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President's Annual Report 2013

University of Alabama in Huntsville

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Alumni
Grads enjoy success in their job field

INSIDE:
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UAH brainpower helps advancement of area ‘ecosystem’

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HudsonAlpha collaboration a win-win

OUTREACH
Oral history project comes to rural Ala.

ALUMNI
Grads enjoy success in their job field

HIGHLIGHTS: FACULTY & STUDENT ACHIEVEMENTS  SGA: ENACTING POSITIVE CHANGES
UAH’s Severe Weather Institute – Radar & Lightning Laboratories, or SWIRLL, is set for completion in the fall of 2014. The facility builds on UAH’s expanding reputation for severe weather and radar expertise through the UAH Department of Atmospheric Science, Earth System Science Center, the National Weather Service forecasting office, the NASA Earth Science research team, and the Office of the Alabama State Climatologist.
Features

Blueprint for Success
UAH has long leveraged its threefold mission of education, research, and service to become a leader in the city’s economic development.

Good Neighbors
Collaborative partnerships between UAH faculty and researchers at HudsonAlpha Institute for Biotechnology prove a benefit to both.

What Is Old Is New
UAH’s Dr. John Kvach serves as lead scholar on a traveling exhibit that preserves Alabama’s rural past through oral histories.

Highlights
A brief recap of faculty, staff, and student accomplishments shows broad impact of UAH on the community and beyond.

SGA
Recent initiatives reflect SGA’s top priority: students

Alumni
Two UAH alumnae enjoy career success in very different fields

Data Points
Infographic outlines enrollment, revenues, and expenditures
Huntsville and Alabama are positioned in a particularly noteworthy place for future economic prosperity. We are witnessing a flurry of activity from companies interested in creating jobs for our citizens. That is understandable. Alabama is viewed by major corporations from around the world as an excellent place to do business. This is the result of several factors – a positive business climate, low costs, and an excellent workforce.

UAH has long played a major role in workforce development in the region and state. It is widely known that our research-based economy is heavily dependent on individuals who possess four-year and graduate degrees.

This makes our campus a vital center of higher learning. We are motivated to produce a continuous stream of knowledgeable graduates who are well prepared for Alabama’s workforce. This mission has driven the development of our campus since our creation.

Today the question is how can we do better?

In a 2013 U.S. Department of Commerce report, *The Innovative and Entrepreneurial University*, it was noted: “Universities spur economic growth and prepare the next generation of scientists, engineers and entrepreneurs. Breakthroughs from university-based research have led to entirely new industries, such as information technology, biotechnology and nanotechnology.” Going forward, “universities are increasingly focusing on innovation and entrepreneurship as key contributions to the growth and success of local communities.”

UAH has long produced graduates who have gone on to create companies and have become job creators themselves. Our faculty takes research and turns that knowledge into products and commercial enterprises. In this knowledge economy, these cultivators of knowledge are more important than ever. It’s the new economic logic.

This leads us down a path to grow our efforts to promote innovation and entrepreneurship. UAH plans to take the responsibility to provide leadership on a regional innovation center, expand partnerships with existing companies and agencies to commercialize federally funded research, nurture startups, and attract and motivate faculty and student talent who embrace this concept while, at the same time, continuing to educate a world-class workforce.

UAH’s role in economic development is crucial, and support of initiatives on our campus is an important strategy toward creating and sustaining future economic success.

P.S. In a society that is increasingly measured by utilitarian values, we should be reminded that our lives are informed and enriched by the aesthetic environment in which we live and by an appreciation for the arts, humanities, and music that express the essence of our society. We can take pride in advancing technology to improve everyday life here and around the world, but an equally enduring legacy will be the power of America’s minds, values, and knowledge, all of which are being nurtured on university campuses around the nation.
The typical UAH student would be hard pressed to explain the role that the Student Government Association (SGA) plays in their day-to-day life, let alone the role of the university’s administration. But together, these two groups are partnering to improve the student experience across campus.

Take, for example, UAH’s brand-new Charger Union. The proposal for the $25 million, multi-use student center was brought to the administration by the SGA three years ago, at the behest of the university’s student body. And throughout the process, the students’ input was not only included but also incorporated into the final design.

“Now, walking through the Charger Union, you can’t help but notice this place has been designed specifically for students,” says Nandish Dayal, a third-year nursing student and the current president of the SGA. “Not to mention, it offers one of the best examples of community interaction on our campus.”

And then there’s the ongoing renovation and expansion of the Nursing Building, a $17 million endeavor that will allow the College of Nursing to increase enrollment significantly over the next decade.

“Projects like that, that are student-centered, allow the university to attract even more high caliber students,” says Dayal. “They can see that the administration and the SGA are working hard to provide them with the best facilities and to offer them the best return on investment.”

That’s a big departure from what Dayal says he was expecting when he was first elected president of the SGA. “I thought it would be a fight against everyone,” he says, “but the administration is really responsive to students here. They are committed to putting the students first.”

Indeed, with their support, the SGA has been able to pass a number of resolutions to improve the student experience on campus. “In the last few months alone, we’ve increased outdoor lighting, improved accessibility for disabled students, expanded the university’s recycling program, and introduced a bike-share program,” he says.

Then there are the less visible efforts that the SGA carries out on the students’ behalf, such as the association’s ongoing lobbying efforts to increase university funding. “We’ve worked diligently with the Higher Education Partnership to persuade our representatives to keep tuition costs from rising,” he says.

As for what’s next, one need only look to UAH President Robert Altenkirch’s strategic plan for the university’s future growth and expansion, Expanding Horizons. Focus areas include international student recruitment and community outreach, both of which are part of the SGA’s long-term goals.

“We’re currently looking at a mentoring program that will pair a U.S. student with an international student, as well as another one that will pair SGA officers with rising student leaders at local high schools,” says Dayal. “And we’ve recently opened up more funding for student travel to conferences across the country.”

Of course whether Dayal himself will be there to see these projects through will depend on the success or failure of his upcoming reelection campaign. But no matter who becomes the SGA’s next president, there’s no doubt that the real winner going forward is UAH’s student body.
The overarching mission of institutions of higher learning, such as The University of Alabama in Huntsville, is summed up with three words—education, research, and service.

The education mission of UAH is outstanding with robust academic programs and world-class faculty, and the research enterprise is nationally prominent and growing stronger. It’s that third mission—service—that will validate UAH as an exceptional university.

The ability of the campus to leverage its education and research assets into a leading role for Huntsville’s economic development future is what will allow the institution to provide its greatest value to Huntsville and the state of Alabama. In an economy based on brainpower rather than natural resources, research universities and UAH hold the key to success.

“Advanced economies have been moving toward knowledge-based technologies that rely heavily on a highly educated workforce and research,” said UAH President Robert Altenkirch. “As such, it is intellectual development and knowledge that provide the edge in economic development.”

UAH is no stranger to that role and has long been active in supporting the Huntsville-Madison County Chamber of Commerce to attract new business and industry. But momentum is picking up to strengthen and expand the university’s role in research and commercializing that knowledge, as well as to encourage startups and boost job creation.

“What we can offer is evidence of workforce development, that we have the specific types of laboratories, equipment, and technical expertise that is of value to the specific business or industry, and we can offer to partner with the company and offer certain economic incentives for their locating here,” said UAH Vice President for Research Dr. Ray Vaughn.

“UAH offers businesses the human capital, scientific innovation, working partnership opportunities with scientists, engineers, and researchers, and lowered research and development expenses because in a partnership the university picks up some of those costs,” Dr. Vaughn said. “We can provide them with material support from an academic perspective.”

While UAH is a draw for luring companies to Huntsville, the university’s impact goes beyond attracting new business. Research collaboration with Redstone’s federal agencies and corporations in Cummings Research Park are additional activities that create a positive environment for economic growth.

In terms of the local workforce, UAH is the center of Huntsville’s intellectual development, graduating more than 1,500 students annually. Approximately two-thirds of UAH students earn a degree in business, engineering, or science.

Small business startups

The College of Business Administration’s Innovation Commercialization Entrepreneurship (ICE) Lab is led by Dr. John Whitman. ICE Lab efforts include a monthly Huntsville Open Tech Coffee (HOT Coffee). Entrepreneurs network and exchange ideas, and HOT Coffee working groups encourage multiple aspects of entrepreneurship and innovation in Huntsville.

UAH business students can also work directly with entrepreneurs in a class called New Venture Challenge. Graduate students from the college are paid to assist startups. “Instead of working in a lab on a research project,” said Dr. Caron St. John, Dean of the College of Business Administration, “the student is working with them in the real world on an entrepreneurial and research project.”
Entrepreneurs can also look to UAH’s Small Business Development Center (SBDC) in the College of Business Administration, headed by Foster Perry. The SBDC works through its Procurement Technical Assistance Center with small companies that strive to be government contractors. “They serve those businesses by providing training and even counseling if that’s needed, and by assisting in developing responses to bids,” said Dean Caron St. John.

**Research collaboration**

UAH is ranked among the nation’s top research universities, according to the Carnegie Foundation for the Advancement of Teaching. That recognition is the result of producing a consistently high number of doctoral graduates as well as high levels of funded research. Research expenditures during fiscal 2013 exceeded $97 million, the highest in the university’s history. As a matter of fact, for its size among public universities, UAH’s research expenditures are the largest in the nation.

The National Science Foundation ranks UAH fifth nationally in federally financed aeronautical/astronautical engineering research, a key component of Huntsville’s economy and an important source of job creation. UAH is also second in Alabama in federally funded research expenditures, according to the NSF’s fiscal year 2011 data, the most recent available. It ranks first among Alabama universities in federal expenditures in the environmental sciences, including atmospheric science, math and computer sciences, and physical sciences.

This strong background in research allows the campus to be a generator of intellectual property (IP). During the past five years, UAH faculty and students performed in more than $421 million in contracts and grants, which supported 385 graduate students and created approximately $5 million in licenses and royalty fees.

**Technology commercialization**

UAH’s Office of Technology Commercialization harnesses and patents Charger intellectual property. It markets this IP to commercial partners, monitors IP creation activities on campus, and educates faculty on university policies.

“We play a role in economic development and growing businesses by transferring technologies to the commercial marketplace,” said Director Kannan Grant. “We want to make these emerging technologies available to the public as soon as possible.”

The university shares profits with its faculty, staff, and student researchers through a royalty arrangement. Cutting-edge research means that emerging technologies are often ahead of their field, and UAH has a process to determine which discoveries get patented for the future.

UAH faculty members often get the entrepreneurial urge. Two of the newest companies started by UAH faculty include professor Dr. Joseph Ng and chemical engineering professor Dr. Krishnan Chittur. They work in collaboration with the HudsonAlpha Institute for Biotechnology.
PARTNERSHIP

GOOD NEIGHBORS
When Dr. Eric Mendenhall accepted a position as assistant professor with the Department of Biological Sciences at UAH this past fall, one of the deciding factors was the university’s unique relationship with the HudsonAlpha Institute for Biotechnology.

“The HudsonAlpha Institute, led by President Richard Myers, is especially prolific in their research, and future collaborations seemed like they would be easy to establish and mutually beneficial,” he says.

Fast-forward six months, and that potential has come to fruition. Dr. Mendenhall now works closely with Dr. Myers on the ENCODE project, a large consortium effort to define the epigenome across both normal and diseased cells.

And he’s not the only UAH faculty member to form such an important partnership. Others include assistant professor Dr. Luciano Matzkin, associate professor Dr. Joseph Ng, and assistant professor Dr. Leland Cseke, all of whom are performing collaborative research with their counterparts at HudsonAlpha.

“Academia plays a key role in HudsonAlpha’s mission to foster and contribute innovations in technology, methodology, and practices that serve to improve quality of life,” says Jim Hudson, one of the founders of HudsonAlpha and a UAH alumnus.

Hudson, perhaps more than anyone, should know. While a student at UAH, he founded a genetic research company that went on to become a world leader in genetic linkage products. And today, the opportunity still exists for UAH students to do the same.

“Graduate student research projects, internships, and varying levels of employment provide relevant, practical experience enabling the emerging workforce to more quickly contribute toward scientific advances,” he says.

That’s something Dr. Mendenhall himself fully supports, particularly now that he is in the process of setting up his own research lab at UAH. “The students will get a realistic view of what science research is,” he says, “which will benefit them going forward in their careers.”

And if those careers happen to be at nearby HudsonAlpha, all the better! “HudsonAlpha is a great place for our graduates to get jobs, and we are a great place for their young scientists to take classes,” he says. “So hopefully there will be a revolving door of scientists and science between us both!”
UAH professor relies on oral histories to preserve Alabama’s rural past

Long before the advent of computers – indeed long before the advent of paper – history was passed down through stories told by one generation to the next. But as is often the case, what was once old has now become new, thanks to *The Way We Worked*.

Funded in partnership by the Smithsonian Institution’s Museum on Main Street, the Alabama Humanities Foundation, state humanities councils, and rural museums across America, *The Way We Worked* seeks to preserve the oral histories of 12 rural Alabama communities through audio-visual documentation.

The effort is being headed up by Dr. John Kvach, Associate Professor of History at UAH, whose own experience with gathering oral histories dates back several decades. “As a graduate student, I took Oral Histories of African-American Coal Miners who worked in the 1920s and 30s,” he says. “And in the 1990s, I worked on a number of oral history projects for the National Archives and Records Administration.”

Now, he says, he’s pleased to be putting those skills to good use in his adopted home state. “Alabamians have had a significant influence on local and national trends,” he says. “People like to associate the state with just one thing, and usually that’s cotton, but every community is very unique historically.”

The three-year project, which started this past March, requires Dr. Kvach to visit each of the 12 communities three times. “The first time I go is to train high school teachers how to train students to conduct interviews,” he says, “advising them to ask open-ended questions, fade into the background as quickly as possible after asking a question, and keep verbal cues to a minimum.”

“The second time I go is while the exhibit is on display in the community, so I can give a talk associated with it,” he continues. “And the third time I go is after the exhibit leaves, so I can talk to community leaders about how they can display or archive the oral histories that have been collected at their local museums or libraries.”

To date, Dr. Kvach has already visited Red Bay, Ashland, North Port, and Andalusia, where the exhibit is currently on display. But once “the Smithsonian breaks it down and trucks it to the next city,” he says, he will follow it to...
Fairhope, Wetumpka, Pell City, Athens, Valley, Cullman, Demopolis, and Dothan.

“It has been a bit difficult at times,” he says of the travel. “But it’s been worth it. It’s allowed me to see parts of Alabama I wouldn’t normally see, and meet people I wouldn’t normally meet. And, in turn, it enhances the footprint of UAH across the state.”

Perhaps more important, Dr. Kvach’s efforts have helped bring awareness to the state’s lesser-known destinations and their history. “I think it spotlights your community to have a Smithsonian exhibit come to town,” he says. “It also shows that members of these communities are interested in the past, even though they’re not professional historians.”

“In fact,” he continues, “some communities have already capitalized on the exhibit’s momentum by holding ancillary events and exhibits. In Red Bay, for example, they are using them as voice overs to accompany museum pieces,” he says. “And in Andalusia, we created a worksheet based on The Way We Worked that third and fifth graders can take home and use to interview a loved one.”

Eventually Dr. Kvach hopes to convince the state of Alabama itself to take the project to the next level by creating a statewide project that would allow every community to record its oral history. “It’s the easiest way for people to get into history,” he says, “and it allows people to gain control of their own past.”

In the meantime, however, he can rest assured that The Way We Worked has not only helped at least 12 communities preserve their history, but it has also reintroduced one of the oldest traditions in the field.

“Oral history recalls a time when the message meant more than the medium,” he says. “And I think in this day and age, when we’re constantly bombarded by images and life seems to move at an untenable pace, that has real appeal among historians and non-historians alike.”
Two UAH alumnae enjoy career success

RACHEL RASMUSSEN’S (’10 B.A. Psychology) original career path would have had her making strides in the nursing profession. But fate intervened and the UAH alumna landed her “ultimate dream job” in student affairs at Gonzaga University in Spokane, Wash.

“I never really considered going into education until I was well into my freshman year at UAH. My initial plan was to become a nurse, then I briefly considered going into school counseling before I decided on student affairs as my career choice,” Rasmussen said. “I remember my freshman year at UAH when Dr. Jerri Edwards (psychology) told me that I should consider changing my major to psychology...the more classes I took, the more I realized it was a much better fit for me.”

The Hazel Green (Ala.) native graduated from Sparkman High School, and was awarded numerous academic honors, and also received several college scholarships including the UAH Endowed Scholarship. In 2010, she graduated summa cum laude from UAH, and was awarded the College of Liberal Arts Outstanding Undergraduate Achievement in Psychology Award.

Rasmussen has fond and fearful moments of earning her undergraduate degree at UAH.

“Dr. Nancy Finley’s sociology classes are probably the ones that have stuck with me the most. I feel like my worldview and values were challenged in amazing and positive ways through her classes,” said Rasmussen. “For my senior psychology seminar, I worked with Dr. Sandra Carpenter’s (psychology) research on culture change in Bonaire (Netherlands). And, I also remember being absolutely terrified of Dr. Aurora Torres’ (psychology) experimental psychology class (Who wasn’t?). It definitely kicked my butt. I am so grateful for the experience because that class absolutely gave me a leg up in graduate school.”

Rasmussen feels “incredibly blessed” when it comes to the time spent in training for her “dream job and her super-senior year” at UAH.

“John Maxon and Juanita Owen (Student Housing) saw something in me that others didn’t,” Rasmussen said. “They took a chance on me when I was a shy freshman and hired me to work for the housing department as a summer conference assistant. I loved working in Housing and Residence Life. Ultimately, I realized that I enjoyed my time in housing enough to pursue it as a career, and I’ve never looked back.”

FRANCES ALSTON’S (’03 MSE Engineering Management, ’07 Ph.D. Industrial and Systems Engineering) determination to build a successful career in the field of environmental safety and health was motivated by the work-related death of her father when she was a young girl.

“My father served as my inspiration to focus on environmental safety and health,” said Alston. “I lost my father to an on-the-job accident that was clearly preventable in my mind. After his death, I remember thinking that I was going to go to college and apply myself to prevent another family from feeling the pain that my family went through.”

A native of Huger, S.C., Alston was an honor student before she entered college and received many academic awards during elementary, middle, and high school, including recognition with class salutatorian honors.

“I have always been interested in the area of science and engineering. I wanted to pursue a Ph.D. in a technical area that would allow me to complement my technical knowledge with systems thinking and strong leadership skills. I found these opportunities and strengths within the engineering program at UAH,” she said. “In addition, many of the university’s professors had practical real-world industry experience that they shared with students in the classroom.”

Alston’s most memorable professor was Dr. Donald Tippett, who also served as her graduate advisor. “He was very supportive and provided great wisdom and guidance when it came to completing my dissertation. I can still recall some of his encouraging words – ‘You are a pretty good presenter,’ and ‘You are a pretty good writer.’ Since then, I have worked hard to progress from being ‘pretty good’ to ‘good’.”

Tippett’s words of wisdom and encouragement have followed Alston throughout her professional career to such a great degree that she recently published her first book, Culture and Trust in Technology-Driven Organizations.
Presently, Alston is the director for Environmental Safety and Health (ES&H) at Lawrence Livermore National Laboratory (LLNL), a top federally funded research and development center, in Livermore, Calif. “Working at Lawrence Livermore National Laboratory is like a dream come true for me. It is both rewarding and exciting to come to work every day knowing that I have a part in enabling world-class science and novel research.”

Among other things, she is responsible for leading, executing, and continually improving the laboratory’s (ES&H) program in a cost-effective and efficient manner; ensuring the laboratory achieves stellar performance in its environmental stewardship and sustainability efforts while protecting employees’ safety and health; ensuring effective integration of safety programs, business management, and compliance policies into all LLNL work; and providing leadership and technical expertise in the ES&H regulatory and compliance arenas.

For several years, LLNL, the Oak Ridge National Laboratory, and UAH have been partner organizations in numerous forms of educational research and development. Alston said that it is extremely important for colleges and the business sector to connect and form an alliance to aid in training quality workers for the future. “We have a great partnering relationship with universities at LLNL. Our post-doctorate program provides opportunities for students to train with the brightest in the scientific community while conducting research and gaining valuable work experience in the sciences and engineering.”

During her extraordinary career Alston has received numerous honors, including the Burney Sachet Awards (ASEM 2013) and the Academy of Hazardous Waste Materials Managers’ Champion of Excellence Award; in 2011, Alston was named Fellow by the American Society for Engineering Management. She also holds an M.S. in hazardous and waste materials management/environmental engineering from Southern Methodist University in Dallas; a B.S. in industrial hygiene and safety chemistry from St. Augustine’s University in Raleigh, N.C.; and certifications as a Certified Hazards Material Manager and Professional Engineering Manager. Additionally, she is a member of the American Society for Engineering Management and the Academy of Certified Hazardous Materials Managers.

Rasmussen recently earned an M.A. in College Student Development from Appalachian State University in Boone, N.C. “After a nation-wide search the job in Spokane sort of fell into my lap.”

At Gonzaga, Rasmussen is in charge of the largest all-freshman building, St. Catherine/St. Monica Hall. Rasmussen lives in the hall and oversees the well-being of about 360 freshman residents and supervises nine residence employees. “My job is never quite the same every day, and I do a little bit of everything...pretty much anything that might affect a student during their first year of college.”

She has observed many culture differences while living in Spokane. “Basketball is definitely a much bigger sport than college football — in Spokane basketball is a big deal. The Apple Cup has nothing on the Iron Bowl. But I do miss my southern comfort food and sweet tea, and I get very excited whenever I hear a hint of a Southern accent.”

Rasmussen was “super excited” to hear that Charger Union was finally becoming a reality. “It was a space that we needed for far too long, and my hope is that it’s going to instill a new sense of community and pride in UAH.”

Professionally and personally Rasmussen is in a good place. “I was fortunate enough to have experiences both inside and outside of the classroom that have contributed to my success.”

Rasmussen’s hobbies include outdoor sports such as camping, whitewater rafting, and kayaking. “I also volunteer at Mobius Science Center, the kids’ hands-on museum near Spokane. I have to get my UAH science kick somewhere!”

“I was fortunate enough to have experiences both inside and outside of the classroom that have contributed to my success.”

- Rachel Rasmussen
Dr. John F. Kvach has written a book that shows that the political gridlock currently plaguing the nation has done so since its earliest days. *De Bow’s Review: The Antebellum Vision of a New South* - set during a time when the country was even more divided - reopens the debate on sectionalism and secession in the years leading up to the Civil War. But it does so through the eyes of one of the South’s most controversial figures: journal editor and fire-eater James Dunwoody Brownson (J. D. B.) DeBow. “I argue that De Bow was the most influential editor in the Antebellum South,” says Dr. Kvach, associate professor of history.

Dr. Clarke Rountree, a faculty member in the College of Liberal Arts, is providing a blunt assessment of the dysfunction in our political system today through his book, *Venomous Speech: Problems With American Political Discourse on the Right and Left*. Rountree edited the book and was also a contributing writer. *Venomous Speech* contains essays by some of the country’s most prominent scholars of political communication. The book provides a frank, hard-nosed look at what needs fixing, offers a critical lens from knowledgeable writers to help those frustrated with our political system to understand better why our discourse is so troubled, and lays out suggestions for reclaiming the commonwealth.

Dr. Emanuel Waddell sees a steady line of continuity and responsibility that helped him earn the National Role Model Faculty Mentor Award from Minority Access Inc. Dr. Waddell has been deeply involved in helping students on the UAH campus. His portfolio of accomplishments includes working with the Louis Stokes Alliance for Minority Participation, the Minority Graduate Student Association, and minority students who are on track for pre-med careers, and one-on-one mentoring with large numbers of graduate and undergraduate students. Dr. Waddell was nominated for the award by Dr. Louis Dale, vice president for equity and diversity at the University of Alabama at Birmingham.

Dr. Carmen Scholz has co-edited a book for the American Chemical Society series entitled *Tailored Polymer Architectures for Pharmaceutical and Biomedical Applications*. The book contains chapters contributed by top researchers in the biomedical polymer field. With co-editor Dr. Joerg Kressler, professor at Martin Luther University of Halle, Germany, Dr. Scholz outlined the book, picked the topics, and chose the authors. Some authors presented their work at an ACS meeting in 2012. Others were chosen because their work fit the theme of the book. Dr. Scholz oversaw the publication timeline, the peer review process, and the final book organization.

Dr. Mikel Petty, director of the Center for Modeling, Simulation and Analysis, has contributed to a new Institute of Electrical and Electronic Engineers standard for distributed simulation as Drafting Group editor of the Product Development Group. Distributed simulation systems offer more flexible computational power that can work in larger systems that evolve rapidly. Developed by a group working under the auspices of the Simulation Interoperability Standards Organization, the new standard was recently formally approved by the IEEE Standards Association Standards Board. Dr. Petty’s contributions included consolidating the contributions of several distributed simulation experts in the group and integrating them into the standard.

Dr. Phillip Bitzer, an assistant professor in the Department of Atmospheric Science, has created a device that can become a valuable tool in researchers’ quest to determine how lightning is spawned in clouds, to map strikes from beginning to end, and to predict severe weather better. His device, the Huntsville Alabama Marx Meter Array (HAMMA) sensor, provides data, and when combined with current observations will allow scientists to improve severe weather forecasts.
Dr. Kenneth W. Sullivan, associate director of the Office for Enterprise Innovation and Sustainability, has been elected as a vice chair of the National Defense Industrial Association’s (NDIA) Manufacturing Division. Dr. Sullivan most recently served as the Chairman of Manufacturing Division’s Supply Chain Network Committee. He oversaw a survey of small- to mid-sized businesses regarding their participation in the aerospace and defense industrial base conducted by the committee. He also was a co-author of the white paper published by NDIA based on the findings of the survey. The white paper was also instrumental in defining the Connecting American Manufacturing (CAM) project sponsored by Office of Secretary of Defense (OSD) ManTech program.

Dr. Anne Marie Choup said the United States, which often presents itself as a political model for newer democracies in the Americas, cannot make the same claims when it comes to preventing gender-based violence. The political science professor maintains that the United States is actually behind in terms of legislation on gender-based violence and participation in international agreements on the subject. Choup has been researching violence against women in the Americas for nearly a year. While, in some instances, the US is slow to embrace full legislation on violence against women, Choup noted there has been slow, steady advances in policy work.

Dr. Susan Alexander, a faculty member in the College of Nursing, was recently selected as the recipient of the Alabama State Award for Nurse Practitioner Excellence. Alexander and other nurse practitioners (NPs) and NP advocates, and recipients of the prestigious AANP State Award for Excellence, were honored during the American Association of Nurse Practitioners 2013 National Conference. Dr. Alexander, a clinical assistant professor of nursing, has been a nurse practitioner since 2003 and also maintains certification in advanced diabetes management. In addition to her faculty responsibilities, Alexander sees patients weekly at a rural health clinic in North Alabama.

Belinda Ong, director of reference and information services at the M. Louis Salmon Library, has been honored with Alabama’s 2013 Spirit of Diplomacy Award from the International Services Council (ISC). The ISC is sponsored in part by the U.S. Department of State. She is being recognized for her work as president of the International Society of Huntsville. Ong is a key charter member and co-founder of the organization. She was instrumental in planning the organization’s annual International Festival of North Alabama.

Drs. Philip Kovach and Ryan Weber have developed an Internet search engine specifically for schools that is being tested as a way to increase reading abilities in challenged students and help motivate intellectual development in gifted students while saving schools money on textbooks. Complexity Engine uses a sophisticated algorithm to search websites for content and delivers free, customized, and age-appropriate reading materials to a user’s computer. It promises to give teachers, parents, and students an efficient, affordable way to promote reading. Teachers and administrators can set parameters for the search results, and the reading experience can be either student self-directed or guided by the teacher.
Sean Entrekin, a UAH undergraduate student, developed an idea for a new more-efficient way to package rocket engines that has won him a patent. Various Rocket-Based Combined Cycle (RBCC) propulsion systems have been proposed to merge the best aspects of rocket and air-breathing propulsion engines. In a reversal of conventional practice, Entrekin’s design places an air-breathing ramjet engine within the center body of an aerospike or plug-nozzle rocket. The new design dramatically reduces drag, increases efficiency over a larger range of altitudes and flight speeds, simplifies the design, lowers cost, and provides more versatility in the size and types of engines that can be used in various applications.

David Gray was searching for a way to explain a complex scientific concept like lateral gene transfer in three minutes so that the average person could actually understand. It is a task most of us wouldn’t even consider undertaking. But not only did he rise to that challenge, he blew it away – twice. Gray, a graduate student, took the top spot in last year’s Three Minute Thesis (3MT) and Dissertation competition at UAH before going on to win the grand prize at the regional 3MT competition in San Antonio, TX. How did he do it? Well, first he got a little help from a well-known superhero. “I watched videos of past winners and I noticed that almost everyone had come up with an analogy to explain their research,” says the biochemistry major. “So I decided to use Spider-Man as my analogy, because Spider-Man gets his powers in a way that seems a lot like lateral gene transfer.” With his analogy in place, Gray then turned to UAH Communication Arts professor Kristin Scroggin for some presentation pointers. “I knew I was weak in those areas but I didn’t know how totally weak I was!” he says. “So she helped me work on how I use body language and movement and facial expressions to improve my presentation.”

Charity Ethridge and Michelle Hopkins can lay claim to an unusual accomplishment. While it’s common, if not required, to be a published author as a college professor, it’s a rare accomplishment for students. Yet the two UAH undergraduates can make that claim. Ethridge and Hopkins, along with UAH history professor Dr. John Kvac and UAH alumna Susanna Leberman, are coauthors of Images of America: Huntsville. Published by Arcadia, the book is a pictorial history of the city dating back to the early 1800s. With the help of Leberman, an archivist at the Huntsville-Madison County Public Library, the two history majors sorted through the thousands of photos stored in the library’s archives, searching for just 128 that would convey the story they were hoping to tell.

Ross Compher knows a thing or two about serving his country. The Huntsville native previously served in the U.S. Army, complete with a tour of duty in Iraq. And he continues to serve today as part of the Army National Guard. “It’s my duty and my privilege,” he says. But there is more. The senior English major helped create the UAH Veterans Network, a student-run organization that assists and advocates for the university’s student veterans and their dependents. Compher, president of the

The CarmAI extruder – shorthand for Carbohydrate Anhydrous Rapid Manufacturing Aluminum extruder – is a specialized 3-D printing extruder developed by two UAH students. The device could lower the costs of printing cellular structures for use in drug testing. Its controlling software and the manufacturing processes being developed by biology students Tanner Carden and Devon Bane are able to produce a sugar grid that mimics blood vessels. The result is a cell mass that contains vessels like a human organ. That’s an advantage for drug tests over flat-dish cell cultures currently used because it more accurately represents living tissue and more of the test cells can be kept alive by vessel-supplied nutrients.
organization, has experienced himself the challenges of being a student veteran. UAH has around 700 veteran students, a much higher percentage than most other schools thanks to the proximity of Redstone Arsenal. Compher’s initiative helps UAH meet the needs of America’s veterans, a special demographic in this community.

Africa Flores, an Earth System Science graduate student, has developed an algorithm that uses hyperspectral data to measure and track changes in aquatic chlorophyll as a proxy for water quality for a lake in Guatemala. Using satellite data, she created a series of images mapping an algal bloom in Lake Atitlan. She is investigating how this method can be transferred to study other lakes and large rivers in the region, where water quality information is otherwise scarce. Flores hopes her work will create low-cost tools that local government health and environmental agencies might use to monitor water quality in areas where there is no infrastructure to support water sampling and testing.

Xiaocan Li, a graduate student in the Department of Physics and the Center for Space Plasma and Aeronomic Research, was awarded a NASA Earth and Space Science Fellowship for the 2013-14 academic year. His proposal was one of six awarded from a total of 37 heliophysics research applications NASA received. He recently concluded work as a summer intern at Los Alamos National Laboratory in New Mexico. Xiaocan Li works with his advisor, assistant professor of space science Dr. Gang Li, on particle acceleration mechanisms in solar flares. Solar flares are the most powerful radiation source in our solar system, and understanding particle acceleration at solar flares has been a central topic of space plasma physics. Li is focusing on a chaotic magnetic field model and a 3-D magnetic reconnection model.

Joy Agee (Biotechnology Science and Engineering) and Kenya Wallace (Material Science), a pair of UAH graduate students, were selected to attend the prestigious Clinton Global Initiative University for college graduate and undergraduate students. Both are doctoral candidates in the College of Science, and Agee was one of five black student leaders recently profiled in the Clinton Global Initiative national newsletter. President Bill Clinton will host the 2014 CGI U, which is a growing community of student innovators and entrepreneurs working to turn ideas into action. The annual conference allows students to discuss global issues, develop practical skills, identify potential partners, and formulate concrete plans of action for the future.

Caitlin Lynch, a senior majoring in biology, was awarded the third annual Gopi Podila Memorial Scholarship. Named for the late Dr. Gopi Podila, the scholarship is sponsored by the Partnership for Biotechnology Research (PBR), of which Dr. Podila was a founding member. It is awarded annually to an undergraduate student in the biological sciences who meets the scholarship’s three criteria: academic performance, service to the department, and a demonstrated interest in biological research. Previously, Lynch had the opportunity to work alongside Dr. Robert Zahorchak on projects involving bacterial and fungal genetics, and with Dr. Luis Rogelio Cruz-Vera analyzing protein expression of mutant bacteria.

Nan Feng, an atmospheric science graduate student, won a NASA Earth and Space Science Fellowship for the 2013-14 academic year. One of 56 fellows chosen from 330 applicants, Feng is the only student in Alabama to win a NASA Earth and Space Science Fellowship this year. Feng is the eighth UAH atmospheric science graduate student to win a NASA fellowship. Feng’s graduate research uses satellite sensors and a numerical model to study how land-use changes and biomass-burning aerosols might be changing weather and climate in Southeast Asia, an area reaching from Indochina in the north to Indonesia, the Philippines and Malaysia in the south. “These changes have an impact on the atmosphere’s energy budget,” Feng said. “They change cloud formation, can reduce rainfall and have an impact on the atmosphere’s boundary layer development.”
Undergraduate Student Composition
FY13 (Fall 2012)

Graduate Student Composition
FY13 (Fall 2012)

Enrollment
FY04 (Fall 2003) to FY13 (Fall 2012)

Undergraduate & Graduate Degrees
AY03-04 to AY12-13
FY13 Revenue $207,551,745

Operating Revenue FY04 to FY14

Direct Research Expenditures FY04 to FY13

FY13 Expenditures $207,551,745

FY13 Direct Research Expenditures by Source $81,743,099

Tuition and Fees 24.5%

Instruction 29.6%

Research 29.6%

Other 9.6%

State Appropriations 25.6%

Federal Grants and Contracts 43.7%

Grants and Contracts 3.5%

State and Other Grants and Contracts 3.5%

Gifts 1.9%

Tuition and Fees 24.5%

Other 2.9%

Direct Research Expenditures FY04 to FY13

Tuition, Fees and Other

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Congratulations to Dr. John Kvach, associate professor of history, on being awarded both the Historic Preservation Award and the Historic Preservation Medal by the National Society Daughters of the American Revolution! [http://on.uah.edu/1l5hXu5](http://on.uah.edu/1l5hXu5)

Dr. Christine Curtis has been named provost and executive vice president for academic affairs at UAH. [http://on.uah.edu/1aJ2Xix](http://on.uah.edu/1aJ2Xix)

Have you considered doing a research project in the earth or atmospheric sciences at UAH? [http://on.uah.edu/1dftrR8](http://on.uah.edu/1dftrR8)

So just who is the man - or woman - behind Charger Blue? [http://on.uah.edu/1j7BlzK](http://on.uah.edu/1j7BlzK)

UAH’s online nursing programs ranked in the nation’s top 10! [http://on.uah.edu/JVFUrC](http://on.uah.edu/JVFUrC)

UAH’s Dr. Eric Mendenhall helped create a new tool, but you won’t find it at Home Depot! [http://on.uah.edu/KwoePr](http://on.uah.edu/KwoePr)

Discovery CEO John Hendricks recalls his days as a UAH student in a recent Forbes interview: [http://on.uah.edu/1hYKg8B](http://on.uah.edu/1hYKg8B)

There’s no other school like UAH, and that idea was incorporated into every element of the Charger Union. What part of the CU do you think best reflects the traditions and values of UAH? [http://on.uah.edu/M6pk4u](http://on.uah.edu/M6pk4u)

Men’s soccer hired reigning Gulf South Conference (GSC) Coach of the Year Matt Watts as he looks to build back a once strong program.

UAH hockey had its highest attended weekend on Jan. 18-19 when they played Alaska Anchorage. The 6,000+ people in attendance that weekend was the highest weekend the program has had since 2008.

The Charger baseball team finished second in the GSC last season and reached an historic high national ranking (4th). Reigning First Team All-American and Player of the Year Chandler Brock returns for his junior season to lead the Blue and White.

UAH softball will be looking to make it one step further this year, after making it to the NCAA Super Regional last year.

Both the men’s and women’s track & field teams will be seeking their second-consecutive PBC championship.

You can read more about UAH Athletics and find upcoming season schedules by visiting [uahchargers.com](http://uahchargers.com) or by following the Chargers on social media: [facebook.com/UAHChargers](http://facebook.com/UAHChargers) and [@UAHChargers](http://twitter.com/UAHChargers).

You can read more about what’s going on around campus by visiting [uah.edu/news](http://uah.edu/news) or by following us on social media: [facebook.com/UAHuntsville](http://facebook.com/UAHuntsville) and [@UAHuntsville](http://twitter.com/UAHuntsville).
Peace on Earth, a holiday celebration hosted by UAH’s College of Liberal Arts in partnership with several community arts organizations, featured a performance by Broadway star Ivan Rutherford and a recitation of "Twas the Night Before Christmas" by Huntsville mayor Tommy Battle, among other highlights.
UAH ranks 14th in the US as measured by NASA-funded research and 19th in the nation as measured by DoD research.
— National Science Foundation

Among the nation’s top public research universities classified as a “very high research activity” institution by The Carnegie Foundation for the Advancement of Teaching.

UAH ranks 13th in the US when it comes to federally financed business and management research.
— National Science Foundation

UAH ranked as the 101st best public university in the nation
— US News & World Report