The United Way and UAH are teaming up for a fun-filled day of activities starting Sept. 22 at 11:30 a.m. and lasting until 1 p.m. Signs are around campus with a progress meter indicating how close UAH is reaching its donation goal for United Way.

Q&A with Dr. Shankar Mahalingam, Dean of Engineering

TOM BURWELL
Staff Writer

The UAH College of Engineering recently ended its search for a new dean when Dr. Shankar Mahalingam was selected. Mahalingam received his undergraduate degree from the Indian Institute of Technology in Madras, his Master of Science from Stony Brook University, and his doctorate from Stanford University. Mahalingam has regularly provided peer reviews for top scientific grant proposals and journals and served as associate editor of the American Institute of Aeronautics and Astronautics Journal from 2002-2005.

He is an associate fellow of AAAS and a fellow of the American Society of Mechanical Engineers. Mahalingam has served on the faculty at the University of Colorado-Boulder and University of California-Riverside and has also held visiting professorships in Paris, France, and Coimbra, Portugal. His research in the field of forest fire modeling has found wide publication in scientific journals.

Mahalingam moved to Huntsville in August to take his new position, and he recently agreed to sit down for an interview with The Exponent.

What is engineering? What is its relation to the theoretical sciences?

Engineering is a discipline in which students utilize the principles of mathematics and science to design, construct, predict, and test new devices, processes, and systems that enhance the quality of life for all humans. Engineers help enable verification of scientific discoveries and develop methods to make the discoveries useful. A solid foundation in basic science is essential to be successful in engineering, and thus the two disciplines are closely linked.

What about UAH's engineering program stood out to you as you were considering the position?

When I was recruited for this position, I had little knowledge about UAH/Huntsville. As I started examining more information about our undergraduate degree programs, the graduate programs, and faculty research and accomplishments, I began to discover that UAH/Huntsville's College of Engineering has a lot to offer and deserves to be recognized. Its excellent programs and dedicated faculty provide a great educational experience to both undergraduate and graduate students. This is [the] sixth university that I've been associated with as a student or a faculty member, and these programs compare to the most competitive programs really anywhere in the world.

What do you want students who are considering engineering to know about the program?

Our college offers right-to-root undergraduate degree programs in aerospace, chemical, civil, computer, electrical, industrial, and systems, mechanical, and optical engineering. What sets us apart from other programs is the number of opportunities students have, ranging from coops and internships to student projects such as the concrete canoe, university Student Launch Initiative, and graduate student competitions.

UAH Propulsion Research Center Declared by Popular Science to Be One of the Coolest College Labs in America

MATT SAYAR
Staff Writer

UAH's Propulsion Research Center started out as "two desks and a couple guys," according to Interim Director Dr. Robert Frederick. Today, it sits at number three on Popular Science's Top Thirty Awesome College Labs in America.

"We're on the national scene a lot," Frederick said, especially referring to UAH's success in the NASA-sponsored University Student Launch Initiative competition.

The competition involves building a custom-built rocket exactly one mile high, then recovering a payload it drops at that altitude. UAH won first place this year, beating out rival universities from across the country. Next year, we move up to an experimental tier of the competition that involves launching a rocket two miles high, then making a water recovery.

It was perhaps from this competition that Popular Science heard about the PRC. The magazine interviewed several members by phone, then flew out a photographer to take a picture for the September 2010 issue, pictured below.

UAH beat out 18 other schools for the opportunity to be number one in the nation. Members of the center were then able to present a paper on their findings in Nashville.
From INSURANCE on Pg. 1

Students looking for insurance should be aware that the policy may also insure dependents, including their spouse, unmarried children under 19, or dependent children under 23 who are full-time students at an accredited institution.

The annual premium rate for basic coverage for students is $819 for an individual, $2,400 for spouses, and $1,586 for all dependent children. The annual rate is $75 per person for students not wishing to purchase the basic plan.

For inpatient medical expenses, the plan covers all of the preferred allowance for preferred providers, 70 percent for out-of-network providers and 90 percent of physiotherapy, surgeons and physicians fees. For outpatient expenses, the plan also covers 90 percent of surgeons’ fees, physician visits and anesthetist costs.

Prescription drugs are also covered under the insurance policy, with a $10 deductible for generic drugs and a $20 deductible for brand-name drugs.

There are some exclusions and limitations to the insurance plan. Some expenses that are not covered include the following: allergy testing, addiction programs, circumcision, cosmetic procedures, immunizations and organ transplants.

As a part of the college assistance program, insured students can seek advice from nurses, obtain health information and receive counseling support 24 hours a day, seven days a week.

For more information, visit www.uhc.com/Public/ClientBrochures/2010-669-2%20Brochure-v3.pdf to view the brochure.

Students who want to download the online application should visit www.uhc.com/Public/Clien­tBrochures/2010-669-29-26En­rollment-v2.pdf.

From DEAN on Pg. 1

Engineering teaches problem-solv­ing skills that can be adapted to a variety of disciplines. This enables students to be competitive upon graduation.

What careers do graduates of the engineering program go into?

A number of our alum have gone on to become presidents and vice-presidents of companies. We have an [an alum who is a] former NASA astronaut. Our programs prepare students to pursue careers in business, law and even medicine. Just after arriving on campus, I realized that a large number of our alumni are employed at leading technological companies such as ADTRAN, Dynetics, etc.

I read recently that biological engineering will expand greatly over the next 50 years. Do you think the college will offer a degree in biological engineering in the foreseeable future?

In the near term, we do not have a plan to offer a degree in bioengineering. It does not mean it is not important. We are building on expertise we have, that can take advantage of the industry right now.

From PROPULSION on Pg. 1

portunities for graduates to do research that helps them obtain their degrees. The center helped 13 students get their degrees in the last year. They work with world-class equipment in the lab on the southeastern edge of campus.

The technology available there includes a vacuum chamber to simulate space-like environments and a control room to monitor the rocket firing in an outdoor testing area.

With so many projects going on at once, Frederick has his hands full running the PRC, yet still gives credit where it’s due.

"It’s really the students and the staff that make this place work," he said. "My goal is to help people succeed." Having helped place over 120 graduates (and counting) in the aerospace industry, he’s helping the center reach its goal every day.

here in Huntsville. Perhaps in the future, we could be positioned to offer programs in bioengineering.

In the next 50 years, there are numerous grand challenges identified by the National Academy of Engineering that will engage engineers around the world. These include ensuring security of cy­berspace, restoring and improving urban infrastructure, and many more.

What project in your career provided the most satisfaction to you as an engineer?

For a number of years now, I have been engaged in forest fire research, developing experimen­tal and computational models to understand various transition phe­nomena that occur in wildland fires, for example. This has pro­vided great satisfaction. I have had the opportunity to train and mentor undergraduate and Ph.D. students who are now successful in their careers. I have also had the opportunity to help build a young department and graduate program at my previous institution. In both cases, of course, I had the as­sistance of a number of colleagues who enabled me to be successful.

The Exponent

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The United Way and UAH are teaming up for a fun-filled day of activities starting Sept. 22 at 11:30 a.m. and lasting until 1 p.m.

Signs are around campus with a progress meter indicating how close UAH is to reaching its donation goal for United Way. This event, “Live United & Charge On,” is a finale celebration for the campus that allows students and others to make last-minute donations.

For only $1, participants can enter the pie toss drawing, in which a few people will be selected at random to throw a pie at President Dave Williams, Dean John Fix, John Maxon, Chief Gales, or Kris­tin Scroggin. The dunking booth is also $1 for three balls. Proceeds go to the United Way of Madison County.

All events will be held at the University Center Slab. In addition to the pie toss and dunking booth, there will also be plenty of free food, drinks and games. Everyone is invited, so be sure to tell your friends and family to come over and support this worthy cause.

United Way is an organization that impacts the community and supports fundraising events that create quality educational programs, livable wages and salaries, and affordable health care.
Charger Chic: Style Scouting at UAH

SALOME SALIASHVILI
Staff Writer

Style is about more than just throwing on a designer blouse. Fashion choices can affect your mood, allow you to express yourself, and help shape the image you present to the world. Jeans and a t-shirt indicate that you are going for comfort, while a skirt and a summery blouse give off an airy vibe and understated heels demonstrate sophistication.

The Exponent's resident style scout scours the campus each week in search of a student with personal style that will inspire the fashionista in all of us.

Michaela Polemeni, a UAH senior, artfully made a simple outfit look like something out of a magazine. She paired skinny jeans with a beige fitted blouse that flowed loosely around three-fourths of her arms. The jeans were just perfectly fitted and understated. Her wedge shoes had a heel without too much pretension. Her pulled back hair and light make-up added a finishing touch.

Michaela spoke to The Exponent about her style.

How does your day begin? Do you decide what to wear, or does it come to you?

"It's usually the morning of, that's usually why I'm really late for the class. I just look around to see what I have and just pick something out; something that I'll be comfortable in all day long. Because I go to school and I usually go to work right after school.

How do you define your style?

'I'm not really sure, because I have a lot of different styles. I love gold, I like the hobo look, but I also like to be chic, you know. It kind of depends on the event but I usually like to have this Greek look.

Fashion advice for busy students?

Go for some staple items that you could change up, something that you can wear a lot but change it up with accessories and make the style look different.

What is your favorite item in your closet?

That would be a good pair of jeans and a nice blouse.
Huntsville Companies Series: Lockheed Martin-We Never Forget Who We're Working For

SALOME SALLASHVILI
Staff Writer

Lockheed Martin, a world-renowned aerospace, defense and advanced technology company, diverges into many different spheres and projects. Its technologies and systems help control over 60 percent of the world's air traffic. And a branch is located right here in Huntsville.

The company's latest project, the Hybrid Air Vehicle, is an airship used for both manned and unmanned intelligence gathering, as well as transporting cargo such as helicopters and tanks, and maneuvers on almost any type of terrain. It can go for three weeks at 20,000 feet altitude and is loaded with every type of sensor needed to generate a clear picture of the battlefield. With an advanced air cushion system, it can even land on water.

F-35 Lightning II, developed by Lockheed Martin and other aerospace industry leaders, is the first fifth-generation multirole fighter. Its attributes incorporate the following: supersonic speed; an engine that lasts in higher temperatures; an internal fuel system; GAU-22/A cannons; missiles; and the ability to carry a higher weapon payload than its predecessors. It includes Panoramic Cockpit Display glass cockpits with the latest speech-recognition system.

It has sophisticated situational awareness, with missile warning systems and the ability to report missile launches and track approaching aircraft. This helps with the Helmet-Mounted Display system, which allows the pilot to eliminate the target without actually pointing the aircraft. It contains the best of everything, including a full vertical lift and landing.

The Lightning II is the epitome of stealth (radar evading), precision, lethality and survivability. Its attributes include a clear picture of the battlefield, radar evading, precision and lethality.

The Human Universal Load Carrier is a titanium hydraulic-actuated exoskeleton that helps soldiers carry up to 200 pounds at a maximum of 10 mph. The microprocessor takes in readings from the sensors across the HULC and thus senses what the user wants to do or where he or she wants to go and does it automatically. It transfers weight to the ground while not inhibiting any range of human movements. Lockheed Martin is in the process of developing 72-hour cells and has just received $1.1 million from the U.S. Army.

Littoral Combat Ship is a high-speed sea train equipped with a rolling airframe missile launcher in the back and a 57-millimeter gun in the front that fires 200 rounds a minute. Its aims are to get in, deliver and get out. It is a complete maritime dominance strategy, linking communications for the Navy. The ship is powered by four water jets, which each pump a million gallons of water per minute, and reaches 45 mph but still gets in close to the shore. It is highly automated with video-like controls.

Ocean Thermal Energy Conversion finds places in the ocean at which the cold and warm water mix naturally and uses this phenomenon to drive its steam cycle and produce clean, inexhaustible energy, electricity. In 2009, the U.S. Navy awarded $8 million for OTEC.

Lockheed Martin continues to push the limits of both human ingenuity and capabilities.

Photo by Raymond Gilstrap

Professor Discusses $1.17 Million Internet Connectivity Grant

TOM BURWELL
Staff Writer

Last week's Exponent featured a story on a National Science Foundation $1.17 million grant awarded to Dr. Sara Graves to create a high-speed fiber optic network connecting state universities and the Hudson-alpha Institute, a research organization in Huntsville's Cummings Research Park specializing in biotechnology and genomics.

Dr. Sandi Harper, a research scientist in UAH's Information Technology and Systems Center, is the project lead and has provided further details about the project.

A major motivation for this grant is the need Graves and Harper recognized for easier collaboration in the areas of nanotechnology and bioscience.

"A primary reason for applying for the grant was to meet Alabama's need for research collaboration in the fields of nanoscience and biotechnology," Harper said. "The state of Alabama has recognized that bio and nano are areas of..."
economic growth. There's actually Alabama State University, Central Alabama Community College, and the Alabama Supercomputer Authority, Harper said. "The team has developed a strong working relationship over many years, collaborating on several successful NSF and EPSCoR programs in both infrastructure enhancements and scientific research."

The project is funded under the Experimental Program to Stimulate Competitive Research, an NSF program created to increase the competitive research base, build the scientific infrastructure and improve the technology enterprise in states that have historically received fewer federal research dollars. Each NSF dollar allocated is given on a competitive peer-reviewed basis and requires a matching state or private dollar.

EPSCoR itself falls under the NSF's Internet2 initiative, which is a national effort to create a nationwide high-speed network to allow collaboration between researchers. Graves and Harper have worked with the Alabama Supercomputer Authority over the past 10 years to implement Internet2 at Alabama universities and research organizations.

"Dr. Graves is [the] principal investigator and leads a collaborative effort with participants from the University of Alabama, University of Alabama at Birmingham, Alabama A & M University, Tuskegee University, Auburn University, Alabama State University, Central Alabama Community College, and the Alabama Supercomputer Authority," Harper said. "The team has developed a strong working relationship over many years, collaborating on several successful NSF and EPSCoR programs in both infrastructure enhancements and scientific research."

The NSF has a long history of improving universities' and citizens' access to the Internet. NSFNET, a network that in 1986 gave universities access to the nation's supercomputers, provided the "Internet backbone" of computers that in the early '90s would eventually host the World Wide Web.

"Programs like this also spur economic growth and development by providing network connectivity, tools and technologies," Harper said.

The NSF has continued to fund projects such as Internet2 with the goal of improving the usefulness and availability of the Internet. The NSF receives an annual budget of $6 billion, much of which is granted to university professors through peer-reviewed competitions.

"Graves and Harper have worked with the Alabama Supercomputer Authority over the past 10 years to implement Internet2 at Alabama universities and research organizations."

August 2010 Campus Crime Report

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UAH Softball Star Diagnosed with Cancer

THOMAS DURNIE
Staff Writer

"You're pregnant." To many women, these words are followed by a feeling of joy and relief, but what if you're a 20-year-old college student who has never had sex? To Emily Roach, these words did not strike a feeling of happiness, but rather feelings of panic and confusion.

On Aug. 3, 2010, Emily was on her way in for a routine shoulder surgery. The hospital requires that prior to any surgery, all women undergo a pregnancy test. Since she had never been involved sexually, she thought nothing of it—simply one more test before she could have her much-needed shoulder surgery. But the news she received from that test would change her life forever. After her urine test, the lab technician returned to Emily and asked if there was any chance she could be pregnant. "I laughed in her face," Roach said. "I had never had sex and was on birth control at the time, it didn't even cross my mind."

Her mother, a retired nurse, was able to get Emily into the gynecologist immediately. She took a blood test, which also showed that she was pregnant. In the back of her mind, Emily was going over the possibilities.

"How could this happen? Was it possible? Was I raped? I couldn't understand how this was possible," Roach said.

Wanting answers, the doctor went over the only possible scenario. "She said either you're pregnant, or you have a tumor," the softball player said. Obviously, not the two scenarios she wanted to hear.

The women's team got off to a markedly better start, winning its home opener Sept. 3 against Clayton State 4-1 with two goals in each half. Sophomore Trisha Ehrhardt seized an opportunity in the box to open the scoring in the 19th minute, with Khadijah Jannah scoring the eventual match winner eight minutes later. Jannah would also assist Cady Reisman's second half goal in the 64th minute, just four minutes before Paige Boersma finished the scoring for the Lady Chargers at 4-0.

Their first road match on Sept. 5 however, proved to be a more staunch challenge. In the seventh minute Lincoln Memorial opened the scoring with a goal that would hold for the rest of the half. Two second half goals sealed the win for the Chargers at 4-0.

The Chargers cross-country teams will compete in the Fleet Feet Sports/Earl Jacoby Memorial Cross Country Invitational on September 18 at Sharon Johnston Park, located 18 miles northeast of UAH. The men and women will compete in the 8,000 and 5,000 meter races, respectively. The events kick off at 8 a.m. with the open 5k race, followed by the collegiate men's 8k at 9 a.m. and the collegiate women's 5k at 9:50 a.m.

See INVITATIONAL on Pg. 7

Earn $100 this week

Donate your plasma at Talecris Plasma Resources to help save the lives of patients worldwide and earn up to $100 this week as a new donor.
Distracted, Roach went home. She would have to wait two days before taking more tests to determine which of the two scenarios it was.

After the second round of blood tests, Roach received the bad news. She recalls, "They said that I wasn't pregnant, but that I would have to wait another week to come back and take more tests to see if my HCG levels had gone down.

HCG is the hormone that indicates pregnancy, but it can also indicate if there is a tumor present within the reproductive system.

After another week, Roach returned to the hospital for yet another round of tests. Her HCG levels had not gone down. After another two days, she went back to the gynecologist and underwent ultrasound and CT scans. These tests showed that she had a cyst on one of her ovaries—not uncommon for a woman of her age.

She was scheduled to have surgery to remove the cyst from her ovary. However, during the operation, the doctor realized that the cyst was too tangled up with her ovary to remove it. Her entire ovary had to be removed.

A week later, Roach returned to the doctor for her follow-up exam.

"I didn't really understand what the doctor was saying," Roach said. "I thought he said I might have cancer, but he was really telling me I had cancer."

Her mother called the doctor for clarification. "My mom found out on a Thursday, but felt so terrible about it she didn't actually tell me until Sunday," Roach said.

"That was the only day I was really upset," Roach said. "I don't want to have kids now, but I've always wanted to have kids of my own someday."

She was also told that she may have another, more fatal form of cancer. If this was the case, she would have to begin chemotherapy immediately.

Once again, Roach had more tests. This time, they came back with more positive results.

"The doctor told me that he thinks it is a less dangerous form of cancer," Roach said. "Since he caught it so soon and took the whole ovary out, everything might be okay."

After several weeks of tests, waiting for more tests, and more waiting, good news finally came. She still has a long road ahead of her, with second opinions, third opinions and bi-annual checkups and tests, but for Roach, the worst is over.

"At first, I didn't really believe him," she said. "I didn't believe it could just be that easy."

For now, Roach can concentrate on school and softball, as she has for the past four years. It will be a trying time for her as she continues to see doctors and specialists, but her resilient spirit and her faith in God will undoubtedly pull her through.

Emily's last month has been a harrowing experience. Her strength and perseverance is an inspiration to everyone who knows her and to anyone who hears her story.

From SOCCER on Pg. 6

the home team, but the Lady Chargers were able to pull one back in the 87th minute.

The men's team plays its next home match Sept. 19 against Christian Brothers, while the Lady Chargers will face Harding on Sept. 24 at Charger Field.

Sudoku

Crossword

Across

1. Strikes
2. Celestial body
3. Open Italian pie
4. Place
5. City in NW France
6. Operating late at night
7. Afternoon performance
8. Near-Earth asteroid
9. Male voice
10. Marshal
11. Start
12. Low in spirits
13. Train again (2-7)
20. Female name
21. Paperboy
22. Remote
23. Exchange
24. Fermented fruit juices
25. Document
26. Dice game
27. Slippery person
28. Manure
29. Grampus
30. Made a confusion of noises
31. Hour
32. Consanguine
33. Greek god of forests
34. Naught
35. Burgundy
36. Naught
37. Pleasing
38. No longer in existence
39. Acid, protein building block
40. Hues
41. Hayseed
42. Vex
43. Base of the decimal system
44. Hayseed
45. Confronts
46. Effaced
47. Walk (3,2)
48. No longer in existence
49. Horse harnessed alongside a vehicle's shaft
50. The Muslim world
51. Persons of great authority
52. Sideways
53. 10-year prison sentence
54. Figurines
55. Musical composition for one instrument
56. Secondary pipe
57. Vex
58. Horse harnessed alongside a vehicle's shaft
59. Chinese gelatin
60. Hawaiian dance
61.小麦 forth
62. Female given name
63. horse gains gelatin
64. Debutantes
65. Elude
66. Borders
67. Mortally
68. Mortally
69. Male voice
70. Marshall
71. Start
72. Low in spirits
73. Train again (2-7)
74. Penelope
75. Mortally
76. Marshall
77. Mate
78. Grampus
79. Made a confusion of noises
80. Female given name
81. Hawaiian dance

Down

1. Fowl shelter
2. Love affair
3. Open Italian pie
4. Place
5. City in NW France
6. Operating late at night
7. Afternoon performance
8. Near-Earth asteroid
9. Male voice
10. Marshal
11. Start
12. Low in spirits
13. Train again (2-7)
20. Female name
21. Paperboy
22. Remote
23. Exchange
24. Fermented fruit juices
25. Document
26. Dice game
27. Slippery person
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76. Marshall
77. Mate
78. Grampus
79. Made a confusion of noises
80. Female given name
81. Hawaiian dance

Solutions to last issue's puzzles:

mm September 16, 2010 - The Exponent

From CANCER on Pg. 6

From INVITATIONAL on Pg. 6
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