R·I·T news&events

Rochester Institute of Technology

September 18, 2008

RIT research partnership leads to breakthrough in robotic technology

Robots may be the solution for people with disabilities who are struggling to regain use of their limbs, thanks to a research team of RIT engineers and students.

Researchers in the Biomechatronic Learning Laboratory are studying individuals with healthy muscles to develop a baseline. Afterwards they plan to test their robotic system on patients suffering from muscular dystrophy. The results will be used to enhance the development of orthotics technologies and contribute to the broader field of rehabilitation robotics, including the creation of better prosthetic limbs.

The study utilizes physiological information, or bio-signals, produced by the human body to improve the performance of external assistive devices called orthoses. The orthoses help individuals with physical disabilities (such as stroke patients or those suffering major spinal cord injuries) regain the use of their arms and legs.

The project is funded through the National Science Foundation Computer, Information Science and Engineering Directorate and includes researchers and students from RIT, Georgia Tech and Georgetown University.

A. Sue Weisler | photographer

Edward Brown (back, right) works with several of his student researchers in RIT's Biomechatronic Learning Laboratory. In the foreground is a robotic arm the team will use in experiments designed to assist people with disabilities in regaining use of their limbs.

"The data collected through this project will assist designers and engineers in developing more sophisticated assistive aids for individuals suffering from various neuromuscular diseases and musculoskeletal injuries," explains Edward Brown, assistant professor of electrical engineering at RIT and laboratory director.

Brown adds that people with these types of diseases, such as muscular dystrophy, have extremely weak muscles that waste away over time. These individuals experience difficulties performing simple physical tasks like picking up a cup or holding a spoon. A robotic orthosis that takes advantage of the individual's residual strength and any remaining physiological information in their limbs, such as an electromyographic signal produced in muscles, could ultimately assist muscular dystrophy patients regain significant use of their limbs.

"Better orthotic technologies could ultimately help people suffering from this disease greatly enhance the quality of their lives," Brown says. ■

Will Dube | wjduns@rit.edu

Annual research funding surpasses $48 million for fiscal year 2008

David Bond

RIT's drive toward expanding its research portfolio took another step forward during the recently completed fiscal year.

RIT received a total of $48.5 million in research funding during fiscal 2008, according to Sponsored Research Services. Grants and contracts account for just over $43 million of that total, which is an increase of nearly 7 percent from the previous year.

"Although federal and state agency programs have become significantly more competitive, and many agency research budgets have declined, RIT has continued to grow in several areas," says David Bond, director of Sponsored Research Services.

In a change to reporting procedures on annual funding to the university, this year's overall total includes $4 million in direct federal support for research at NTID. In addition, nearly $1 million in research-focused gifts to RIT have been tallied.

RIT is working to foster more collaboration between colleges to exploit a broader range of funding opportunities. That strategy resulted from the recent formation of a task force led by Donald Boyd, vice president for research. The eventual goal is to grow annual research awards to $100 million. ■

Paul Stella | pbscom@rit.edu

Enrollment hits all-time high in several categories

James Miller

RIT's enrollment is projected to hit an all-time high in several categories this fall.

The estimates are based on preliminary figures and will be finalized later this month, says James Miller, senior vice president, Enrollment Management and Career Services.

Fall enrollment in terms of "headcount" will reach an all-time record of 16,450, up 3 percent from last year. Full-time equivalent enrollment is expected to increase approximately 2.6 percent to 13,450.

"Overall, 2007-2008 has been a very good recruitment year for RIT," says Miller. "With records established for undergraduate and graduate applications for admission, RIT was able to become more selective to increase ethnic diversity in the entering class, increase the number and percentage of women particularly in engineering, science and technology clusters, and meet goals of increasing visibility and enrollment of students from outside the mid-Atlantic and New England regions. These results are consistent with RIT's strategic enrollment goals and a positive reflection of campus-wide efforts."

Here is a breakdown of other figures, starting with undergraduate enrollment estimates:

■ Total undergraduates will exceed 13,750 as a result of increases in both

Enrollment, page 4

Emerging photographers to watch

Photo submitted by Adam Krause

Photo District News *will bring photographers to campus 6:30-8 p.m. Oct. 2 in Webb Auditorium for a free seminar, Transitions: Strategies for the Young Working Photographer. Taj Forer, Adam Krause and Mike McGregor are among the presenters with Holly Hughes, editor of* Photo District News, *as moderator. Above, one of Krause's portraits from a series about the Florida alligator industry. The seminar, sponsored by Veer and Eastman Kodak, is followed by a reception.*

Student Spotlight

Ambassador rolls out the welcome mat

RIT, like any number of college campuses, can seem a bit overwhelming for prospective students and their parents. So what's it take to put them at ease?

"I'll tell jokes or poke fun at myself," states Tiffani Williams, a student ambassador for RIT's Office of Undergraduate Admissions. Williams is frequently among the first people to welcome families during their initial visit to campus. She serves as an escort, pointing out the various facets of college life while showcasing the university's facilities and other resources.

"Basically, I try to help them and provide clarity," she explains. "It's really just providing the information and making sure that they know what's going on. Once you reach that point, they start to feel more comfortable."

Williams was selected as a student ambassador while working as an

Student Spotlight, page 4

A. Sue Weisler | photographer

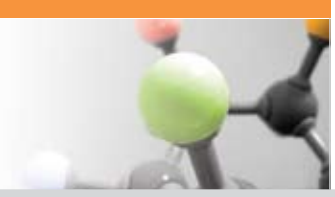
Tiffani Williams jokingly refers to herself as a "trained extrovert." As an RIT student ambassador, her smile and engaging personality help campus visitors feel welcome.

In the community

Winning logo becomes symbol of music, art charity, *page 2*

Research *and* Scholarship

Essay collection explores lives of female scientists, *page 2*



New to campus

RIT appoints new chief information officer, *page 3*

Viewpoints

Reflecting on a trip to the Galapagos Islands, *page 3*

News briefs

Putting the pieces together

Gallery r, RIT's Metro Showcase and Learning Laboratory for the Arts located at 775 Park Ave., will host "The Political Puzzle," a creative mixed media exhibition featuring a visual representation of political viewpoints. The exhibition runs through Oct. 11, with a reception 7-9:30 p.m. Sept. 19. "Anyone attending the reception or stopping by Gallery r are encouraged to write or design a puzzle piece; the work will be added to the growing political puzzle installation on the walls," says Zerbe Sodervick, gallery coordinator. For more information, call 242-9470.

Mud Tug, Sept. 20

The 13th annual Mud Tug will be held noon-5 p.m. Sept. 20 at the Greek Lawn mud pit, east of the varsity athletic field. The tug-of-war competition, hosted this year by Greek fraternities Zeta Tau Alpha and Phi Kappa Psi, brings together RIT teams to help increase breast cancer awareness and raise money for research. For more information, e-mail bxd9202@rit.edu or call (716) 515-8186.

Dean's lecture series

RIT's Golisano College of Computing and Information Sciences kicks off its annual Dean's Lecture Series 1 p.m. Sept. 26 in Golisano College auditorium. Juan Gilbert, a distinguished associate professor in Auburn University's Department of Computer Science and Software Engineering, will deliver a lecture on Computing in the 21st Century: Innovative Solutions to Real World Problems. Gilbert directs Auburn's Human-Centered Computing Lab.

Storytelling conference

A first-of-its-kind conference will discuss how changing technology is affecting storytelling in American Sign Language in the deaf community. The free symposium, Redefining the Literary Expressions of Deafhood: The Impact of the Digital Age, will be held Oct. 3 and 4 at NTID's Robert F. Panara Theatre. The conference will trace the emergence of Deaf/ASL literature and explore its roots in the works of contemporary deaf poets, storytellers, bloggers and video bloggers. Participants should register by Oct. 1. For more information, contact deafnarratives@ntid.rit.edu.

NTID partnership

The Republic of Ireland has contracted with the NTID's Center for Education Research Partnerships in an effort to enhance education for students with hearing loss in the Emerald Isle. The $50,000 contract from the Irish National Council on Special Education will enable the center to make site visits to schools and offer specific recommendations to improve accessibility and the quality of education for students in Ireland. The center works with schools, educators, parents and others to bridge research and real world practice relating to education of deaf and hard-of-hearing students.

Alum designs winning logo for music nonprofit

RIT alumnus Bill Tighe is considered a rock star of graphic design. Well, at least in the eyes of Goo Goo Dolls' Robby Takac.

Takac, bass guitarist of the Grammy nominated rock band, called on the help of a class of RIT senior design students to develop a brand identity for his non-profit organization Music is Art, which promotes and educates music and art in schools in western New York.

Photograph submitted by Lorrie Frear

Bill Tighe, left, and Robby Takac of the Goo Goo Dolls at a July news conference in Buffalo.

The organization ultimately selected Tighe's design concept.

Takac officially unveiled the logo at a July news conference in Buffalo, Takac's hometown and Music is Art headquarters.

"The entire experience has been exciting," says Tighe '08 (graphic design). "I learned so much from working with a real client. Music is Art was open to anything and didn't give us any limitations. As a designer, that was great. When I first saw my logo on a banner I thought 'Wow, I created this.'"

The 16 seniors in the corporate design course, taught by visiting professor Carol Fillip, each developed a logo and tagline, letterhead, business cards, brochures and Web site. The students presented their individual proposals to Takac and members of the Music is Art board of directors in November.

"On behalf of everyone at Music is Art, thanks to Carol and her entire class for the great work on our designs," says Takac, founder and president of Music is Art. "Every one of them was creative and cool, and honestly it was a difficult choice to pick just one. Bill's work stood out for us because it's professional enough for us to use on our grant applications but still captures the cool factor of Music is Art."

Music is Art hosts various programs throughout the year including the Music is Art Festival, which draws 75,000 fans from throughout Western New York and Southern Ontario. A high school awareness tour, an instrument drive and a Teen Battle of the Bands are also part of its community-based program initiatives. ■

Kelly Downs | kaduns@rit.edu

Policy, technology merge in new course

According to experts, the development and application of technologies is the key to social progress. However, the process for making public decisions related to technology is often problematic.

Margaret Bailey

How does a public policymaker properly assess the benefits of funding one technology over another? How will changes to industry and society brought on by new technology be addressed? How will the basic research work of scientists and engineers be calibrated with the current needs of industry, the environment, medicine and society?

These questions are the focus of Engineering and Public Policy, a new undergraduate course created by RIT's College of Liberal Arts and Kate Gleason College of Engineering. The elective class, funded through a Provost Innovation and Learning Grant, seeks to better link technology development with public policies that affect this development and teaches students in both disciplines how to better work together.

Ron Hira

"Technology is the key to solving, or aggravating, society's most pressing problems, whether it is global warming, national economic competitiveness or national security," notes Ron Hira, assistant professor of public policy, who helped develop the course. "However, the proper use of technology is often inhibited by the intellectual gulf between those who shape technology—engineers—and those who make the public decisions that affect societal and economic change—

Course, page 4

A tribute to jazz legends

Submitted photograph

Herb Smith and fellow trumpet player Jon Kruger will perform a "Legends of Jazz Trumpet" concert 8 p.m. Sept. 26 in the Student Alumni Union's Ingle Auditorium to kick off the 2008-2009 Performing Artist Concert Series.

Rod Blumenau (piano), Quin Lawrence (clarinet/sax) and Jeff Campbell (bass) will support Smith and Kruger. They will be joined by vocalist Cindy Miller and host Michael Lasser, from the locally produced and syndicated National Public Radio program Fascinatin' Rhythm.

Tickets are $6 for students, $15 for faculty, staff and alumni and $20 for the public. They can be purchased at the RIT Student Alumni Union Candy Counter or by phone at 475-4121.

Challenges of female scientists explored in new essay collection

No one talks about it much, but if you're a woman scientist, you're faced with it everyday: the challenge of being a serious scientist and an ideal mother. Those who haven't made the choice must decide what they can live with: foregoing motherhood for a career in science or a career in science instead of motherhood, or finding a way to meld the two.

Motherhood, the Elephant in the Laboratory: Women Scientists Speak Out, edited by Emily Monosson and published by ILR Press, is a collection of 34 essays by mother-scientists who share their stories and insights on achieving balance and defining success.

RIT scientist Stefi Baum contributed her insights in the essay, "The Accidental Astronomer," detailing the career and family choices she made at the outset of her career in the 1980s.

Baum is the director of RIT's Chester F. Carlson Center for Imaging Science and co-chair of the new Astrophysical Sciences and Technology graduate program. She has balanced a successful career inside and outside academia with the domestic demands of being the mother of four children.

In her essay, Baum reflects on timing her pregnancies "so as not to be visibly pregnant" during her early job interviews; giving birth to her first child in a small village in Holland while on a joint post-doctoral fellowship with her husband at the Netherlands Foundation for Radio Astronomy; and returning to work only one week after having had her first son.

"Critical to being able to juggle a scientific career and a young family was having the perfect collaborator—a husband who shared all aspects with me from scientific discovery to baby trips to the doctor," Baum says. Her husband, Chris O'Dea, is also an astronomer and a professor of physics at RIT.

As director of the Center for Imaging Science, Baum has sought ways to increase the representation of girls in science and women in academia. She started a series of annual programs with the Girl Scouts of Genesee Valley through the center. Baum is also working with Margaret Bailey, Kate Gleason Endowed Chair and associate professor of mechanical engineering, who won a National Science Foundation grant to increase the participation and advancement of women in academic science and engineering careers.

She also headed the engineering division supporting the Hubble ground systems and supervised 140 engineers, scientists and support staff.

In addition, Baum led the team working on a new instrument to be placed on Hubble called the Space Telescope Imaging Spectrograph. Baum and her husband took the family to Cape Canaveral, Fla., to watch the launch of the shuttle carrying the instrument Baum helped develop. ■

Susan Gawlowicz | smguns@rit.edu

Submitted photograph

Stefi Baum and Chris O'Dea on vacation in Ireland with their children, Brennan, 17, second to left, Kieran, 19, Connor, 20, and Annelies, 16.

Galapagos—The experience of a lifetime

by Deborah Stendardi

This summer, I had the wonderful opportunity to join RIT biology professor Bob Rothman on his annual trip to the Galapagos Islands, a remarkable archipelago off the coast of Ecuador that prompted Charles Darwin's seminal work on his theory of evolution, *The Origin of the Species.* The trip was a long-awaited adventure for me, and it was more than worth the wait. The islands are truly a sanctuary for the many species of birds, tortoises, sea lions, land and marine iguanas and other wonderful creatures of nature that call the Galapagos home. And Bob Rothman is a veritable font of knowledge about the islands and the wildlife that inhabits them.

There were 13 of us on this year's trip, including Professor Rothman, Linda Siple of NTID and her husband, Tom Gibbons, seven RIT students and two other students who were siblings of a couple of the RIT students. We had the opportunity to get to know each other in advance of the trip by taking a weekly class with Dr. Rothman. The class provided us with important information about the history of the islands, its culture, geography, and of course the characteristics, habits and other facts about the amazing array of wildlife that we would have the chance to see up close and personal. Over the course of the 21 years that he has led this trip, Dr. Rothman has assembled an incomparable inventory of photographs that week after week made us anticipate the experience with growing excitement.

We were not disappointed. The trip offered us a bounty of wonder and respect for a place where the wildlife still rules. Most of the islands are in fact inhabited only by the animals and almost the entire archipelago is protected by national park status. Each of the islands that we visited was different, both in the terrain and their endemic species. Most mornings began with an invigorating hike, occasionally on a sandy beach or trail, but more often on volcanic rock or other rugged terrain. Walking the islands, you have to look down not only to stay on your feet, but also to avoid stepping on "critters" such as the lava lizards and iguanas that are well camouflaged into their environments. Balancing on rocks to take photographs was also part of the challenge and the adventure. Our guide, Santiago, was with us at all times, helping us to stay on the designated trails and steering us from protected areas such as the sea turtle nests buried under the sand. But in terms of key facts and information, as often as not, it was Bob Rothman who had the greater depth of knowledge to share with us.

Bob Rothman on an earlier trip to the Galapagos.

Another important part of the experience was living on a boat for seven days. The Samba was our home away from home, with a friendly and helpful crew and great food. We snorkeled with sea turtles, sea lions and the most adorable penguins (one of my personal favorites!). We visited the habitats of the famous blue-footed boobies, waved albatrosses and numerous other beautiful seabirds. We saw the colorful and impressive land iguanas and the fearsome looking, although very benign, marine iguanas. And yes, we spent some time with the giant tortoises which are even bigger and more impressive than they look in pictures. It was truly a trip of a lifetime.

Submitted photograph

Deborah Stendardi, fourth from right, poses with traveling companions and the Galapagos' giant tortoises.

Thanks to Bob Rothman for leading this trip and for making this experience possible for myself as well as Linda, Tom, Carlyn, Lauren, Mike, Kate, Allison, Robbie, Steven, Nicole, and Sonny, and the many others that have had the joy of this adventure over the past 21 years. For those who are interested, it is an experience not to be missed.

Standardi is vice president for government and community relations.

This column presents opinions and ideas on issues relevant to higher education. To suggest an idea for the column, e-mail newsevents@rit.edu.

New philosophy degree now offered

This fall, the College of Liberal Arts has added a bachelor's degree in philosophy to its expanding undergraduate portfolio.

Philosophy at RIT has always been popular among students, who quickly fill all available courses, notes David Suits, a professor in the department since 1977.

Students enrolling in the program will specialize in an area of interest within philosophy and in a separate discipline of their choice outside of the department. Philosophical areas of specialization include cognitive science, science and technology, applied ethics, social sciences and political philosophy, and art and aesthetics. Graduating seniors will demonstrate their competence by writing a thesis integrating philosophy with a field of application.

"The new degree program in philosophy will offer students at RIT an opportunity to graduate not only with a technical degree, but also with one in the humanities," says Brian Schroeder, department chair. "Since philosophy emphasizes critical thinking and writing, it will advantage students with the extra edge in the business world, which an increasing number of employers say they are looking for. We designed the new degree program not only with an eye to specializing in certain areas but also with the option of double-majoring as a priority."

The discipline of philosophy trains students to think clearly and deeply, to identify and examine underlying principles and to argue from diverse perspectives. This training will give students a competitive edge for pursuing further graduate and professional education.

"We're in the business of teaching clear and deep reasoning," Suits says. "We expect the majority of our students will probably not go on to study philosophy at the graduate level. But they will take philosophy skills with them wherever they go."

For more information, visit www.rit.edu/cla/philosophy/PhilMajor.html. ■

Susan Gawlowicz | smguns@rit.edu

'Green' building earns official LEED status

RIT's new College of Applied Science and Technology building has officially turned "green," earning the U.S. Green Building Council's Gold Leadership in Energy and Environmental Design, commonly called LEED, certification.

LEED is the most widely accepted rating system for evaluating sustainable, high-performance buildings and gold is the second highest of four levels of LEED certification. The College of Applied Science and Technology building is only the 16th building in New York state to achieve this level of environmental recognition. It is the second building at a university to earn the honor.

"This type of recognition demonstrates that RIT does not just preach sustainability, we embrace sustainability," says RIT President Bill Destler. "We look forward to continuing to lead the world toward a sustainable future."

The building features unique energy and water-saving design strategies, which include rainwater reuse systems and lighting and climate control systems that reduce demand for energy and water. These systems reduce annual water use by an estimated 70 percent and annual electric use by an estimated 21 percent.

The building excelled in the "Innovation in Design" category, where it was commended for providing sustainable educational opportunities, implementing a green cleaning program and establishing a curriculum that uses the building as a teaching tool.

"Not only will our new building benefit the environment, but the learning that takes place within the building will also benefit the environment for years to come," says Fred Walker, dean of the College of Applied Science and Technology. "That's what makes us most proud."

The 43,000-square-foot building, which opened in April, is home to the college's Department of Electrical, Computer and Telecommunications Engineering Technology and the Department of Civil Engineering Technology, Environmental Management and Safety. ■

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RIT names chief information officer

Jeanne Casares

Jeanne Casares has been appointed RIT's chief information officer, according to James Watters, senior vice president for finance and administration.

"Jeanne thrives in a collaborative work model, and her appointment is a testament to the partnership that has been forged with the academic community," says Watters. "She understands that the priority is to create and maintain a technical infrastructure that supports our academic mission."

In her role at RIT, Casares is responsible for overseeing the information technology services division which includes supporting academic technology needs and deploying enterprise-wide academic and administrative systems, applications, data and telecommunications networks and additional infrastructure, such as academic wireless access and new student information systems.

"I hope to develop a shared vision across the university of how technology can be leveraged to move RIT towards its strategic goals," Casares says. "I also plan to implement a university-wide process, which includes faculty, staff and students, to set priorities for how information technology resources can be best used."

Casares comes to RIT from Paychex Inc. ■

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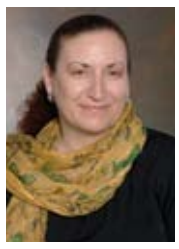
Pluralism, inclusion commission announces two appointments



Michelle Cometa

Kim White

Michelle Cometa has been named 2008-2009 chairperson of the President's Commission on Pluralism and Inclusion. She takes over from Thomas Warfield, who previously held that position. Cometa will continue in her role as communications and public relations manager for Information and Technology Services, while spending half of her time as chair for the commission.

Cometa is also the editor of *Diverse Perspectives*, a quarterly publication focused on heightening the awareness of diversity at RIT.

"Our theme for the year, Reading Between the Signs: Connecting our Communities, is a take-off on the title of the book, *Reading Between the Signs,*" says Cometa. "It is a book used to orient new interpreters to the career of sign interpreting, and, most importantly, to understanding deaf culture. There are distinct signs in American Sign Language that form the rich and unique language of deaf culture. Taken on a broader view, there are distinct 'signs' that symbolize many cultures, ethnicities and communities. Our goal is to recognize the signs of our diverse communities, learn more about them and integrate this learning to better communicate, respect and understand people."

Goals for the 2008-2009 commission team include providing support for the new campus climate study, helping to increase awareness about deaf culture, and finding ways to continue building connections across RIT's diverse campus communities. Additionally, the commission plans to focus on the changing diversity dialogue in response to the current election process—specific to the stereotypes still held about people of color and the role of women.

Kim White has been appointed as director of diversity assessment and research management. White comes to RIT from The New Schools at Carver, Early College High School in Atlanta, where she worked as a research associate, developing survey instruments, data collection, data entry, data analysis and report writing.

White has provided national presentations on high-school reform and educational and health outcomes for grandchildren being raised by grandparents. She has also developed curricula focused on perspectives of human diversity communication, and taught courses on cultural competence and diversity. ■

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Lecture to focus on ethics, sustainability, globalization

Peter Singer will visit RIT to discuss "A Better, More Sustainable World." The lecture—free and open to the public—will be held 2:30 p.m. Oct. 3 in the B. Thomas Golisano College of Computing and Information Sciences auditorium. The lecture will be followed by a question-and-answer session.

Australian-born, Singer is recognized worldwide for his controversial consideration of philosophical topics regarding poverty, environmental ethics, sustainability and globalization. His writings and lectures involve practical application of ethics that pertain to everyday life as well as the future of science and technology. His books include *A Darwinian Left: Politics, Evolution and Cooperation*, *Writings on an Ethical Life* and *Rethinking Life and Death*. Singer's writings cover topics such as poverty, abortion, genetic engineering, euthanasia and collateral damage on the battlefield. He contributes monthly to Project Syndicate, an association of newspapers around the world.

Time magazine named Singer one of the top 100 most influential people alive in 2005. His 1975 book, *Animal Liberation*, was influential in the formation of the animal rights movement. He is Laureate Professor at the Center of Applied Philosophy and Public Ethics at the University of Melbourne. He is also the Ira W. De Camp Professor of Bioethics at Princeton University's Center for Human Values.

The lecture is sponsored by the College of Liberal Arts Honors Program; Wade Robison, Ezra A. Hale Chair in Applied Ethics; Mary Lynn Broe, Caroline Werner Gannett Chair; Golisano Institute for Sustainability; Office of the President; Department of Philosophy; and the RIT Skeptics, a student organization.

For information, contact Larry Torcello at 475-6346. ■

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The resounding 'Spirit of America'

A. Sue Weisler | photographer

The United States Army Drill Team performed Sept. 9 at RIT in the Gordon Field House and Activities Center. The team, in town to perform a "Spirit of America" show at the Blue Cross Arena, took time out of its schedule to give a free performance at RIT. The team demonstrated advanced discipline and rifle manipulation skills. RIT's Tiger Battalion ROTC detachment sponsored the event.

Student Spotlight *from page 1*

office assistant for Co-op and Career Services. Each year, about 50 students help with rolling out the welcome mat to campus visitors, and she says the opportunity to make a positive impact can be very rewarding.

"When a parent says, 'Thank you so much. We're definitely considering RIT now,' that's great—awesome."

"Tiffani is a wonderful asset to RIT," says Colleen Peterson, senior associate director in the Office of Undergraduate Admissions. "She is always ready to help families with her warm and friendly personality, and you can tell she gets energy from being in front of families when talking about RIT."

A native of Rochester and a graduate of The Aquinas Institute, Williams is a fourth-year graphic media major in the School of Print Media. Over the years, she has embraced a wide range of activities offered to RIT students, including membership in Gamma Epsilon Tau, a co-ed graphic arts fraternity.

Williams is particularly proud of her participation with the RIT/NTID Dance Company. A love for the performing arts took root after she enrolled in dance class at age 9.

"I was always jumping around, as kids do," she recalls, "so my parents just decided that maybe I needed an outlet of some sort. In high school, I was probably at the studio five days a week. By the end of senior year I was there everyday, and I was assistant teaching classes for little ones—9- through 11-year-olds. So it's definitely a big passion of mine."

Now, as she looks forward to graduating in May, Williams turns her attention toward potential career options. Not surprisingly, staying connected to the world of higher education offers great appeal.

"That's largely a product of being a student ambassador for three years. I love it—love interacting with families and love the whole college atmosphere."

Williams will pursue graduate studies next year, and she is in the process of evaluating half a dozen schools to study higher-education administration. Her long-range goal is to earn a doctorate degree.

But for now, look for her on campus, sharing stories with curious families and touting the hometown university she loves.

"When you're a student ambassador, it's 'RIT, RIT,' all the time. But it's a lot of fun." ■

Paul Stella | pbscom@rit.edu

Course *from page 2*

policymakers."

For example, Hira notes that only 11 out of the 535 members of Congress have engineering degrees. As a result, policymakers often have distorted views about what technology can and cannot realistically achieve. Similarly, few engineers have any formal training in the policy process. As a result, the engineers shaping the direction of technology often have a distorted view of policymaking, incorrectly seeing it as an irrational process driven solely by ignorance and political influence.

The RIT course attacks these misperceptions by providing students with a better understanding of current trends in technology decision-making and their relationships to the policy and political process. Current high-profile debates such as climate change and high-tech outsourcing are used as examples to amplify these connections. They are analyzed to provide a better understanding of engineering and policy linkages, as well as possible solutions to these problems.

Students are required to work in cross-disciplinary teams to study contemporary policy issues through case studies. In one case, students use multi-criteria decision modeling to examine which alternative fuel vehicle type, including bio-fuels, plug-in hybrids, electric vehicles or fuel cells, warrant government support and subsidies.

The course also serves as an initial primer for RIT's B.S./M.S. degree in mechanical engineering and public policy, where students can complete a bachelor's degree in mechanical engineering and then receive a master's in public policy. The program is believed to be the first in the nation.

"Our goal is to provide students with a greater appreciation for both public policy and engineering issues and concepts, which will assist them in making better technology and policy decisions once they enter the workforce," adds Margaret Bailey, associate professor of mechanical engineering and who is involved in both the course and degree program. "By properly channeling the idealism of this generation's students we can train a new group of leaders who are just as comfortable with the fundamental concepts of thermodynamics as they are with identifying policy goals." ■

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Tracking the path of black holes

A supermassive black hole that has been kicked out of the center of its galaxy after colliding with another has to go somewhere. But finding a massive dark object in intergalactic space is especially challenging if the black hole has left without the glowing disk of gas it wears as a belt and as a signpost.

A paper published in the Aug. 10 issue of *The Astrophysical Journal*, by David Merritt at RIT and colleague S. Komossa at the Max-Planck-Institute in Germany, shows how brightly flaring stars can be used to track evicted black holes.

"It's a very obvious idea," says Merritt, a professor in the Department of Physics and the Center for Computational Relativity and Gravitation. "I think it's just that we were the first to work it out—the idea that black holes would carry stars with it. There's always going to be stars near the center of a black hole at the time it's kicked out. And you don't see the black hole, you see the stars around it.

"We're talking about a strange new object that's never been talked about before. A black hole of millions of billions of solar masses surrounded by maybe a million stars. Almost all the mass is going to be in the black hole."

Merritt conducted groundbreaking research predicting the rate at which gravitational recoil or kick can knock a black hole clear across a galaxy. He published his findings in 2007 with RIT co-authors Manuela Campanelli, Carlos Lousto and Yosef Zlochower.

Building on his earlier discovery, Merritt points to a relationship between the size of the kick and the number of stars a black hole takes with it. "The bigger the kick, the fewer the stars will remain bound to the black hole. If it goes fast, it will leave more behind. If it goes slow, it will take more with it."

The existence of a supermassive black hole is something astrophysicists must infer from the radiation emitted as light and heat by gas and stars surrounding the mass. A belt or doughnut-shaped object known as an accretion disk fuels the black hole.

If the black hole is kicked out of a galaxy with some of its surrounding gas—its fuel supply—it will remain bright until the store of energy is consumed. The limited supply of gas means the black holes' luminosity is finite, and it will shine for, perhaps, a million years—a blip of time in astrophysical terms, Merritt notes.

The case is different when a black hole thrust from a galaxy rips away a million stars on its way out. The black holes' gravity will disrupt the captured stars, which will shoot out flares of light as they are consumed. Merritt and Komossa suggest this event might take place 10 to 20 times as a black hole moves from the center to the edge of a galaxy over the course of a million years.

An ejected black hole bound by stars will appear similar to compact and luminous masses, such as globular clusters (tight knots of stars). Key to differentiating the new objects will be careful observation of the radiation produced when a black hole crushes a star.

Although the signature flares are detectable in ultraviolet and visible light, scientists can best detect the sudden increase in radiation from the stars by looking at X-ray wavelengths. Upcoming X-ray satellite missions making wide surveys of space will likely collect examples of these black holes and their retinue of stars. ■

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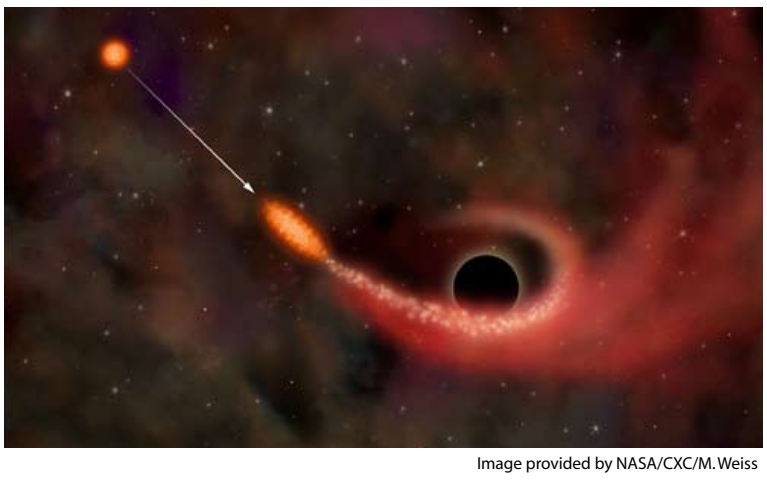

Image provided by NASA/CXC/M. Weiss

A supermassive black hole is about to mangle a doomed star, indicated by the orange circle. Gravity stretches the star and pulls it into the black hole, disrupting the star's mass and tearing it apart.

Enrollment *from page 1*

full-time and part-time students.

- Freshman enrollment at the Henrietta campus in RIT's eight colleges is estimated to increase from 2,514 in 2007 to 2,640 this fall—a 5 percent increase, making it the largest class in RIT history.
- A new record was established for freshman applications received (up 16 percent).
- Geographic origin of the class continues to widen with 53.5 percent of freshmen coming from outside New York state, up from 51 percent a year ago.
- 22.5 percent of the class hails from outside the Middle Atlantic and New England regions, demonstrating RIT's growing national appeal.
- In addition, 275 freshmen will commence their studies at foreign campuses in Kosovo and Croatia. Transfer students total 750, up slightly from 743 last fall. Transfer applications increased by 7 percent.

"RIT's graduate enrollment continues to increase with graduate headcount expected to exceed 2,600. Growth is fueled by an increase of over 7 percent in full-time graduate students to over 1,250. Both are graduate enrollment records," adds Miller.

Other highlights from graduate enrollment include:

- Graduate applications for fall entry increased to a new high, up 8 percent.
- Entering graduate students are expected to number about 1,075—with over 40 percent coming from outside the United States, reflecting the rising visibility and reputation of RIT abroad and the increasing demand for programs RIT offers. ■

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Clarification

A statement by RIT President Bill Destler that appeared in the Sept. 4 issue of News & Events *should have read: "Sponsored research activity grew by 20 percent last year to almost $50 million, not including the $60 million from the federal government we received in support of the National Technical Institute for the Deaf."*