love to have you join us.
GW’s Science and Engineering Hall: Designed for Discovery

“The other universities around the U.S. are also currently building new engineering facilities, but few have the scale, the scope, and the ambitious goals of GW’s Science and Engineering Hall (SEH). The new SEH will be approximately 500,000 gross square feet. This is hugely important, not because of bragging rights, but because of the possibilities that a building like this brings to GW—to grow the research we’re already doing, to branch out into new areas, to collaborate with colleagues inside and outside of GW in a broad range of engineering and natural science disciplines, to engage our students with new teaching methods, and to give them hands-on experiences that they’ve never before had.”

David Dolling
Dean

**Status & Plans:**

**June 13, 2011:** The D.C. Zoning Commission gave final approval for GW to build the SEH.

**Summer 2011:** Demolition of the University Parking Garage at 22nd and H Streets began in June, continued throughout the summer, and was completed in October.

**October 20, 2011:** GW hosted the groundbreaking ceremony for the SEH, presided over by GW President Steven Knapp, the GW Board of Trustees, SEAS Dean David Dolling, Columbian College of Arts and Sciences Dean Peg Barratt, and others.

Construction is slated to begin before the end of 2011 and continue through late 2014. SEAS and the Columbian College science departments expect to move into the SEH in early 2015.

“Planning for the Science and Engineering Hall (SEH) has been extensive. Among those involved have been teams of faculty and staff from SEAS and the Columbian College of Arts and Sciences who have gone through multiple rounds of exercises with the building architects to explain to them what the needs will be for classrooms, labs, core facilities, and other building spaces, in order for the architects to maximize the building’s potential to create a flexible environment for learning, research, and collaboration. Accordingly, we are considering a broad range of possibilities in this planning process—including planning to accommodate future technologies and research programs that do not yet exist.”

Professor Can Korman
Associate Dean for Research and Graduate Studies

**The Facts:**

**State-of-the-art:** The SEH will house a Class 100 clean room, an ultra-high resolution imaging suite, a vivarium, studio and scale-up labs where lecture and lab can be integrated, neighborhoods where research and teaching exist side-by-side, and flexible collaborative and symposia spaces.

**Square footage:** The building will have approximately 500,000 gross square feet with about 300,000 net square feet for teaching and research spaces, offices for faculty and researchers, and other collaborative and support spaces.

**Floors:** A total of 14 floors comprise the building: eight floors above grade, two floors below grade for labs and core facilities, and four floors below those for parking.

**Parking:** The new facility will include 379 parking spaces.

**Location:** The SEH will be located on the site of the former University Parking Garage, on 22nd and H Streets, NW.

**Completion:** The expected completion date is late 2014.
“In the hyper-competitive world of higher education’s first tier, mere growth is not sufficient; taking risks and exploring ideas must become routine at GW. To me, the Science and Engineering Hall [SEH] represents exactly that—a place where creativity and curiosity can thrive. As someone who constantly worries about producing the next generation of innovators, I am hopeful that the environment provided by the SEH will encourage students to innovate. Once having explored it here, I hope they will become lifelong innovators.”

Professor Rahul Simha
Department of Computer Science
2010 CASE Professor of the Year, District of Columbia

The Features:

Collaborative instructional labs: Studio, scale-up, and numerous instructional labs bring the lecture and lab together in one setting, giving students a hands-on experience and bringing the latest teaching tools to instructors.

Teaching and research neighborhoods: These areas are designed to maximize interactions between students and faculty, and collaboration across disciplines. By increasing the contact between faculty and students and among peers working in different fields, we create catalysts to increase both learning and innovation.

High bay: The high bay is a three-story tall facility that will accommodate numerous large scale research and student projects that need multi-story heights. In particular, researchers can use it to test structural components of buildings and bridges. Knowledge gained in structural tests can be used to improve our transportation infrastructure and to build structures that are more earthquake resistant. The size and features of the high bay will give faculty the chance to scale-up their research projects and, therefore, compete more effectively for research funding.

Clean room: Clean rooms are essential for scientific research that requires low levels of environmental pollutants. For example, a clean room is required to make computer chips, which are integral to addressing problems in communications, health monitoring, security, and other areas. With the new clean room, GW faculty and students will be able for the first time to make their own micro- and nano-scale devices without having to leave campus. This state-of-the-art facility will be critical for the growth of research in nanotechnology, optics, energy, and biomedical engineering.

Imaging suite: The imaging suite will be erected on a slab on grade bedrock to minimize vibrations. It will also be custom built to be shielded from external electromagnetic interference. This will allow researchers to build and test nano-scale structures and to use state-of-the-art, high-resolution imaging equipment that can image features at the nanometer scale.

Financing:

The SEH will cost an estimated $275 million to build. It will be funded primarily through philanthropic gifts from the GW community, by indirect cost reimbursement from grants and contracts supporting faculty research, and by lease payments from The Avenue, the newly-built office, retail, and residential space complex across from GW Hospital.

A number of naming opportunities exist for donors who would like to help support the building and equipping of the SEH. The opportunities cover a range of spaces, from the building itself, to core facilities within it such as the high bay or clean room suite, to the collaborative spaces and labs, and more.

If you are interested in discussing opportunities to support fundraising for the SEH, please contact the SEAS Office of Development by telephone at 202-994-8474 or by email at jphoward@gwu.edu.

• To receive the monthly SEH newsletters, please e-mail gwsehall@gwu.edu with the subject line “Subscribe.” Please include your full name in the body of the e-mail.
• To see the architectural renderings of the SEH, please visit: http://www.gwu.edu/~sec/#img.
• To follow progress on the building’s construction, visit the on-site camera: http://oxblue.com/pro/open/clarkconstruction/gwu.
Micah Foster

IT’S ABOUT SCHOLARSHIP—and Everything Else, Too

Seasoned professors have all had the experience of working with a student who just seems to shine, a student who is so well-rounded and so mature that the professor knows it will be a couple of years before another student of that caliber comes through the door of his classroom. That seems to be the case with Micah Foster, who graduated from SEAS last May with a bachelor’s degree in mechanical engineering.

Micah did a little bit of everything as an undergraduate—and did it well: he undertook summer research projects; helped form GW’s chapter of Engineers Without Borders; worked one summer for BP Oil in Alaska; served as a mentor for incoming students and participated in the New Student Getaway; served as an officer for the GW student chapters of the American Society of Mechanical Engineers and Pi Tau Sigma, the mechanical engineering honor fraternity; played the drums in a few GW musicals; and decided to join the university’s competitive ballroom dancing team because a few of his friends were in it.

This, however, is not the complete list of his activities, nor does it even include his two primary achievements.

In the summer before his senior year, Micah learned about NASA’s Microgravity University program and made it his personal goal to lead a team of SEAS students to participate in this highly competitive program. He formed a team, and they found a SEAS faculty advisor and put together a project proposal to test the Plateau-Raleigh instability in microgravity. In December of last year, NASA announced that it had accepted 14 teams into the program for the following summer, and the GW team was one of the 14.

Micah sat for an interview last summer, just before his trip to Houston, where he and the other members of GW’s team would board the “Weightless Wonder,” a microgravity airplane, and conduct their experiment in microgravity conditions. When asked about his leadership responsibilities in this and other projects, Micah reflected, “I’d never been in a real leadership role before Engineers Without Borders, and for me the real challenge was balancing being a friend and a teammate, and being a leader when that needed to happen. For the microgravity program, I’m designated as the team lead, but if we mess up, I’m the one who’s going to get the phone call and be asked why we wasted this money. It’s a huge responsibility.” [Editor’s note: The team did not “mess up.” See the article on page 17.]

The crowning achievement of Micah’s college career, however—and the activity that was prior to all others—was academics. Last year, he was selected as the SEAS Distinguished Scholar, the top academic honor given to a SEAS student. In that capacity, he was also chosen to address his graduating class at the SEAS Commencement celebration in May.

As he looked back at his four years at SEAS, Micah was quick to give credit to others for his successes. He spoke of the support of his student mentor during his freshman year and of faculty who helped with various projects. “Dr. Roddis was our biggest advocate when I worked with Engineers Without Borders, and Dr. Plesniak’s support with the microgravity program has been unbelievable. They wanted us to succeed and they were really willing to help us do that,” he said. In short, it was “definitely the community” that made the difference for Micah. Stated another way, “The SEAS community has been my favorite part of being at GW.”
Gio Patterson
It’s About THE PEOPLE

Giovanna “Gio” Patterson went to an all-girls Catholic high school, and it was there that she was introduced to computers, setting the course for the rest of her education and the technical foundation for her career. She had always liked math, and logic, and problem solving, but computers provided another dimension to these interests: she liked the fact that with computers she could build applications that make people’s lives easier.

Patterson decided to study computer science as an undergraduate at Virginia Tech and as a graduate student at SEAS, where she received her master’s degree in 1991. She came to SEAS, as many graduate students do, as a young working professional. She was then at the beginning of what has become a very successful 25-year career.

Starting as a computer programmer for the U.S. Air Force, Patterson steadily climbed to positions of greater responsibility as she moved first to a defense contractor, then to a system integrator focused on the civilian and health care sectors, and finally to her present position as vice president, Federal Health Care Industry Leader at IBM.

“Today I’m running the federal health care business for IBM,” Patterson says. “I’ve had a number of different roles from program management, to integration manager of a major acquisition, to business development and overall profit and loss responsibility.” “But,” she emphasizes, “business development is always a portion of the job because even in the early stages when you’re assigned to a project, you’re expected to build a relationship with that customer, and help them with their next needs.”

When asked how she thinks she ended up going this route professionally, Patterson muses, “I think it’s a matching of your preparedness to the opportunity. I knew that I wanted to run either a corporate development organization or run a health sector, and I’ve actually been able to do both recently.”

While she enjoys the challenges that come with this level of responsibility, Patterson does not dwell on them in conversation. Instead, she chooses to talk about the people and clients with whom she works. “At the end of the day, it’s always about the people,” she states.

As part of this philosophy, Patterson seems to place extra emphasis on mentoring, particularly of women. She is a member of the IBM Women’s Forum and believes that she has a responsibility to help provide support and mentorship to women working in technical professions and women entering the upper ranks of corporate management. She also takes great pride in mentoring her staff. Patterson remarks, “My greatest successes are my children, but in the work sphere, I think my biggest accomplishment is the growth of the people who work for me. There is a legacy you leave behind in the work place; it is the people who you have helped grow.”

On top of the time she spends mentoring her business associates, Patterson has also made time to mentor SEAS students and to reconnect to the school. She recently joined the SEAS National Advisory Council and has participated in the Dinner with Alumni program and the SEAS resume critique night. At the request of Dean David Dolling, she also helped select the inaugural class of Clark Engineering Scholars last spring. When asked about this, she replies, “I’ve definitely found that reconnecting is good for the soul. Simply put, you get energized. Getting out and networking with students, the board members, or the dean gives you an avenue to be creative and engaged in the community. It feels good.”
Clark Creates Engineering Scholarship Program
In January 2011, Mr. A. James Clark, chairman of the board and CEO of Clark Enterprises, Inc., donated $8 million to establish the A. James Clark Engineering Scholars program at SEAS. Through his gift, the Clark Engineering Scholars program provides annual merit-based scholarships and leadership training for the school's top undergraduate students.

“I am very excited about the Clark Engineering Scholars program,” said Mr. Clark after founding the program. “Education is the key to our nation’s future, and the Clark Engineering Scholars program, coupled with a GW education, will provide an excellent foundation for a lifetime of opportunity, enjoyment, and contributions to society.”

Scholars are chosen during their freshman year, and over the course of their remaining three-and-a-half years, they participate in a range of experiences designed to develop and hone practical engineering and leadership skills. The key experiences include a “boot camp” led by successful SEAS alumni, summer internships, a semester abroad, and regularly scheduled workshops.

The first class of scholars was selected last spring, and they participated in the inaugural boot camp before the start of classes in August. The 2011-2012 Clark Engineering Scholars are: Liam Cusack, John Donahue, Geneva Goldwood, Molly Olsen, Sarah Rood, and Janeen Williams. Photos and brief biographies of the scholars are available at: www.seas.gwu.edu/ClarkScholars.

“The School of Engineering and Applied Science is extraordinarily grateful to Mr. Clark for his vision and generosity,” said Dean David Dolling. “His gift to establish the Clark Engineering Scholars program has given the school a signature program that will attract the most talented and ambitious young men and women to SEAS, and it provides an exceptional mix of student leadership training and experiences that very few programs across the country offer.”

Mr. Clark is a trustee emeritus at GW and received an honorary doctorate of engineering from GW in 2010. He is also a trustee emeritus at The Johns Hopkins University and Johns Hopkins Medicine, a board member of the University of Maryland College Park Foundation, and a member of the PGA Tour Golf Course Properties Advisory Board. As an engineer, entrepreneur, and philanthropist, he has been the recipient of many academic, professional, and civic honors.

Will you “Be a Part of It” with your gift to SEAS this year?
With your support last year, SEAS: sent a team of undergraduates to NASA’s Microgravity University program, helped fund study abroad, and hosted the SEAS Student R&D Showcase. Experiences such as these complete our students’ education, but they do not happen without your participation. Your gift of $50, $100, $500 or any amount will help us continue to provide these opportunities and more. On behalf of our students, THANK YOU!

Sincerely,

David S. Dolling
Dean
Gravity Is Over-Rated
Each year, NASA selects a small number of university teams from across the nation and invites them to the Johnson Space Center in Houston, Texas, where they have the once-in-a-lifetime chance to board a microgravity airplane called the “Weightless Wonder” and conduct tests in microgravity conditions on experiments of their own design. In December 2010, NASA announced that it had accepted 14 teams into the program for the summer of 2011, and GW’s team of SEAS students was one of the 14.

The GW team’s project was student-led and a long time in the making. In the summer of 2010, rising senior Micah Foster learned about the NASA Microgravity University program and asked fellow SEAS undergraduates Hannah Stuart, Andrew Breest, and Danielle Barsky to join him in forming “ZeroGW,” the GW team named for zero “G”s of gravity. The team then enlisted the support of Professor Charles Garris of the Department of Mechanical and Aerospace Engineering to serve as their faculty advisor, and together they created a project proposal to test the Plateau-Raleigh instability in microgravity.

“The whole thing’s been almost a year process,” reflected Foster. “We had to actually build everything, and we had to prove to NASA that everything we were bringing on was safe and could survive up to nine ‘G’s of force. We had to go through five different revisions of our entire design and then we finally went down to Texas on June 1st after almost a year.”

Professor Garris corroborated the remark, noting, “It was all theirs, and I was just there to kind of point them in the right direction and confer with them. They really took the idea and ran with it. Seeing them work together was a joy.”

Team members agreed that they learned a tremendous amount from the experience. “It was a cool engineering experience to go through, because we kind of went through the same steps that NASA puts their own people through,” said Breest.

Shortly after finishing her flight, Stuart posted an entry on the team’s Facebook site that summed up their experience:

“Flying is awesome!!! It was the most amazing experience. As the plane started its first ascent, we were pressed into the floor under 2-Gs. Acrobatics started when we floated up and ran straight into the ceiling. After two stints of adapting to the ‘greatest weight-loss plan on Earth,’ we got straight to work on our research. Our experimental setup worked beautifully and we successfully collected data while thinking on our toes (because there were almost no periods in 1-G to fix little mishaps). Once we finished data collection, we enjoyed some recreational parabolas (about five in zero gravity, one in lunar gravity, and one in Martian gravity). Our team was energetic and robust throughout both flights . . . we had the time of our lives—gravity is overrated.”

To see NASA photos of the flights, a video of the experience, and a link to the “ZeroGW” website, visit: www.seas.gwu.edu/seasphotos/zerogwnasa2011.html.
**Ansari Challenges Students to “Dare to Dream”**

In “Dare to Dream,” an October 27th talk at GW, Ms. Anousheh Ansari, MS ’92, the world’s first female private space explorer and a SEAS alumna, discussed the perseverance that allowed her to accomplish her lifelong goal of space flight.

Addressing a standing-room only crowd composed primarily of SEAS students and using her own story as an example, Ansari challenged students not to give up on their dreams, even when the way is unclear. “When you really want something bad enough and work hard for it, you can eventually find a way,” she said. “If you give up, even when an opportunity presents itself to you, you might not see it, because you’ve stopped looking.”

Ansari opened her presentation with a slide showing a crayon drawing of a rocket ship orbiting a planet. “I drew that picture more than 40 years ago,” she said, explaining how, as a child growing up in Iran, she loved watching “Star Trek”—dubbed in Farsi—and decided as a child that she wanted to be a science officer aboard the Enterprise. “Imagine my surprise when that didn’t happen,” she joked. “I had to make it happen myself.”

At age 16, Ansari came to the United States with her family. She finished high school and college, and then took a job in telecommunications at MCI while simultaneously pursuing a master’s degree in electrical engineering at GW. In 1993, she co-founded her first company, which she later merged with Sonus Networks. She followed this in 2006, co-founding Prodea Systems, a digital services company.

Ansari said that as she worked on her businesses, she began to question her childhood dream of space flight. “I had a successful career in telecommunications as an engineer and as an entrepreneur,” she said. “I said to myself, I’ve done good in my life. I don’t really need to pursue everything I wanted to do as a child. Going to space is one of those dreams that is easier to give up than to work hard at.” Her fascination with space, however, would not wane.

Her opportunity came by chance in 2006, when Space Adventures, Ltd. offered her the opportunity to train at the Star City space training facility outside Moscow as a backup flier for a flight to the International Space Station aboard the three-passenger Russian Soyuz spacecraft.

She approached the rigorous training program as if she were a regular crew member, she said, not as an observer. Then, three weeks before the flight, the crew member who was originally slated to be on the flight was medically disqualified, and Ansari was offered his spot. She blasted off on September 18, 2006, and spent a total of nine days aboard the International Space Station, 200 miles above the Earth.

“I was in the right place at the right time, but I had also made many choices that put me in that position,” she said.

Ms. Ansari said her best advice to students is to be persistent. “Deal with problems in new ways. You’re never done—there will never be a time when you say, ‘Ok, I’m finished.’ And don’t be afraid of failure. Failure is the best way to learn.”

**EDITOR’S NOTE:** Major portions of this article are excerpted from “Private Space Explorer Anousheh Ansari Speaks at GW,” written by Laura Donnelly-Smith and published by GW Today.

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**Peering Beneath the Surface**

SEAS teamed up with the National Gallery of Art in Washington, D.C. to offer a two-part lecture series last March on engineering, science, and art. Titled “Beneath the Surface: The Intersection of Science, Engineering and Art,” the lectures explored how engineers and scientists are helping art conservators better study paintings.

The lecture series grew out of research that Professor Murray Loew of the Department of Electrical and Computer Engineering, his doctoral student Damon Conover, and a team of scientists and art conservators at the National Gallery of Art are doing. Their project uses image spectroscopy to digitally peel back the layers of art on masterpieces and look under the surface layer to learn more about them.

“The National Gallery of Art is one of fewer than a dozen museums throughout the world that have their own on-site forensics labs to help them better understand and conserve some of the world’s great art, and this lecture series was a unique opportunity for us at SEAS to learn from them about what can happen when engineering insights are applied to the field of art,” said Dean David Dolling.

The first lecture, hosted at the National Gallery, included presentations by several of its staff and provided an overview of the various methods involved in conservation science. The second lecture was hosted by SEAS and featured Professor Loew and his counterpart at the National Gallery, Dr. John Delaney. Professor Loew and Dr. Delaney focused on their efforts to image masterpieces in order to virtually dissect them and learn more about them. They are currently working on this project under a joint grant from the National Science Foundation’s SCIART (Chemistry and Materials Research at the Interface between Science and Art) program.

“The infrared camera that we are building will operate at low light levels and allow fast, high-resolution, non-contact mapping and identification of the binders in paintings. The software we are designing will allow accurate registration of the hyperspectral, x-ray, and visible imagery data,” said Professor Loew. “That knowledge will be of great value to conservators around the world.”

As a result of their ongoing research collaboration and joint lecture series, SEAS and the National Gallery are exploring other collaborations, including the possibility of undergraduates working with scientists at the National Gallery as part of their senior design projects.
Annual Showcase Highlights Student Research
SEAS hosted its fifth annual SEAS Student Research and Development Showcase in February of this year in conjunction with National Engineers Week, as 63 graduate and undergraduate students competed for $14,000 in prize money.

The purpose of the annual showcase is to highlight student research and development and give students the opportunity to network with successful alumni. Each student participating in the event prepared a poster detailing his or her research, which was evaluated by a panel of 15 judges made up of SEAS professors and alumni.

Can Kirmizibayrak and Mike Wakid, both doctoral students in the Department of Computer Science, won the $5,000 first-place prize in the graduate student category. Their winning idea, which aims to improve the success rate and accuracy of surgical procedures, is a 3-D image fusion and visualization software.

"While the amount of medical information available to medical professionals has grown exponentially, the usage of this information is still dependent on physicians’ knowledge and their ability to mentally combine and analyze multiple sources of information," said Mr. Wakid. "Image-guided surgery aims to help this process by fusing different modalities and visualizing those in a fashion that would provide much information to the physician while removing unnecessary clutter and avoiding information overload."

The showcase’s second-place prize of $4,000 in the graduate division went to TaiSen Zhuang, a doctoral student in the Department of Mechanical and Aerospace Engineering. He presented a compact optical microfluidic uric acid analysis system. The system could help people suffering from gout, a disease caused by the buildup of uric acid in the body, which can cause joint swelling and debilitating pain.

Hannah Stuart, a SEAS senior, won the $2,000 prize in the undergraduate division. She presented a method for measuring the formation of water droplets inside one type of fuel cell.

In addition to the poster competition, the showcase also featured a keynote address by Mr. Eddie Frederick, president and co-founder of LivingSocial, a Washington, D.C. startup. Mr. Frederick provided tips and encouragement for young engineers and would-be entrepreneurs saying, "It’s really a great time to be an engineer, and it’s an even better time to start a company."

EDITOR’S NOTE: Portions of this article are excerpted from “Entrepreneurial Engineers,” written by Jennifer Eder and published by GW Today.

SEAS Students Compete for Senior Design Award
Analytic rigor, imagination, and even entrepreneurship were on full display last May in the Marvin Center’s Grand Ballroom as SEAS held its second annual Pelton Award for Outstanding Senior Project and Senior-Alumni Barbeque.

Four teams of students, each representing a SEAS department, presented their senior design projects and competed for the Pelton Award. The project presentations included an autonomous vehicle following system presented by Alonzo Alvarez Meola, Maurycy Wojtowicz, and Gabriel Yessin of the Department of Electrical and Computer Engineering; a microgravity experiment presented by Andrew Brest, Micah Foster, and Hannah Stuart of the Department of Mechanical and Aerospace Engineering; an office building design presented by Katherine Farley, Rebecca Jimenez, Nnabuihe Nnamani, and Alexander Tarley of the Department of Civil and Environmental Engineering; and a secure and private method for buying products on the Internet presented by Jan Rubio of the Department of Computer Science.

First-place in the competition went to Alonzo Alvarez Meola, Maurycy Wojtowicz, and Gabriel Yessin; and the runner-up award went to Jan Rubio.

The Pelton Award competition was established in 2010 by Dr. Joseph Pelton, former professor in the school’s Department of Electrical and Computer Engineering. He endowed the award to continue the Pelton family tradition of innovation and patented inventions by giving SEAS seniors the chance to compete for a school-wide senior project award and cash prize. "Seniors in each of the school’s departments have participated over the years in department-wide senior design classes and competitions,” said Bhagirath Narahari, associate dean for undergraduate programs and student affairs at SEAS and organizer of the event. "However, Dr. Pelton’s generosity now makes possible this school-wide competition and challenge for our students.”

The competition was hosted by SEAS, the National Advisory Council, and the Engineer Alumni Association. To welcome the Class of 2011 into the SEAS alumni community, Mr. Scott Amey, MS ’75, Mr. Ashok Jha, MS ’92, and Mr. Howard Tischler, MS ’80, generously sponsored a full barbeque on the Marvin Center Terrace following the competition.
New Faculty

Dr. Elias Balaras
Elias Balaras is an associate professor in the Department of Mechanical and Aerospace Engineering. Balaras received his Ph.D. from the Swiss Federal Institute of Technology and was formerly a visiting scientist at the National Institute of Standards and Technology and a member of the faculty at the University of Maryland. He is an expert in computational fluid dynamics, and his current research program aims to develop robust numerical techniques for parallel, large-scale simulations of multiscale, multiphysics problems in physical and biological systems. He has several current research grants from the Office of Naval Research, the National Science Foundation (NSF), and the Air Force Office of Scientific Research. He has received several awards, including the Marie-Curie Fellowship from the European Commission in 1994 and the NSF’s CAREER award in 2003. In recent years, his research has been featured in the New York Times and the Sunday Times.

Dr. Michael Clarkson
Michael Clarkson is an assistant professor in the Department of Computer Science. Previously he was a postdoctoral associate at Cornell University, where he also received a Ph.D. in computer science in 2010. Clarkson’s research interests include computer security and programming languages. His work focuses on using principled techniques to define security and to construct secure systems, including electronic voting systems. He served as a member of a security review team commissioned by the Florida Division of Elections for an Internet voting pilot project. Two of his papers at the IEEE Computer Security Foundations symposium were selected as best papers.

Dr. Taeyoung Lee
Taeyoung Lee is an assistant professor in the Department of Mechanical and Aerospace Engineering. He received his Ph.D. at the University of Michigan, and prior to joining SEAS, he was an assistant professor at Florida Institute of Technology. His research is focused on nonlinear dynamics and control of aerospace systems, and he is particularly interested in computational geometric approaches to generate nontrivial maneuvers of complex dynamic systems over a long time period. His current research on uncertainty propagation is supported by the National Science Foundation.

Dr. Claire Monteleoni
Claire Monteleoni is an assistant professor in the Department of Computer Science. She completed postdoctoral work in computer science and engineering at the University of California, San Diego and then, prior to joining SEAS, was research faculty at the Center for Computational Learning Systems at Columbia University. She completed her Ph.D. in computer science at MIT. Her research focus is on machine learning theory and algorithms, and climate informatics: accelerating discovery in climate science with machine learning. Her work in climate informatics has received a Best Application Paper Award and has been presented at an Expert Meeting of the Intergovernmental Panel on Climate Change (IPCC), a panel formed by the UN that shared the 2007 Nobel Peace Prize.

Dr. Gabriel Sibley
Gabriel Sibley is an assistant professor in the Department of Computer Science. Prior to joining SEAS, he was a junior research fellow at Somerville College, Oxford, and a member of the University of Oxford in the Mobile Robotics Group. He completed his Ph.D. at the University of Southern California and at NASA-JPL, where he worked on long-range data-fusion algorithms for planetary landing vehicles, unmanned sea vehicles, and unmanned ground vehicles. His core interest is in probabilistic perception algorithms and estimation theory that enable long-term autonomous operation of mobile robotic systems, particularly in unknown environments. He has extensive experience with vision-based, real-time localization and mapping systems, and he is interested in fundamental understanding of sufficient statistics that can be used to represent the state of the world. His research uses real-time, embodied robot systems equipped with a variety of sensors—including lasers, cameras, inertial sensors, etc.—to advance and validate algorithms and knowledge representations that are useful for enabling long-term autonomous operation.

Dr. Kausik Sarkar
Kausik Sarkar is an associate professor in the Department of Mechanical and Aerospace Engineering. He holds a Ph.D. in mechanical engineering from the Johns Hopkins University. His research interests are in fluid mechanics, acoustics, and biomechanics. He is particularly interested in multiphase flows of drops, bubbles, and particles, and their emulsions in material processing, medical imaging, drug delivery, and biological flows. His lab develops theoretical models, performs experiments, and creates large scale computational fluid dynamics tools.
Dr. Ergun Simsek  
Ergun Simsek is an assistant professor in the Department of Electrical and Computer Engineering. He completed his Ph.D. at Duke University and worked as a postdoctoral research associate at Schlumberger-Doll Research (Cambridge, MA) and as an associate at Harvard University. His current and past studies are engaged with theoretical, computational, and experimental research at the broad interface between electromagnetics and optics. Problems of specific interest include: plasmonic waveguides and sensors; nano antennas and lasers; wave propagation and scattering in complex media with applications to photonic and plasmonic devices; novel nano fabrication techniques; and numerical algorithms. Simsek teaches courses in electromagnetic theory and nano optics.

Dr. Hoeteck Wee  
Hoeteck Wee is an assistant professor in the Department of Computer Science. He received his Ph.D. from the University of California, Berkeley. Prior to joining SEAS, he was an assistant professor at Queens College, CUNY. Wee received the National Science Foundation CAREER Award in 2010 for his work on the design and analysis of cryptographic algorithms and protocols. He is teaching graduate algorithms during the fall 2011 semester.

Dr. Timothy Wood  
Timothy Wood is an assistant professor in the Department of Computer Science. Before joining SEAS, he received his Ph.D. in computer science from the University of Massachusetts Amherst. His research studies how cloud computing platforms can be built from massive data centers containing thousands of servers and storage devices. He seeks to improve the performance, reliability, and energy efficiency of these large distributed systems by adding automation and intelligence at the operating system and virtualization layers. Wood is teaching CS 2113 Software Engineering 1 during the fall 2011 semester.

Dr. Zoe Szajnfarber  
Zoe Szajnfarber is an assistant professor in the Department of Engineering Management and Systems Engineering. She holds a Ph.D. in engineering systems from MIT. Her research seeks to understand the fundamental dynamics of innovation in technology-intensive governmental organizations as a basis for decision making. Outside of academia, Szajnfarber has worked as a systems engineer at MDA Space Missions (Canadarm Program) and Dynacon, Inc. (Microsatellites), and as a visiting researcher at the European Space Agency and NASA.
SEAS Celebrates Faculty Excellence

Last April SEAS honored the accomplishments of Professors Azim Eskandarian, Rumana Riffat, and Matthew Kay at the third annual SEAS Faculty Research and Teaching Awards Presentation.

Professor Azim Eskandarian of the Department of Civil and Environmental Engineering received the 2011 SEAS Distinguished Researcher Award for the major role he has played in building the university’s transportation safety research program. “By steadily and successfully adding research capabilities to its portfolio, he has become a key architect of the program,” remarked Dean David Dolling at the ceremony.

Professor Eskandarian is a recognized scholar in the field of transportation safety engineering. According to a bibliographic analysis in the IEEE Transactions on Intelligent Transportation Systems last year, he has developed a publication record as one of the “Most Cited Authors” in his field. As a result of his research, GW ranked second in the “Most Cited Institutions (Top Ten),” ahead of the University of California, San Diego; MIT; the University of California, Berkeley; the University of Southern California; and other universities active in this field.

Professor Rumana Riffat of the Department of Civil and Environmental Engineering received the 2011 SEAS Distinguished Teacher Award and was recognized for her long-standing development and stewardship of GW’s environmental engineering program.

For most of her career, Professor Riffat has served as the sole environmental engineer-
the DC Water Resources Research Institute, Professor Royce Francis of the Department of Engineering Management and Systems Engineering conducted a water use impact assessment for Washington, D.C.’s urban water infrastructure.

Finally, some of the faculty received U.S. patents last year for their research. MAE Professor Pinhas Ben-Tzvi was granted U.S. Patent 7,874,386 for “Hybrid mobile robot.” ECE Professor Jason Zara was awarded U.S. Patent #7,999,945, “Optical coherence tomography/acoustic radiation force imaging probe,” while his colleague, Professor Murray Loew, was awarded U.S. Patent 7,899,263, “Method and apparatus for processing analytical-form compression noise in images with known statistics.”

Garris Receives Trachtenberg Prize

When GW held its First Annual Faculty Honors Ceremony last April, SEAS Professor Charles Garris was among five faculty chosen from across the university to receive the Oscar and Shoshanna Trachtenberg Faculty Prizes. The prizes are endowed by former GW President Stephen Joel Trachtenberg in memory of his parents and their great respect for higher education.

Three of the Trachtenberg Prizes are awarded for scholarship, while two are awarded for service. Professor Garris received one of the two prizes for service. “His involvement at the heart of the university has been continuous, and the scope of his activities has been deep and broad,” Dean David Dolling said of Professor Garris. “He has committed a large fraction of his professional life to the betterment of the institution and conditions for fellow faculty, while at the same time honing a reputation as a dedicated instructor and researcher.”

Over the course of his career, Professor Garris has been very active in the university’s Faculty Senate, representing engineering and science and working to increase the stature of both within the university community. He has been a strong advocate of the role of research and of its centrality to GW’s mission. Most recently, Professor Garris played a key role in advocating for the Science and Engineering Hall before the GW Faculty Senate, helping to advance the project.

Related to his advocacy of engineering and science, Professor Garris has been very active in promoting patent and intellectual property issues at GW and has been involved in a wide range of associated activities, including initiating a SEAS undergraduate program in patents. He has also devoted a good deal of time to the issue of shared governance within the university, particularly through his earlier role as the chair of the university’s Committee on Professional Ethics and Academic Freedom.

SEAS congratulates Professor Garris on receiving the Trachtenberg Prize for service.

Recently Retired

Several SEAS faculty members have recently retired or become emeriti professors.

Professor Khalid Mahmood of the Department of Civil and Environmental Engineering has retired after 34 years at SEAS. Professor C. Dianne Martin of the Department of Computer Science has retired from her faculty position at the school but is staying on at GW as the vice provost for faculty affairs.

Professors Peter Bock and John Sibert of the Department of Computer Science have become emeriti faculty, as have Professors Walter Kahn and Ting Lee of the Department of Electrical and Computer Engineering.

SEAS thanks them for their years of service and extends its best wishes and appreciation to each of them.

Professor Charles Garris (center), pictured with GW Provost Steven Lerman (left) and GW President Steven Knapp (right), received a 2011 Trachtenberg Faculty Prize for service.
Nuclear Energy Experts Convene at GW to Discuss Fukushima Disaster

In the wake of the March 11th earthquake and tsunami in Tohoku, Japan, Professor Philippe Bardet of the Department of Mechanical and Aerospace Engineering decided to convene a panel of internationally recognized nuclear energy experts to try to dispel some of the myths and factual errors that had been widely reported about the disaster.

“While the earthquake and tsunami created a tragedy in which more than 100,000 people had to be evacuated,” said Professor Bardet, “the media in the U.S. over-emphasized the situation at the damaged plant and presented many inaccurate facts. I was hoping to present a more objective perspective of the situation at the plant by assembling a panel of experts with different backgrounds: a civil engineer, nuclear engineers, a medical doctor, and a Japanese official from the nuclear energy sector.”

In May, the panel convened at GW’s Jack Morton Auditorium to discuss the aftermath of the earthquake and tsunami and the resulting situation at the Fukushima Daiichi nuclear power plant. Among the panelists were Margaret Harding, a reactor safety expert; Hidehiko Yamachika, general manager of Japan Nuclear Energy Safety Organization; Rebecca Bittner, an assistant professor of radiology at GW; Michael Podowski, a professor of nuclear engineering at Rensselaer Polytechnic Institute; and Majid Manzari, SEAS professor of civil and environmental engineering.

Together, the panel presented information on the sequence of events in the disaster, the plant’s design and safety, the human health risks that come with radiation exposure, and how future nuclear disasters may be prevented by using emerging technologies, newer plant designs, and better detection of earthquakes before they cause tsunami waves.

“The presentations were very helpful in communicating the situation and the risks the public could be exposed to,” remarked Professor Bardet. “However, for me, the most interesting part was the Q&A session afterwards, where members of the audience were invited to ask hard questions.”

In Memoriam

SEAS extends its condolences to the families of William H. Marlow, professor emeritus of engineering and operations research, who passed away on April 21, 2011, and Arthur Daniel Friedman, professor emeritus of engineering and applied science, who passed away on October 24, 2011.

Professor Marlow spent his career using mathematics, statistics, and computing to improve military readiness and logistics planning. As the director of the Logistics Research Project at GW in the 1950s and ‘60s, he worked to refine shipboard inventories of repair parts and design and schedule maintenance and repair of ships and aircraft. He also served as a consultant to the National Security Agency.


Professor Marlow was survived by his wife, five children, 12 grandchildren, and three great-grandchildren.

Professor Friedman began his career as a researcher in computer science/electrical engineering at Bell Telephone Laboratories, and while working there, he also taught a course at Columbia University. He wrote numerous papers and six books on electrical engineering that were widely distributed and used in both graduate and undergraduate computer science courses, and even translated into Russian and Chinese.

In 1973, he became a professor of electrical engineering at the University of Southern California, and then went on to teach here at GW for more than 20 years, where he became chairman of the then-named Department of Electrical Engineering in 1980. He was elected a Fellow of the Institute of Electrical and Electronics Engineers (IEEE) for his “contributions to fault-tolerant computing and switching theory and to computer engineering education.”

In 1974, he became editor-in-chief and co-founder, with his wife Barbara, of Computer Science Press, which specialized in text and reference books in computer science and electrical engineering. The company was recognized as one of the 500 fastest growing privately-owned companies in the U.S. in Inc.500 magazine in 1982, 1983, and 1984.

Professor Friedman is survived by his wife, two sons, and four grandchildren.
Notable Accomplishments

**Awards & Honors:**

Ken Chong (MAE visiting professor): received the 2011 Ted Belytschko Applied Mechanics Award from the American Society for Mechanical Engineering.

Tarek El-Ghazawi (ECE): was elevated to IEEE Fellow at the November 2010 meeting of the IEEE Board of Directors.

Shelly Heller (CS): received a Fulbright Fellowship entitled Fulbright Scholar. In this program, she is available as a consultant to Fulbright universities around the globe for her expertise in educational uses of computers and the recruitment and retention of women in science, technology, education, and math (STEM).

Chandru Mirchandani (EMSE adjunct professor): was elected an INCOSE Fellow. With his election to INCOSE (International Council on Systems Engineering), he joins a distinguished group of 62 individuals whose contributions to systems engineering are recognized worldwide.

Michael Plesniak (MAE): was elected a Fellow of the American Association for the Advancement of Science (AAAS). Separately, the American Institute of Aeronautics and Astronautics-National Capital Section selected him as the 2011 Engineer of the Year.

Joost Santos (EMSE): was selected as a 2011 Policy Research Scholar for the GW Institute of Public Policy.

Lijie “Grace” Zhang (MAE): was awarded a 2011 John Haddad Young Investigator Award by the American Society for Bone and Mineral Research.

**Media Mentions:**

Joseph Barbera (EMSE): appeared on Fox 5 News in March 2011 to discuss the search and rescue operations following the tsunami that hit Japan.

Joseph Barbera and Greg Shaw (ESME): appeared in April 2011 on Danger Zone, a satellite radio program aired throughout the U.S., Canada, the U.K., and the Middle East, to provide their views on the evolution of the emergency management and homeland security professions.

**Journals:**

Pinhas Ben-Tzvi (MAE): was appointed as an associate editor of the International Journal of Control, Automation, and Systems.

Johan Rene van Dorp (EMSE): was appointed to the editorial board of the journal Decision Analysis.

Lijie “Grace” Zhang (MAE): was invited to serve as an honorary editorial board member of the International Journal of Nanomedicine.

**Books:**

Pinhas Ben-Tzvi (MAE): authored Hybrid Mobile Robot Systems: Symbiosis of Locomotion and Manipulation, which was published in December 2010 by LAP LAMBERT Academic Publishing AG & Co.


**Awards & Honors:**

Pinhas Ben-Tzvi (MAE): was featured in January 2011 on Today, an international radio program on China Radio International. The title of the live, hour-long panel discussion was “Will Robots Change Our World as Much as the Internet Has?”

Peter Bock (CS): appeared on Fox 5 News in a February 2011 interview regarding the performance of IBM’s supercomputer “Watson” on the game show “Jeopardy!” and the advances being made in machine intelligence and cognition.

Evan Drumwright (CS): was mentioned in a December 2010 IEEE Spectrum article, “Willow Garage Sells First PR2 Robots.” Professor Drumwright is studying ways to get robots to autonomously perform occupational tasks.

Tarek El-Ghazawi (ECE): was quoted in the February 15, 2011 news article “Computer Takes on Quiz Show Champions” on SKY.com.

Shelly Heller (CS): was interviewed in February 2011 for Straight Talk, a program on the news network Voice of America that concerns women and minorities in science, technology, education, and math (STEM) fields.

Lance Hoffman (CS): was interviewed by Federal Times and featured in a video report on cybersecurity in April 2011. Professor Hoffman was separately interviewed by Science Careers for the article “Battling Cyber Threats,” which appeared in its December 3, 2011 issue.

Julie Ryan (EMSE): was quoted in “Cybercrime Surveys Aren’t Telling Us What We Need to Know,” an article in the June 28, 2011 issue of the MIT publication Technology Review.

Pedro Silva (CEE): was interviewed by NPR in March 2011, and his comments appeared in the article “Japanese Preparedness Likely Saved Thousands.”
Achievement

A Top Performer

The old adage says, “If you want something to get done, give it to the busiest person.” And if you are choosing among last year’s graduating seniors, chances are that person would be Hannah Stuart. As an undergraduate at SEAS, Stuart was involved in research and varsity athletics on top of her academics—and she managed to be a valuable player in all areas.

Stuart came to GW after being recruited to play varsity volleyball, and while she acknowledges that balancing her busy practice and game schedule with a rigorous engineering course load was a challenge, she says she cannot imagine her SEAS experience without volleyball. The experience of juggling the two taught her effective time management and self-assurance, both of which helped her to succeed in the academic arena.

“I think playing volleyball enhanced my academic experience,” Stuart says. “College athletics has really increased my confidence level and made me excel at both [athletics and academics].”

During her time at SEAS, Stuart also found ways to participate in exciting research opportunities that took her both out of the country and out of this world, so to speak.

In the summer of 2010, she worked in China for two months under an international research program funded by the National Science Foundation. At Beijing Jiaotong University, she studied Chinese in the morning and worked alongside Chinese doctoral students on fuel cell research during the day. “I heard about it through the SEAS Career Service Center,” recalls Stuart. “It was a wonderful experience. I really loved the challenge of working with someone from a different culture.”

Last summer, she participated in NASA’s Microgravity University Program (see page 17). Through the program, Stuart and three other SEAS students had the once-in-a-lifetime opportunity to conduct experiments of their own design aboard NASA’s “Weightless Wonder,” an airplane that simulates microgravity conditions.

At GW, Stuart proved her academic prowess as well, receiving both the George Washington University Student Athlete Advisory Council’s award for the female GW athlete with the highest GPA, and the Best Undergraduate Poster prize at the SEAS Student Research and Development Showcase in 2011 (see page 19).

This fall Stuart began pursuing a master’s degree in mechanical engineering through a graduate fellowship at Stanford University. She plans then to continue on toward a doctoral degree. Stuart credits the Department of Mechanical and Aerospace Engineering faculty, especially Professor Charles Garris, with guiding her and helping prepare a solid foundation for her future.

A Full Day’s Work

For senior biomedical engineering major Matthew Wilkins, collegiate success is measured by accomplishments both inside and outside of the classroom. He has lived this philosophy at GW through his involvement in research, student life, and music. “For me, the key to success is being involved. I don’t like going to bed at night and realizing that I didn’t really do anything that day,” he says.

Wilkins says that both this desire to be involved and the vibrant community he found in Tompkins Hall are what initially drew him to SEAS when he visited GW as a senior in high school. “All the other engineering schools that I went to visit weren’t as social,” Wilkins says. “At SEAS, I walked into Tompkins, found a few students to talk to, and just sat and talked to them for three hours.” He had found his home.

Wilkins has been deeply involved in the SEAS community and the broader GW community ever since. He began his extracurricular activities by joining GW’s Colonial Brass and symphonic bands, and later became involved with student organizations within SEAS. He has served as president of both GW’s IEEE student chapter and SEASpan (the SEAS student mentorship program), as well as a member of the school’s Engineers’
always as you want them to. Not sometimes—they in perseverance. “Things always don’t work the lab has taught him an important lesson of two GW students awarded this competitive Research Fellowship program. He was one for Biomedical Engineering Undergraduate summer of 2011 thanks to the GW Institute. Wilkins continued his research through the 15-to-20 seconds instead of 40 minutes, “I’m working on creating software that will take the data of the way the heart functions. “I’m working in the lab has taught him an important lesson in perseverance. “Things always don’t work...”

Wilkins explains.

In the future, Wilkins hopes to pursue a career in rehabilitation engineering, helping people rehabilitate from injuries or accidents and working to develop the ways that technology can be used to help people with disabilities.

Dancing to Her Own Beat
When Krystal Brun arrived at GW as a freshman, she knew two things: she wanted to dance and she wanted to study international affairs.

She auditioned for a GW show during the first week of her freshman year and has remained heavily involved in dance and theater productions since then. Her course of study, however, has turned out a little differently than she had planned.

At the end of her freshman year, she decided to switch her major to civil engineering, knowing that the change would require her to add an extra year on to her studies. “The fact that I had to stay at school for an extra year was probably the hardest part of the decision,” recalls Brun. “The first semester was really hard, but in my second semester I started getting involved in engineering organizations and meeting people.”

Now in her senior year, Brun could not be happier that she made the switch. “The more I learn about civil engineering, the more I become fascinated with it,” she says. “Every year that I study civil engineering, I find something new in it that grabs me and keeps pulling me forward through it.”

She’s particularly interested in the study of how structures—and failures in structures—affect people and how they live. And she has made the effort to learn about this outside the classroom as well as inside.

Brun spent the summer of 2010 in Guatemala volunteering with an organization that uses recycled materials to build structures. Half of her time was devoted to trying to understand from an engineering perspective the differences in the materials and processes that organizations use for construction, and the other half working on site and helping to construct.

When she returned to the U.S., she began doing research on local construction companies in order to find out about the building process here. She found Turner Construction Company and was very glad when two SEAS alumni—Will Alexander and Erin (Diaz) Mignano—reached out and recruited her. She began an internship in December 2010 that she still has today and that she considers “an invaluable experience.” “Every day that I go into work, I’m pushed to learn something new and immediately apply it,” she says happily.

Brun clearly has been willing to try out her many different interests and is comfortable taking risks to do so. “My philosophy has always been that if I sense I have an inkling about something, I need to follow through. If it ends up not working out, that’s okay; at least I tried it,” she says. “That’s how I ended up in engineering. Not ever even having taken a calculus class before transferring into engineering school was a huge risk, but it ended up working out.”

Still, with all the new interests and challenges she willingly takes on, her passion for dance and theater has remained constant. “Having that outside of school is a lot of fun,” she says. “I’ve made some of my closest friends here through student theater (and dance). It’s a really good outlet, because no matter what happened during the day, you can just let out a lot of energy when you’re dancing. It’s so different from everything else I’m doing.”
Thank You

Support from you—our alumni, parents, corporate partners, foundations, students, faculty, staff, friends, and others—is vitally important to the SEAS transformation. The support that you provide to the school helps make a difference in how far and how fast that transformation advances. It can help us enhance scholarships and fellowships for students, sustain important faculty research, and build new learning initiatives. In short, your generosity strengthens the building blocks of the SEAS transformation: our students and faculty.

Sincerely,

David S. Dolling
Dean

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The Tempietto Circle is named for the campus landmark that so thoroughly symbolizes GW's history and traditions. The Tempietto Circle recognizes individuals whose commitment to the University today will have a transforming impact tomorrow. Membership is extended to those individuals who make documented, planned gifts of $500,000 or more. Tempietto Circle members who have made contributions to the School of Engineering and Applied Science:

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The L'Enfant Society is named for the architect of the city of Washington. Pierre-Charles L'Enfant, whose vision guided its growth. The most prestigious of GW's gift societies, the L'Enfant Society recognizes donors whose generosity and foresight have had a transformational and enduring impact on GW. Membership is extended to individuals, corporations, and foundations whose annual or cumulative giving totals are $5 million or more. L'Enfant Society members who have made contributions to the School of Engineering and Applied Science:

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Luther Rice Society
The Luther Rice Society is named for the founder of Columbian College, now The George Washington University. In 1821, driven by President George Washington's vision, Luther Rice lobbied President James Monroe and Congress to officially charter the institution and raised the $6,000 needed to purchase land for the Columbian College. Members of the Luther Rice Society carry on the tradition laid forth by George Washington and Luther Rice by helping GW raise its status as a world-class institution. Membership is extended to alumni and friends who make gifts of $1,000 or more between July 1 and June 30 of each fiscal year, and to recent graduates ($250 or more for alumni within 5 years of graduation; $500 or more for alumni 6-9 years after graduation).
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**Key**

- Deceased = *
- Five-year consistent donor = +
With the end of the year approaching, it is a good time again to say thank you to all who have participated in the continuing transformation of the GW School of Engineering and Applied Science. Whether you have found a way to volunteer your time and talents, or you are an “ambassador” for prospective students in your hometown or workplace, or you have chosen to invest in the school with your financial resources, we are most grateful. And, we could not have achieved nearly the progress we have without you!

The Donor Report included in this issue is our way of recognizing and publicly thanking those who have made a financial gift to SEAS in the past fiscal year. We are most grateful for your trust and investment, and I know that our students and faculty are particularly appreciative of your support. Your gifts are helping to strengthen the school and enrich the educational and research opportunities throughout SEAS. In the paragraphs that follow I will briefly highlight just a few of the many exciting developments happening here at SEAS that are due, in part, to your support and involvement.

In the year just past we continued to grow and foster a dynamic culture of entrepreneurship. National Advisory Council (NAC) Chair Howard Tischler, along with NAC members Randy Graves, Doug Humphrey, and others, led an exciting series of entrepreneurship seminars on topics including “Student Startups,” “Managing Growth,” “Marketing,” and “Building Your Early Stage Startup Team.” This year Howard is leading the effort to expand our mentoring program, which will provide mentors for all SEAS students competing in the 2012 Business Plan Competition, as well as for any SEAS faculty who could benefit from the business and financial expertise of our graduates. This program is providing valuable support for the ideas and research that faculty and students throughout the school are generating. If being a mentor is of interest to you, please let me know, and Howard will be pleased to talk with you about the opportunity.

In May we enjoyed the Second Annual Pelton Senior Design Competition. This event provides the opportunity for one senior design team from each SEAS department to present its design in a public forum and in front of a panel of expert judges. Cash prizes are awarded courtesy of the endowment created in 2009 by Dr. Joseph Pelton. The Pelton Competition was followed by our Senior-Alumni Cookout, at which our graduating seniors are welcomed into the GW Engineering Alumni Association. Our thanks to Ashok Jha, Scott Amey, and Howard Tischler for their generous financial support of the cookout.

Through a connection made by Joe Pelton, the Society of Satellite Professionals International, Mid-Atlantic Chapter (SSPI-MA) provided scholarship funding for graduate student Brent Duffy as he pursues his study in the aerospace field. Additionally, SEAS students participated in the first annual SSPI-MA Student Competition on Space Systems. SSPI-MA has renewed its scholarship support for the current year.

The Fifth Annual Student Research and Development Showcase, under the leadership of Randy Graves and Associate Dean Can Korman, hosted 63 student entries! Prize money and event underwriting were provided by R/Video, Paragon Technology, Capital Construction Consultants, RCM Solutions, and Turner Construction.

On the next page is an article, “Supporting the SEAS Transformation,” that recognizes individuals who have generously established new funds here at SEAS. If the generosity of those friends of the school causes you to consider how you might be able to similarly help, we would be pleased to discuss the various ways you can make a gift.

On behalf of all of us here in the Office of Development and Alumni Relations, thank you for your continuing support and engagement. We hope to see many of you in the weeks and months ahead for a chance to visit about your interest in “being a part of it!” at SEAS.

Jim Howard
Assistant Vice President
Development and Alumni Relations

jphoward@gwu.edu
Tel: 202-994-4121
Six More Join Hall of Fame

On October 27th of this year, SEAS celebrated the achievements of six alumni by inducting them into the GW Engineering Hall of Fame. The six inductees include the world’s first private female space explorer, several successful entrepreneurs, a former NASA division director, the president of ManTech International’s Mission, Cyber & Technology Solutions Group, and a professor emeritus who has been affiliated with SEAS for more than 50 years.

Ms. Anousheh Ansari, MS ’92, spent nine days aboard the International Space Station in 2006 and captured headlines around the world as the first female private space explorer. She is also a successful entrepreneur and the co-founder and CEO of Prodea Systems.

Mr. Nelson Carbonell, BS ’85, is a successful serial entrepreneur whose companies include the former Cysive—which built pioneering ecommerce and Internet systems long before the potential impact of the Internet was widely recognized—Snowbird Capital, and Nelson Carbonell and Associates.

Dr. Randy Graves, D.Sc. ’78, spent more than 40 years in aerospace technology research, development, commercialization, and management, and finished his career as the director of the Aerodynamics Division in the Office of Aeronautics and Space Technology at NASA Headquarters.

Nothing sums up the career of Professor Arnold Meltzer, BS ’58, MS ’61, D.Sc. ’67, better than these words from the commendation of his colleagues at his retirement in 2005: “Professor Meltzer was the very originator of the computer science and computer engineering programs here at SEAS.”

Mr. Asghar Mostafa, BS ’81, MS ’82, is a serial entrepreneur who has spent more than 25 years creating and building successful technology companies, including ICOM; ISDN Systems Corporation; Advanced Switching Communications, Inc.; Vinci Systems; Entourage Systems, Inc.; and Rubriq Corporation.

Mr. L. William Varner III, BS ’73, is president of ManTech International Corporation’s Mission, Cyber & Technology Solutions group, which has 2,700 employees and revenue of $600 million, and is responsible for ManTech’s business in the intelligence, defense, and civil communities.

Dean David Dolling introduced the inductees one-at-a-time, giving a brief summary of their careers and achievements and reminding them, “You have set a very high bar for accomplishment here at SEAS, and we are very proud of you.” The inductees offered remarks in turn, and all of them graciously shared credit with others for their successes. Each of them also shared words of wisdom and reminiscences—and a few even included a favorite inspirational quote or a poem for good measure.

Supporting the SEAS Transformation

In this space, SEAS takes the opportunity to publicly recognize and thank those who, during the 2010-2011 fiscal year (July 1, 2010 to June 30, 2011), provided gift support for new funds or new programs that are helping to further the SEAS transformation.

Scott Amey, MS ’75, and his wife Deb are continuing their long-standing commitment to GW and SEAS by offering a challenge match for gifts to the new Science and Engineering Hall. The Ameyes have promised a dollar-for-dollar match for gifts to the building, with a total commitment of $1 million. As of this writing, we are very pleased to report that several individuals have taken advantage of this opportunity to double the impact of their gifts. If you have an interest in this or would like to discuss how you can participate, please call the SEAS Office of Development at 202-994-8474.

National Advisory Council Member Rick Barry, a former SEAS faculty member, has created the Richard A. Barry Electrical and Computer Engineering Faculty Support Fund to provide financial assistance for the recruitment and professional development of new faculty members. Rick is particularly interested in helping faculty get a start in their careers at SEAS, and this gift does precisely that. This funding is especially important and timely: Dean Dolling has hired 32 faculty in the past three years and anticipates recruiting and hiring many more in the years just ahead.

Mr. and Mrs. A. James Clark have established and endowed the Clark Engineering Scholars program, which will provide perpetual funding for annual merit-based scholarships and leadership training for the school’s top undergraduate students. (See the “Clark Scholars” article on page 16).

Thomas J. Doherty, BS ‘89, of New York, has established the Thomas J. Doherty Endowed Scholarship Fund, which will be awarded each year on the basis of financial need to a full-time undergraduate student enrolled at SEAS. Tom is an executive director at...
Sean Walsh truly exemplifies the spirit of alumni service and volunteerism that GW strives to encourage,” said Dean David Dolling. “He is a loyal and devoted GW alumnus who freely and consistently gives his time for the benefit of the university he loves, and particularly for our students.”

Walsh has spent approximately ten years on the Engineer Alumni Association (EAA) Board of Directors. Throughout his tenure with the EAA, he has served in a number of capacities, chairing various committees and holding positions as the treasurer, vice president, and president. He previously sat on the GW Alumni Association as a school representative and served as a representative of the EAA at the SEAS National Advisory Council.

As a member of the EAA, Walsh has helped SEAS in many ways, including calling SEAS admitted students to congratulate them on being accepted to GW, representing SEAS at regional science fairs, and assisting current SEAS students with internships, job opportunities, and networking. “Sean simply makes a point of making GW part of his life,” remarked Dean Dolling. “I know of no other alumnus who attends our various SEAS events as frequently as Sean does. In fact, it’s unusual for him not to be at a SEAS alumni event.”
Walsh is also involved in other volunteer activities across the university. He is an advocate of career services initiatives at GW, and he volunteers for the Career Advisor Network, the Speed Networking events for students and alumni, the School Networking Night, and the annual SEAS Resume Critique event. As a former rower for the GW men’s rowing team and a retired naval officer, Walsh has also become involved with two other groups near and dear to his heart: the GW men’s rowing team and the GW Alumni Veterans group, both of which he assists in a number of ways.

SEAS congratulates Sean Walsh on this well-deserved award.

National Advisory Council Update

On behalf of the entire National Advisory Council (NAC), I am proud to welcome three new members to the NAC this year: T. Richard Stroupe, Jr.; William D. Alexander III; and Matthew Knouse.

T. Richard Stroupe, Jr. is a Washington, D.C.-based entrepreneur, investor, and advisor. He is the founder and managing principal of Crimson Holdings, LLC, an early stage venture capital/advisory services firm focusing on technology-intensive start-ups, and a board member of several U.S.-based corporations. Previously, Richard was the founder and CEO of TRS Consulting, Inc., which was acquired by NCI Information Systems, Inc. in July 2009. He received his bachelor’s degree in computer information systems from Appalachian State University and his master’s degree in systems engineering from GW. He is also a graduate of the Owner/President Management program at Harvard Business School.

William (Will) D. Alexander III began his career five years ago at Turner Construction and is now project engineer in the company’s Special Projects/Interiors Division. He is president of GW’s Engineer Alumni Association. Will received two degrees from GW: his bachelor’s degree in mechanical engineering in 2004 and his MBA in small business and entrepreneurship in 2006.

Matthew (Matt) Knouse is an abuse analyst at Google. Matt earned his bachelor’s degree in computer science in 2009 and his master’s degree in engineering management in 2011, both from GW. Matt received the Outstanding Computer Science Alumni Service Award in 2010. During his tenure at SEAS, Matt was a dean’s fellow and was instrumental in growing the school’s study abroad program and developing partnerships with foreign institutions for undergraduate engineers.

In addition to welcoming new members this year, the NAC is also inaugurating an entrepreneurship mentoring program. Several NAC members and I are spearheading the program. We are working in conjunction with GW’s Office of Entrepreneurship and its director, Jim Chung, to develop a culture of entrepreneurship at SEAS and to connect students and faculty to successful entrepreneurs who are also SEAS alumni. Students and faculty who are interested in participating in the mentorship program should contact Durriyyah Johnson at durriy@gwu.edu. Alumni who are interested in being mentors should contact Jim Howard at jphoward@gwu.edu.

I look forward to working with our new colleagues this year and to continuing to strengthen the role of the NAC here at SEAS.

Howard L. Tischler
NAC Chairman

In Memoriam

SEAS extends its condolences to the family of Shariar Zaimi, MS ’79, who passed away on August 30, 2011. Mr. Zaimi was the CEO and chairman of Primary Integration, LLC (PI) and one of its founders. Prior to PI, he founded the Engineering Design Group, Inc. in 1986 and established it as the prominent national mission critical engineering and construction management firm. He led the company through an acquisition by General Electric (GE) in February 2001, remaining at the helm as president and CEO of General Electric’s engineering and construction business until February of 2005. Mr. Zaimi was also a member of the SEAS National Advisory Council.

Mr. Zaimi is survived by his wife, Laura Haymaker Zaimi, and his three sons, Nicholas, Aaron, and Ryan.
Happenings

Mohab Akhnoukh, BS (electrical engineering) ’92, is the director of procurement and corporate cost controller of SODIC, one of Egypt’s largest and most successful real estate development companies. Prior to joining SODIC, he was one of the founding partners of United Beverage and Food Co., a leading franchise operator in Egypt. He also founded Great Eastern Textiles in the Amriya Free Trade Zone in Alexandria in 1996. He successfully sold the business in 2008.

Jonathan Bennett, MEM ’03, joined the Brayman Construction Corporation team as chief engineer for the Mid-Atlantic Region earlier this year. Bennett will head the efforts to develop the Mid-Atlantic market for Brayman’s Foundation Division for specialties such as caissons, marine and piling, and drilling and grouting.

Norman Chlosta, MEA ’67, has left his position as assistant professor of management and director of Florida Tech’s Patuxent Graduate Center to pursue his other interests in higher education consulting and advising in areas of public policy/administration. Prior to serving as director of the Patuxent site, he held management positions at the U.S. Environmental Protection Agency and as a policy analyst at the U.S. Senate Budget Committee.


Steven Fischer, BS (systems engineering) ’91, was recently promoted to Lieutenant Colonel in the Air Force Reserve and to Flight Chief (GS-14) with the Department of the Air Force. He is currently assigned to the National Air & Space Intelligence Center, Wright-Patterson Air Force Base, OH, with his wife Nicole and their four children. After GW, Steven earned an MBA from the University of Colorado in 1996, and an MSe from the Air Force Institute of Technology in 1997.

Richard Galli, BS (civil engineering) ’06; Jonathan Kazmierczyk, BS (computer science) ’06; and Sean Walsh, BS (mechanical engineering) ’05, are serving on the Chapter Advisory Team to advise and mentor student members of Gamma Beta Chapter of Theta Tau Professional Engineering Fraternity at GW.

Katherine Knapp Carney, BS (mechanical engineering) ’05, was featured in the TIME magazine article, “How to Build a Jet Engine,” and the companion video on the TIME website, “What It Took to Create a Job for One Bright Engineer.” Katherine is a mechanical engineer for Pratt & Whitney in CT, working on the company’s new PurePower jet engine.

Elliott Kugel, MS (computer science) ’83, was named in the February 21, 2011, issue of Barron’s magazine as one of the “Top 1,000 Advisors in America” and was recognized as one of the top advisors in New Jersey. Kugel is a senior vice president of investments at Merrill Lynch in Bridgewater, NJ.

Manoucher Lolachi, MS (structural engineering) ’81, has been with the United Nations for the past 20 years as the head of the Physical Planning and Shelter unit in Geneva, Switzerland.

Rear Adm. Thomas J. Moore, MS (information systems management) ’89, relieved Rear Adm. Michael E. McMahon as...
program executive officer for Aircraft Carriers in August 2011, in a change of command ceremony at the Washington Navy Yard. His previous duties ashore include five years as the major program manager for In-Service Aircraft Carriers (PMS 312) and service as the assistant program manager for Hull, Mechanical and Electrical in PMS 312.

David Myre, D.Sc. (fluid mechanics & thermal science) ’02, has been a military professor at the U.S. Naval Academy since 2003 and will retire from the Navy in June 2012. During his time at the USNA, he has been the associate chair of the Aerospace Engineering Department, director of the aeronautics curriculum, senior academic adviser, and faculty director of the Satellite Ground Station and Engineering Computer Support Branch.

Fariba Nazemi, BS ‘81, MS ‘83 (communications engineering), D.Sc. (systems engineering) ’01, graduated in 1981 and married her SEAS classmate Hassan “David” Dastvar the same summer. They own an IT and management consulting company and have “two lovely and beautiful children.” Their son, Dean Dastvar, has a pre-med degree in neuroscience from UVA and an MBA. He recently graduated from American University Washington College of Law. Their daughter, Farisa Dastvar, is a JD candidate at GW’s law school. Fariba writes, “We are so blessed to have our GWU good old friends/classmates who live in the Washington Metropolitan Area, and I am so lucky and thrilled to live with my good old friends for 30 years!”

Sasha Pailet Koff, BS (mechanical engineering) ’97, obtained her CPA and was recently appointed to the position of director, medical devices & diagnostics quality management systems at Johnson & Johnson. Matt, also a SEAS ’97 BS graduate in mechanical engineering, continues to work at the Hospital for Special Surgery in New York, where he was recently appointed as assistant professor of biomedical imaging in orthopaedic surgery at Weill Cornell Medical College of Cornell University. They reside in New Jersey and enjoy their two children, Ian and Leah, both of whom love tinkering with toys and seem to have potential as budding engineers.

Chris Savage, MEM ’07, is the new head of Integrated Logistics and Fleet Maintenance Division at Naval Surface Warfare Center, Carderock Division–Ship Systems Engineering Station (NSWCCD-SSES). He is in his 24th year at NSWCCD-SSES.

Adlai Shawareb, MEM ’94, recently accepted a software development position with a medical device startup in Silicon Valley called Vytronus.

Yu-An Sun, D.Sc. (computer science) ’09, was one of 85 engineers selected from across industry, academia, and government by the National Academy of Engineering to participate in this year’s U.S. Frontiers of Engineering Symposium, which was held September 19-21, at Google headquarters in Mountain View, CA. The U.S. Frontiers of Engineering Symposium is an elite meeting of the nation’s most promising engineers. Yu-An is an expert in human computation—the study of how humans and machines can work together—at Xerox Corporation.

Shabih ul Hasan, MS (electrical engineering), ’96, resides in Karachi, Pakistan. He has recently retired from the Air Force as a brigadier. He has two sons who are business graduates and nicely settled into jobs in the local banking sector.

Matthew Wade, BS (civil engineering) ’08, earned an MSE degree from Rensselaer Polytechnic Institute in 2009 and is currently a mechanical engineer at a defense contractor in Albany, NY. He was elected president of the Board of Education for the Brunswick (Brittonkill) Central School District on July 6, 2011.

Sean Walsh, BS (mechanical engineering), ’76, has been appointed to the Joint Strategic Alliance Committee of the American Society of Naval Engineers (ASNE) and the Society of Naval Architects and Marine Engineers (SNAME) as one of the SNAME representatives.

American Bureau of Shipping (ABS) President and COO Christopher Wiernicki, MS ’83, assumed the duties of CEO of ABS in April 2011. Christopher is a 17-year veteran of ABS and has held a number of other senior positions within the organization.

Eunissa (Johnson) Yancy, BS (computer engineering) ’94, works at the University of Maryland, Baltimore as a senior IT specialist, developing custom web-based applications and customizing the Coeus application using the Java programming language. She married Damon Yancy in 1994, and they celebrated the birth of their fourth child back in December 2009. Eunissa also owns a small jewelry making business www.umakeittakeit.com.

Soo Youn Yi, MEM ’08, was married in September 2010 at Bond Street Pier in Fells Point, Baltimore. In June 2011, she moved out of MD and transferred to a security position in Tampa, FL.

In Memoriam:
Kathleen M. Bishop, BS (mechanical engineering) ’79, passed away on September 29, 2011. Art was her passion and she was a watercolorist, quilt artist, glass artist, and art teacher. Despite her illness, she qualified as a docent at the National Gallery of Art a few months before her death. After retiring as an art teacher at Blessed Sacrament School, Ms. Bishop volunteered as an instructor and mentor for young girls at risk in the Space of Her Own (SCHO) program sponsored by The Art League Gallery in Alexandria and the Alexandria Court Service.

Gail W. Crossen, BS (civil engineering) ’49, passed away on September 7, 2011. He spent his entire career working for the State of Wisconsin Highway Department. He was an avid golfer and fisherman.
Ronald A. Jeter, MS (telecommunications and computers) ’94, passed away on September 2, 2011. He was employed at the Department of Defense.

Shuang Jin, D.Sc. (structures and dynamics) ’96, passed away on August 5, 2011. Dr. Jin was a senior research engineer at the Federal Highway Administration (FHWA) Nondestructive Evaluation Center. His previous research experience included years of special research work as a senior research engineer in Wiss, Janney, Elstner and as a resident research associate with the National Research Council at the Turner-Fairbank Highway Research Center/FHWA.

Robert E. Kemelhor, BS (civil engineering) ’49, passed away on March 4, 2011. Before retiring in 1991, he was chief engineer at the Johns Hopkins University Applied Physics Laboratory. Throughout his career, he had many achievements in the engineering world and helped develop the Navy’s Polaris submarine missile program. In retirement, Mr. Kemelhor served for more than a decade on the board of GW’s Engineer Alumni Association, and he received the GW Distinguished Alumni Service Award in 2004.

Richard E. Koester, BS (civil engineering) ’50, passed away on July 30, 2011. He served in the US Army from 1943 to 1946, and was injured during combat on Okinawa Island. Despite his injury, he was able to return to Washington, D.C., where he attended GW and played on the football team. Most of his career was spent in the federal government both at the National Institutes of Health and at the Environmental Protection Agency.

Rear Adm. Michael Lorenzo, MEA ’56, passed away on January 11, 2011. Mr. Lorenzo was appointed Deputy Undersecretary of Defense (International Programs and Technology) in 1981, and prior to that, he served in a variety of application engineering and managerial positions at the Defense and Electronic Systems Center and Civil Systems Division of the Westinghouse Electric Corporation, which he joined following a distinguished civil service career with the United States Navy and United States Air Force. Mr. Lorenzo also had a distinguished military career, during which he was the recipient of 16 military decorations. In 2007, he was inducted into the GW Engineering Hall of Fame.

Patrick McCourt, BS (civil engineering) ’10, passed away on September 17, 2011. After graduating from GW, Patrick worked for Skanska Koch, a civil engineering firm, as a field engineer on the Williamsburg, Brooklyn, Manhattan and Roosevelt Island bridges. His friends and classmates described him as “an all-American kid.” Patrick’s family has set up a scholarship in his memory at his high school: www.patrickmccourtmemorialfund.com.

James C. Politz, BS ’58, passed away on August 7, 2011. He was an avid fisherman and boater and was very passionate about the ocean. He also was a dedicated Notre Dame football and basketball fan.

Ralph Spencer, MS (civil engineering) ’62, passed away on January 24, 2011. Mr. Spencer had worked for the Washington, D.C. government for more than 20 years, including as the deputy superintendent of inspectors and as chief building inspector. After retiring, he headed a private engineering practice for about 10 years. He designed a number of bridges in Washington, D.C. and in California.

Phillip L. Watkins, BS (electrical engineering) ’50, passed away on March 28, 2011. He served in the Navy in the Pacific during World War II and was a Navy veteran of the Korean War. Following that, he was an electronics engineer at the Naval Research Laboratory until retirement in the 1980s.
Upcoming Events

Volunteer Opportunities
There are many ways alumni can be involved at SEAS and at GW. Visit www.alumni.gwu.edu/volunteer or contact Erin Pitts at espitts@gwu.edu for a complete list of volunteer opportunities.

Engineer Alumni Association, Call for Volunteers
We are building new and dynamic alumni programming at SEAS, and we need alumni volunteers to help build alumni engagement. If you are interested in participating, please contact:

Erin Pitts
Associate Director
School Alumni Programs
Alumni House @ 1918 F Street, NW
Washington, D.C.
Phone: (202) 994-2355
Email: espitts@gwu.edu

Career Advisor Network
Share insights with other graduates and current students seeking career assistance. Register to be a career advisor at www.alumni.gwu.edu/networking.

Connect with Students
From hosting a dinner with students to delivering a guest lecture, you have a lot to offer. Participate in a student-alumni program to build connections with current students.

GW Alumni Association Board
The GW Alumni Association works collaboratively with the university to implement programs and services that benefit GW alumni. Board elections take place in the spring of each year.

Young Alumni Network
The Young Alumni Network (YAN) sponsors programming and provides benefits designed to meet the social, networking, and educational needs and interests of graduates from the past 10 years. Join the dedicated recent graduates who provide the inspiration for YAN activities!

Upcoming Alumni Events
Stay connected with SEAS alumni, faculty, and current students by attending our SEAS alumni events listed to the right. Events are updated and added often, so be sure to visit the online alumni events calendar at www.alumni.gwu.edu/calendar for more detailed information. Or, keep in touch via the SEAS alumni facebook page: “like” us at www.facebook.com/GW.SEAS.Alumni.

Spring 2012

EAA Volunteer Council: Spring Meeting
Tuesday, January 17, 2012
6:30 – 7:30 pm
107 Tompkins Hall, Dean’s Conference Room

Engineering Expo
Wednesday, February 15, 2012
3:30 – 5:30 pm
Marvin Center, Grand Ballroom
800 21st Street, NW

Student Research and Development Showcase
Monday, February 27, 2012
3:00 – 6:00 pm
Marvin Center, Grand Ballroom
800 21st Street, NW

GW Global Forum
Friday and Saturday, March 16-17, 2012
Grand Hyatt
Seoul, South Korea

GW Business Plan Competition and the GW Entrepreneurship Round Table (GWERT) Award Luncheon
Friday, April 13, 2012

Pelton Senior Design Competition and Senior-Alumni BBQ
Wednesday, May 16, 2012
5:00 pm: Pelton Competition
6:30 pm: Senior-Alumni BBQ
Marvin Center, Grand Ballroom
800 21st Street, NW
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202-994-6158

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