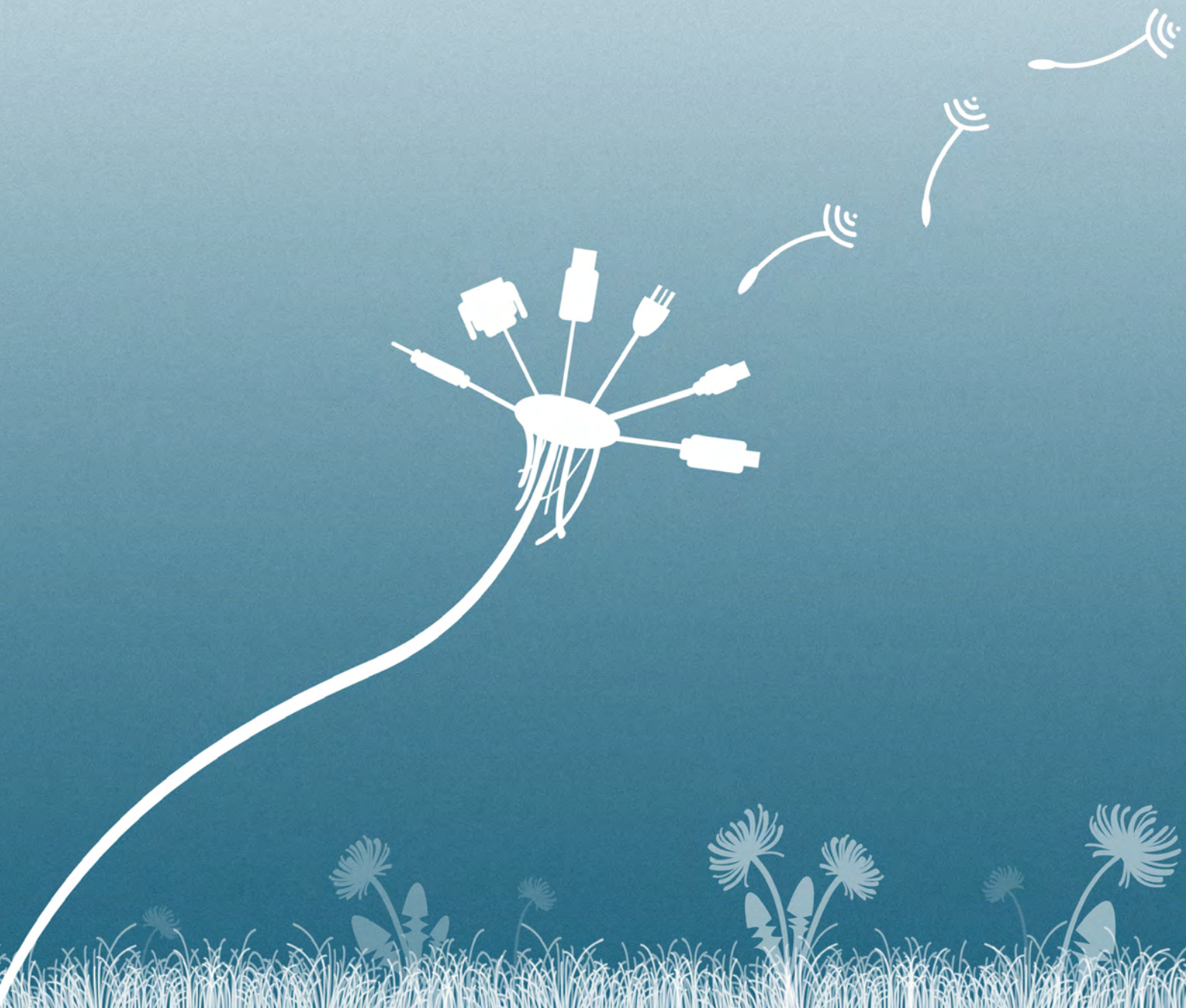
UNIVERSITY of ROCHESTER

Information Technology Annual Report

2010-2011



"As we continue to distinguish ourselves as a research university with a global presence, information technology can be used to strategically advance the University's mission and make our community ever better."

A QR code, short for quick response code, is a two-dimensional code that allows mobile device users with cameras and a reader application to scan signs and publications—such as this one—to access more information. Scan the QR codes throughout this report to learn more about the University's mobile services.

David E. Lewis

Vice President for Information Technology & Chief Information Officer for the University

Building for the Future

On behalf of the University of Rochester's information technology community, it is my pleasure to present the 2010-2011 Annual Report on Information Technology (IT). This year, the University launches its largest capital campaign since 1924. As we build for the future, information technology will continue to play an important role in furthering the University's mission to learn, discover, heal, create, and make the world ever better.

In March 2011, eRecord went live at Strong Memorial Hospital, followed by Highland Hospital in June. These two milestones mark the ongoing success of the largest information technology project the University has ever undertaken. This integrated electronic medical record system feeds into the Rochester Regional Health Information Organization (RHIO) and advances the Medical Center's goal of having "one patient, one record, one system."

The Center for Research Computing continues to accelerate and evolve research through high performance computing, allowing researchers to analyze large quantities of data and study complex scientific problems. Faculty researchers using these resources brought in a total of nearly $80 million in grants in FY10.

The new East Wing of Eastman Theatre that opened in December 2010 is a shining example of how thoughtful integration of technology into building construction can enhance both audiences' and performers' experiences. Its cutting-edge music studios and performance halls are designed to best showcase and capture performances, enabling artists to focus on honing their craft.

This year's Annual Report highlights the community's need for timely access to information on the go through the use of mobile technologies, such as the new mobile applications from River Campus Libraries and the Memorial Art Gallery. To further support this need, wireless networks continue to expand in conjunction with the University's growth.

In the midst of this growth, a University-wide network of Information Security Liaisons was implemented in January 2011. These liaisons work closely with the University and Medical Center Information Security and Privacy Officers to improve communication, expedite the implementation of key information security initiatives, and help evaluate areas of risk and compliance across the University.

As stewards of the University, we strive to facilitate the work of students, faculty, clinicians, and staff alike through the efficient and innovative use of technology.

Meliora,

Supporting the Mission

Modern Technology Transforms Classrooms

Numerous classroom technology enhancements completed this year are built for the future.

A "classroom within a classroom" emerged from a reconfiguration of Harkness 114 to accommodate a special need for a simulation program for the Navy Reserve Officers Training Corps (NROTC). The development and installation of the hardware and software was made possible by an integrated collaboration between the NROTC unit and the University.

A "smart" lab was created for organic chemistry courses, which includes a cutting-edge wet lab. The new fume hoods are ductless, making them more energy efficient as fans operate only when needed. These fume hoods are also networked, which allow for remote monitoring so alarms can be triggered if there is a problem. This is the first of several modernized labs planned for the next few years.

The former copy center in Meliora 210 was transformed into a computer lab and classroom. This will serve as an additional classroom to reduce scheduling constraints.

In just one month, an undergraduate computer lab was renovated top to bottom. The number of workstations doubled to 50, with more than 40 applications for Arts, Sciences and Engineering. Other enhancements include an audio/visual system and an instructor station with a computer and touch panel control system to manage the room's lighting, sound, and displays.

"The Mariner Skills Simulator will significantly improve the quality of naval science instruction while affording full use of the facilities by other University departments."

Capt. Jeff Bartkoski, '12S
Commanding Officer of NROTC Rochester

NROTC students receive state-of-the-art training with the new Mariner Skills Simulator. Students can view the bridge, navigational readings, sonar, and radar of multiple simulated ships—including submarines, destroyers, and commercial vessels—in real time amid different weather conditions. Pictured above, University President Joel Seligman; Rear Admiral Gretchen Herbert '84, Commander of Navy Cyber Forces; and Captain Jeff Bartkoski '12S, NROTC Rochester Commanding Officer and Professor of Naval Science, participate in a demonstration of the Naval simulation program.

Simulation Prepares Nursing Students

Nursing students at the University gain hands-on experience before stepping foot into a hospital. The simulation lab in the School of Nursing is set up like a real patient room, only the patient is a high-fidelity mannequin.

The newest computerized mannequin is more lifelike than ever with enhanced abilities to simulate medical conditions and respond to treatments. Its eyes dilate and its tongue can discolor to indicate oxygen deprivation. It also offers more places to check blood pressure and more advanced lung and heart sounds that can be heard through a standard stethoscope.

Simulation offers interactive learning opportunities for psychology courses too. Rather than bringing in actors to portray patients, faculty can now use microphones to project their voice through the simulated patient and engage with students live in a realistic setting.

Faculty are working with nurses in the Medical Center to design more simulation scenarios this year.

In the School of Nursing's simulation lab, a computer station adjoins the patient room and allows professors to monitor students' sessions. The lab is equipped with four cameras to record sessions, which faculty can review in follow-up classes to offer students feedback on clinical skills and bedside manner. Students also receive a copy of their sessions on thumb drives to review outside of class and practice preparing patient notes.

UR Mobile, first launched in May 2010, gives quick access to the University website's frequently used features, such as news, events, maps, directories, athletics, and course descriptions and schedules. Future updates will provide hours for popular campus venues and bus locations. This fall, the application will integrate Mobile Learn, giving students two-way access to course materials on the go. Students can view grades, post to discussion boards, and read class documents, while faculty can post announcements. Mobile Learn will soon be extended for access across cellular data networks and from additional devices.

River Campus Libraries' new mobile services enable students, faculty, and staff to connect to the libraries from anywhere, anytime. The mobile website provides immediate access to information such as library hours, locations, and phone numbers. While browsing the stacks or researching off campus, users can easily search the library catalog, renew books, and check fines from a convenient, mobile-friendly interface.

Virtual Space Promotes Digital Humanities

The Digital Humanities Center is a collaborative virtual service in Rush Rhees Library that promotes digital humanities initiatives by serving as a clearinghouse for information and a partner for University groups engaged in interdisciplinary research. The Center integrates digital technologies such as data analysis tools in teaching, learning, and research. It also supports the preservation and accessibility of digital and web-based scholarly activities. Digital humanities uses the framework of humanities research to extend scholarship about the effects of technology on human systems and pedagogy.

Joint Effort Tackles Need for Health IT Professionals

The University of Rochester and Rochester Institute of Technology have joined forces to bolster two crucial elements of health care reform in the United States—the widespread application of information technology to health care and the adoption of electronic health records.

The two institutions have combined their strengths in technology and health care to create a joint master's degree in medical informatics. It is the first time that the universities have collaborated to offer a joint degree program. Students will gain a robust knowledge of medical practice by shadowing physicians, rotating through medical specialties, and completing class projects that showcase the student's ability to creatively use technology to improve the practice of medicine.

"In the history of modern health care, there has never been a greater need for health and information technology professionals, and this new program aims at providing excellent training for just those people."

David A. Krusch, M.D.
Director of Medical Informatics
Chief Medical Information Officer

Discover

High Performance Computing Speeds Research

The Center for Research Computing (CRC) now has more than 450 users and 135 faculty sponsors from 30 departments and centers across the Medical Center and River Campus. Since its establishment in 2008, the CRC has completed more than 1.1 million computational jobs using over 100 million CPU hours on our IBM Blue Gene/P supercomputer and BlueHive Linux cluster. This program promotes faculty recruitment and retention, positions the institution for new funding opportunities, and, most importantly, helps advance scientific research and the University's place among the best research universities in the country.

Steven R. Gill, Ph.D.
Microbiology and Immunology

Research Interests:
Bacterial pathogens and the human microbiome

"With access to the CRC resources, we will be able to expand our experimental approaches and develop new tools for data analysis. By collaborating with CRC staff, we are able to explore additional grants and funding resources to grow our research program."

Helene McMurray, Ph.D.
Biomedical Genetics

Research Interests:
Gene interactions' effects on both cancerous and normal cells

"Access to the BlueHive parallel computing cluster through the CRC provides the capacity to run our analyses, enabling a critical aspect of our work. Without this resource, we simply could not do these types of experiments. Further, the staff of the CRC has provided essential support."

David A. Dean, Ph.D.
Pediatrics and Neonatology

Research Interests:
Mechanisms of gene delivery for gene therapy of lung diseases

"The use of the CRC's computational resources for creating 2-D and 3-D models has provided us with a way to validate our experimental data. This approach will allow us to demonstrate that our gene therapy technique is effective and safe to treat humans."

Laurel H. Carney, Ph.D.
Biomedical Engineering, Neurobiology & Anatomy

Research Interests:
Neural mechanisms underlying the perception of complex sounds

"With the help of the BlueHive cluster, we are able to speed up our model programs, especially for the physiological models which consume a large amount of memory and time. . . . It is much more efficient to use the BlueHive cluster than a PC."

Undergraduates and IT Leaders Meet at Summit

A group of undergraduates from Arts, Sciences and Engineering gathered with IT leaders from across the University for the first Student IT Summit in October 2010. "We wanted to create more meaningful engagement with students and get their feedback for improvements in the future," explained David E. Lewis, Vice President for IT and Chief Information Officer.

Representatives from the Student Association shared their thoughts on a range of topics, including the student portal (my.rochester.edu), UR Mobile, classroom technology, public computing, wireless services, information security, and the IT Center.

Both students and IT staff found the Summit valuable. Associate Vice Provost Eric E. Fredericksen, Ed.D., who helped organize the event, said, "We are genuinely interested in what students think about IT. We want to continue to learn how to best serve their IT needs."

> **"On many occasions, our collaborations have resulted in very tangible improvements for students. It's a real joy to see how thrilled students are with the outcomes."**
>
> **Bradley Halpern '12**
> *Student Association President 2011-12*

Grant Supports Music Digitization Program

Sibley Music Library of the Eastman School of Music was awarded a second National Endowment for the Humanities Preservation and Access Award in May 2011 to support its continuing efforts to digitize rare and unique music scores in the public domain. The $300,000 grant will support the digitization of 9,500 more scores through September 2012. Since receiving its first grant in March 2009, the Library has digitized more than 11,000 scores and books, which have become a significant source of music for scholars and musicians around the world.

Digital Medical Records Go Live

The single largest IT project that the University of Rochester has ever undertaken has been realized with the launch of eRecord, the Medical Center's new electronic medical record (EMR) system. With initial rollout to inpatient units, emergency departments, pharmacies, and outpatient oncology, eRecord went live at Strong Memorial Hospital in March 2011. Highland Hospital went live in June.

eRecord will create a single, integrated EMR shared by the University's entire medical enterprise. David A. Krusch, M.D., Chief Medical Information Officer and co-director of the eRecord project, says the system will "close the loop" in clinical communication by giving all caregivers a comprehensive view of a patient's medical information. This will ultimately improve patient care by streamlining workflows and eliminating duplicate testing and transcribing.

> **"eRecord is the centerpiece of our plan to improve patient [care] quality and safety."**
>
> **Bradford C. Berk, M.D., Ph.D.**
> *Medical Center CEO*

eRecord is robust: the entire system is backed up twice to decrease the likelihood of service disruptions and outages. Berk said this $78 million project "aims to bring the Medical Center's health IT infrastructure on par with that of the nation's top academic medical centers."

Launched in conjunction with eRecord is a secure web portal called MyChart, available initially to oncology patients. MyChart allows patients to view parts of their records, such as medications and lab results.

eRecord also feeds into the Rochester Regional Health Information Organization (RHIO), a secure, electronic exchange that connects data from more than 20 local health care organizations and supplies authorized medical providers with unified virtual patient records.

Ambulatory practices are scheduled to integrate eRecord by summer 2012. Additional departments, including radiology, anesthesiology, and transplant services, will migrate in the next three to five years.

More than 8,000 clinicians who will use eRecord began training in January 2011. Classroom training sessions—running 12 to 15 hours per day, 6 days a week, and led by 45 trainers—familiarized users with the system's features and navigation.

Videoconferencing Promotes Geriatric Health Education and Research

The Greater Rochester Nursing Home Quality Consortium awarded the School of Nursing a $300,000 grant to establish a 24-port video-conferencing system in rural nursing homes in the Greater Rochester area. Educators and caregivers can now connect virtually and collaboratively explore process improvement methodologies. For instance, nursing home residents who have been treated and released from a hospital have a high rate of return to the hospital; the new videoconferencing capability allows nurses at the Medical Center and nursing homes to research what factors lead to that return, such as commonalities in medications, levels of care, and nurse-to-patient ratios. The system also will promote rural health education and eliminate travel costs, allowing students to watch live demonstrations of how to conduct rounds and care for geriatric patients.

Telemedicine Program Performs 10,000th Visit

Health-e-Access has held more than 10,000 telemedicine visits since it began in May 2001, remotely connecting 8 doctors' offices with more than 100 childcare centers and schools. Telemedicine provides more cost-effective, convenient healthcare—more than halving absences due to illness among children.

The program also offers routine care for children after hours and on weekends, pediatric dental screenings, and health services to residents of senior living communities.

A recent expansion serves uninsured adults and the local refugee population. Pilots are underway for pediatric behavioral health visits and, in collaboration with international relief organizations, programs to support countries, such as Haiti, with profound health problems and severe physician shortages.

"**I think we have made great strides in the past decade in using 21st century information technology to enhance access to high quality health care, but we see more opportunities to help families in the future.**"

Kenneth McConnochie, M.D., M.P.H.
Director of Health-e-Access
Professor of Pediatrics

Create

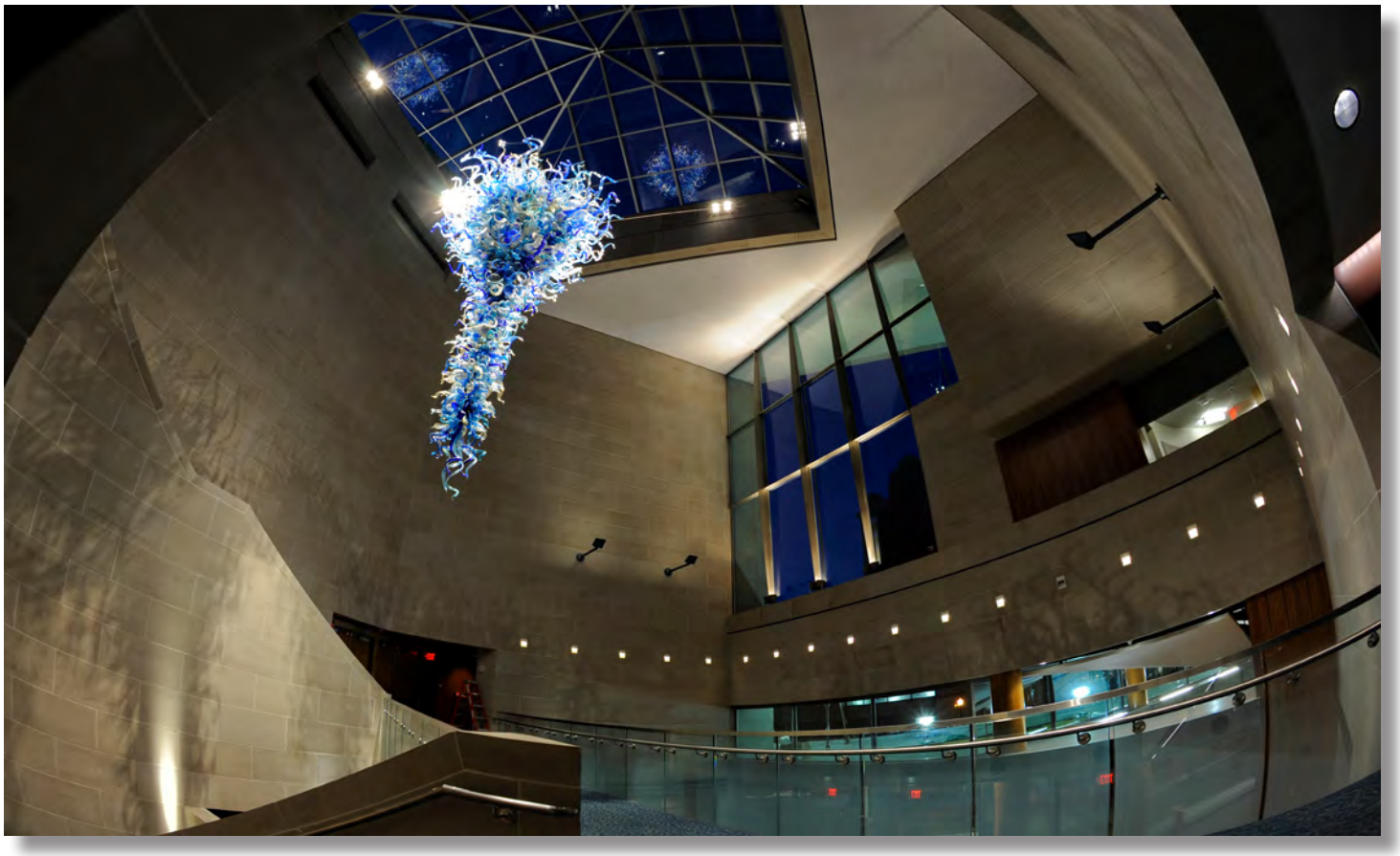
Music School Ready for the Future

The new East Wing of Eastman Theatre opened in December 2010 and went into full day-to-day operations in the spring, with recitals, live and virtual master classes, workshops, and presentations in Hatch Recital Hall. The addition is equipped with $750,000 worth of the latest technology for music recording and Internet streaming.

Feedback from students, faculty, staff, and visitors has been consistently positive, with consensus that the extraordinary acoustics and sound isolation in the Recital Hall inspire performers and engage audiences to share particularly intimate, immersive musical experiences. The orchestral, wind, and percussion ensembles have enjoyed the space and freedom to play in the Rehearsal Hall.

The high bandwidth available through Internet2 makes master classes with international music conservatories a reality.

> **"I could see Frøydis's face smiling back at me all the way from Norway, and she had some great suggestions. . . . I felt I learned a lot that I hadn't known before. It was great to have the opportunity to meet her on screen."**
>
> **Emily Schroeder '11E**
> *Participant in master class with Norwegian hornist Frøydis Ree Wekre*



The new control room in the East Wing is equipped to record performances with professional-grade audio and video. The Technology and Media Department has also been refining the high-resolution audio recordings, DVD production, and high-definition projection and videoconferencing that are now possible throughout the building. Both in-house and commercial recordings by faculty and students are planned for the coming year.

The enhanced technology in Eastman East Wing will soon be pushed further, with professional recordings by faculty and students, multi-site Internet2 events featuring artists and audiences connecting from five continents, conferences, and simulcasts. Live web streaming could have practical applications for students who hail from out of state or other countries by giving parents the opportunity to watch their children perform in real time.

The successful combination of cutting-edge performance and communications technology, integrated within aesthetically pleasing artistic spaces, means that this building will bring the next generation of music and media production to current and new audiences.

> **"Musicians in this generation are looking for ways to connect music with more than just the concert hall, and their relationship with technology, especially as it applies to how they create and recreate music, is evident in all of our lives."**
>
> **Douglas Lowry**
> *Dean of Eastman School of Music*

The Memorial Art Gallery is currently developing a mobile application to enrich visitors' experience with pieces in the Gallery's permanent collection. Scheduled for release in fall 2011, it will focus initially on art of the ancient world, Islam, Asia, and Medieval and Renaissance Europe. Plans are to work with local middle and high school teachers to later integrate the application into the Gallery's school tour program.

And Make the World Ever Better

Internships Prepare Students for Technology Careers

Now in its fifth year, the University's information technology internship program has hosted more than 60 students in four internship opportunities: Hillside Work-Scholarship Connection; the High School Internship Program, a collaboration with the Rochester City School District; Explore Rochester IT, a collaboration of Rochester-based Chief Information Officers; and the College Summer Internship Program—an 11-week, project-focused experience.

In each program, students can apply their knowledge to real world projects, gain valuable experience, and learn from more experienced team members. A cohort-based approach exposes interns to a broader range of activities and helps them develop a peer network.

There are many benefits for the University as well. Real progress is made on projects where students' skills and creativity count. Interns this year contributed to departmental website updates, an admissions application rewrite, and the design and implementation of data visualization tools.

Primary recruiting is focused on colleges and universities in Greater Rochester, so the community also benefits from a program that finds great local IT opportunities. To date, 20 percent of students have continued to work in areas across the University after the internship period ended, and 10 percent have become full-time employees.

The Memorial Art Gallery launched a cell phone tour in February 2011 for visitors who are blind or visually impaired. The detailed verbal descriptions of ten favorites in the Gallery's collection were developed with guidance from ABVI-Goodwill and experts in audio description. Historical and interpretive details are the focus of other cell phone tours, so the suite of audio tours provides visually impaired visitors with a fuller experience. The tour is also available online and in Braille.

High school and college students learn to become future young professionals through shadowing and cohort-based programs. The internships attract a highly qualified and distinctive pool of students—250 resumes from students at nearly 50 institutions were received for 17 openings in the college internship program this year.

Virtual Music Classes Open to the Public

Since 2001, the Eastman School of Music has held more than 50 virtual master classes with faculty and staff from universities around the world using Internet2. For the first time in December 2010, a master class was held in front of live audiences in both Rochester, New York, and Oslo, Norway, six time zones away.

An audience of about 100 watched horn and voice students and faculty from the Eastman School and the Norwegian Academy of Music work together in a showcase master class event that was free and open to the public.

The event was part of a weeklong celebration of the grand opening of Eastman East Wing, including Hatch Hall (pictured at right), which has interactive high-definition capabilities for sharing performances and teaching internationally.

"**Given the cost of travel, this technology will become more prevalent in the future. I would imagine that other institutions and organizations in the region may wish to access this opportunity and technology that Hatch Hall can now provide."**

Peter Kurau
Professor of Horn
Eastman School of Music

Corporate-Nonprofit Collaboration Benefits K-12 Schools

The University and Microsoft Corporation cohosted a technology innovation program for trainers of kindergarten through twelfth grade educators from city school districts in upstate New York. More than 50 trainers participated at no cost to them. Held in June 2011 at the Margaret Warner Graduate School of Education and Human Development, the program helped address the high demand for technology training in local school districts, where tools, skills, and software are critical components of effective teaching and learning in the classroom.

Enabling Systems

OASIS Expansion a Building Block for Advancement

During the past year, Advancement has been one of the top priorities as the University moves toward the public announcement of the largest capital campaign in its history at this October's Meliora Weekend.

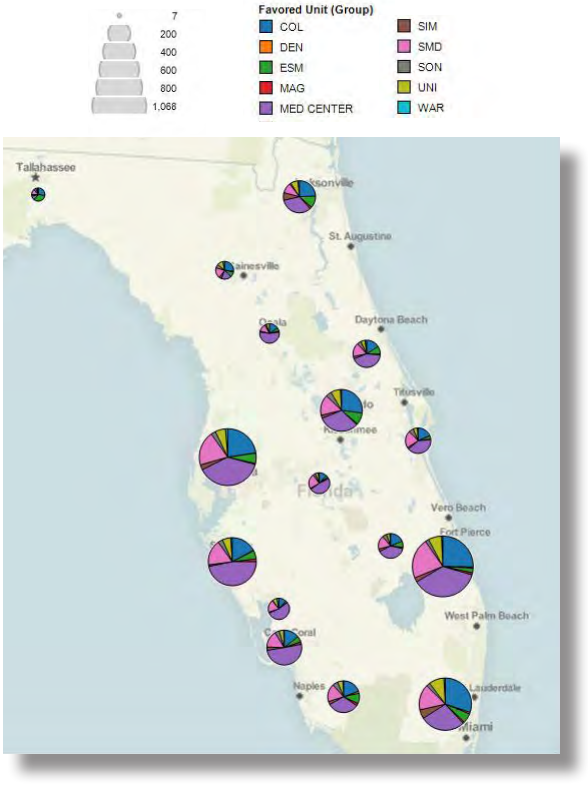
To support the expansion of the existing reporting capabilities in the Office of Advancement Strategic Information System (OASIS), a series of targeted enhancement projects were completed. These achievements demonstrate significant progress toward the goal of enabling more comprehensive top-level analysis. Enhancements are expected to be ongoing.

Among the campaign-related projects that will have the most impact was the creation of a new reporting framework designed to sustain efficient reporting of secured cash and commitments and to improve the consistency of measurements and report format.

A data visualization tool was introduced into OASIS to assist Advancement leadership in interpreting data trends graphically and to more easily present meaningful information to constituents. The image at right shows the number of donors and favored areas of giving by city.

"The addition of new database and analytical tools to our reporting suite significantly enhances Advancement's ability to analyze data and to prepare for the upcoming campaign."

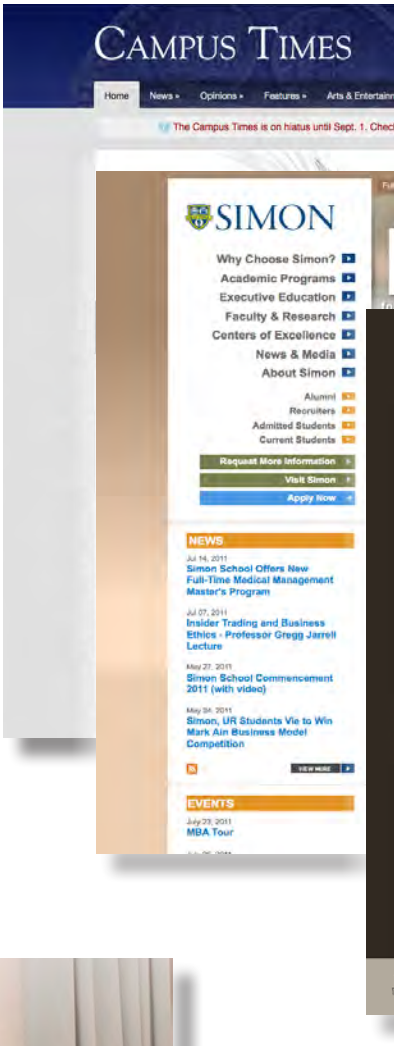
Joseph Meister
Associate Vice President for Advancement Services



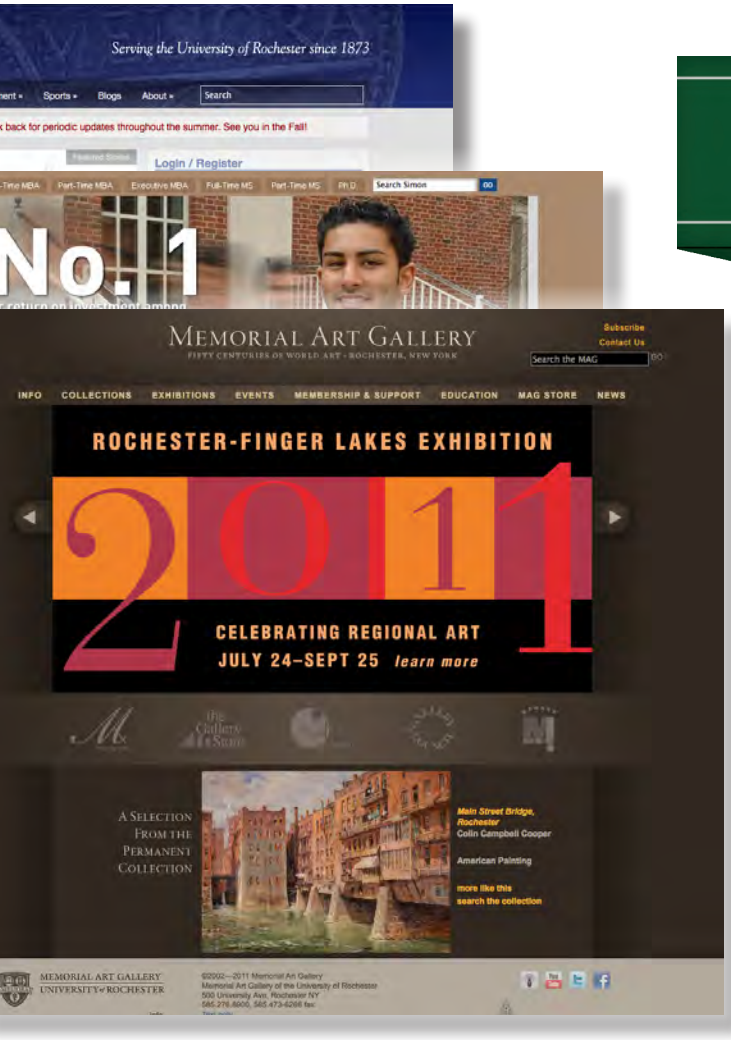
The Meliora Moments project debuted in March 2011 at meliora.rochester.edu. This interactive website invites the entire University community to share the moment or moments that made them "ever better." More than the University's motto, Meliora unites us in its powerful description of who we are, what we value, and how we live. All alumni, students, parents, faculty, staff, and friends can submit their Meliora Moment in their own words and photographs using an online form. The collection of more than 100 personal vignettes to date reflect the spirit and diversity of our community.

On-Campus Studio Broadcasts Live Interviews

Television reporters now have a way to get University experts' commentary on timely news stories, developments in education, and the historical context of modern discoveries and events. The University's newly commissioned broadcast studio is located in the William E. Simon Graduate School of Business Administration. Equipped with a broadcast lighting grid, Skype connectivity, and video recording technology—which was made available through a satellite uplink service provided by WXXI-TV—the studio can televise both live and recorded interviews. A robotic camera inside the studio is operated remotely from a broadcast center.



Now available is a suite of redesigned mobile applications for Futurity—a website hosted by the University that features the latest research news from sixty top universities in the United States, United Kingdom, and Canada. Its more interactive interface has the ability to display videos and connect with popular social media sites. Android, iPhone, iPad, and Blackberry devices are currently supported.



Event Sells Out in Minutes Online

It took less than five minutes for more than 4,000 registrants to reserve seats online to hear CNN Medical Correspondent Dr. Sanjay Gupta's keynote address on medicine and media during Meliora Weekend last fall. Ticket sales for hundreds of events during the annual celebration of class reunions, Homecoming, and Family Weekend were facilitated by a newly improved online registration system.

Three Websites Garner Awards

The Memorial Art Gallery and Simon School of Business won top honors in the nonprofit (cultural) and education categories, respectively, taking home *Rochester Business Journal*'s Best of the Web awards in March 2011. The Gallery's redesigned website features online shopping and improved graphics and navigation. Simon School's new website boasts enhanced navigation, visual design, and integration of social media. The University's student-run newspaper was also honored with two awards in the annual Student Society for News Design contest held by the University of Missouri School of Journalism in May. *Campus Times* won first place for redesign of a news website and honorable mention for home page design of a news website.

Video Editing System Enhances Football Training Program

Daily operations of the University's football program are supported by a cutting-edge video editing system. DV Sport DigitalReplay allows coaches to digitally record practices and later view and edit the film.

This tool helps coaching staff manage their team training by allowing them to analyze plays and create clips for review with players to ultimately improve the team's performance.

The team uses the video system throughout the season, even when they travel for away games. It is hosted on a secure, private network that the coaches can access via laptops, so they can continue using this valuable teaching tool while they are on the road.

"**DV Sport is just another example of technology being used at all levels across this campus. This system demonstrates the importance of technology and its role in keeping our University running at a very high level."**

Scott Greene
Head Football Coach

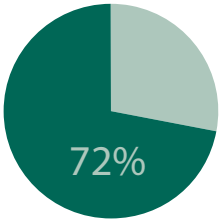
Busy professionals around the world now have instant access to the latest news, faculty research, social media, alumni directory, job postings, degree programs, and lectures at the Simon School. These new additions are part of a mobile application suite for iPhone, iPod Touch, and Android. The Android application was created with the help of alumnus Sean Flaherty '03S.

IT News Site Unveiled

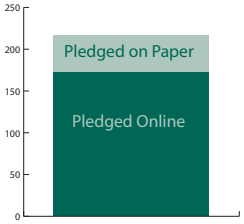
Readers can stay "Plugged In" to IT news at the University through an online newsroom that went live in March 2011. The site features interviews with University community members in a quarterly Colleague Spotlight, and guest writers contribute different views of technology in IT Perspectives. The latest news, upcoming events, and video tips keep readers informed. Site enhancements, such as subscription options and a searchable archive, are planned for the coming year.

Visit www.rochester.edu/it/news.

Donors Using ePledge



New Pledge Donors



Record Online Donations for United Way Campaign

Pledging in the University's 2011 United Way Campaign was easier and greener than ever with the integration of the continuous pledge option into ePledge, the secure online donation system. For the third year in a row, the University exceeded its fundraising goal of $1.3 million and the previous campaign's total by raising $1,409,452!

Pharmacy Offers Online Payment, Delivery Services

The University's Employee Pharmacy—located within the Medical Center and exclusively serving University employees, retirees, and their families—is offering more convenient services. Introduced in January 2011, a new application allows faculty and staff to pay for their prescriptions online by debit or credit card. With prepayment, employees can now opt for delivery to select office locations, including River Campus, Eastman Campus, Corporate Woods, Brooks Landing, and Clinton Crossings.

As part of the University's ongoing sustainability efforts, all materials for the Board of Trustees that were once delivered in print are now available electronically in a mobile-friendly version of the Board's working site. Meeting information, the Board directory, committee materials, calendars, and archives are all available through an affinity URL, which is shorter for ease of use on mobile devices.

Solidifying Infrastructure

Information Security-Privacy Liaison Network Created

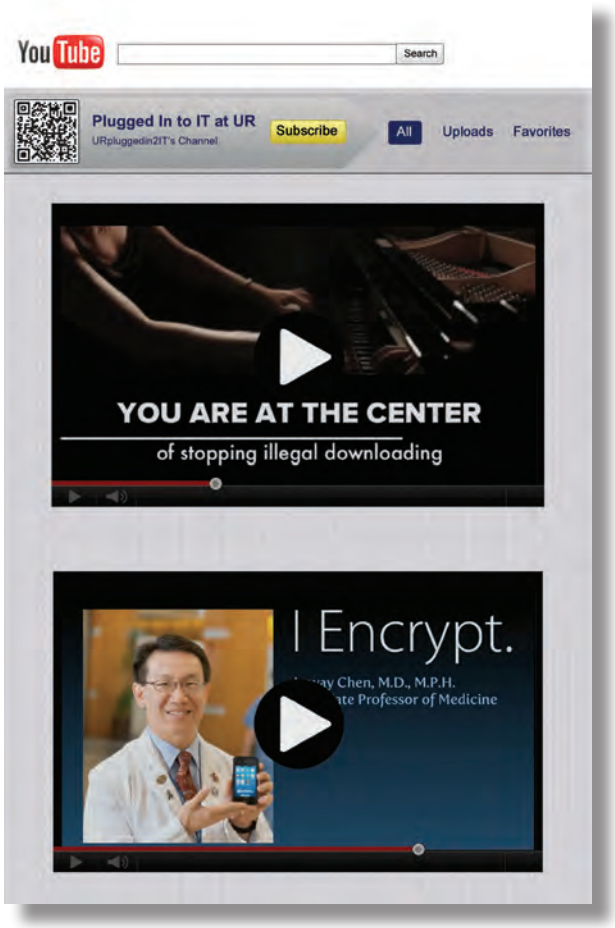
To help expedite the implementation of key information security initiatives, employees from major units across the University have been selected to serve as information security liaisons. The network of security liaisons will work with the University's chief information security officers to help evaluate and improve areas of risk and communicate any necessary changes that will affect employees.

The Medical Center has also appointed privacy liaisons to work with its chief privacy officer. The Medical Center is leveraging its existing network of HIPAA security officials and privacy officers for these efforts.

Since its creation in January 2011, the liaison network has already proved effective, quickly communicating information to users throughout the University's multiple campuses. Liaisons also have been engaged in distributing software and providing input about the annual security awareness campaign.

The University adopted a mobile device security standard in June 2011 that identifies three security features as minimum requirements for mobile devices owned or operated by the University or its staff: (1) password protection, (2) encryption, and (3) inactivity timeout.

Four U.S. Secret Service agents visited the University in April 2011 to discuss how to protect digital resources. Organized by the University's Data Security Task Force, the seminar's emphasis was on creating strategic alliances and combating electronic crimes through prevention, education, and investigation. Many information security and privacy liaisons attended to learn more about cybersecurity.



This year's security awareness and education program continued its focus on the message that every individual is responsible for information security, using the tagline "You are at the center of secURity." Senior leaders throughout the University appeared in posters and videos modeling secure practices. The purpose of this approach is to personalize the message for University community members by featuring individuals they readily identify.

Saunders Research Building Wired for Success

The 200,000-square-foot Saunders Research Building opened in April 2011 and is the new home of the Clinical and Translational Science Institute (CTSI). It was designed to encourage collaboration among University researchers to quickly turn research into clinical testing, and clinical testing into safe, approved treatments for patients.

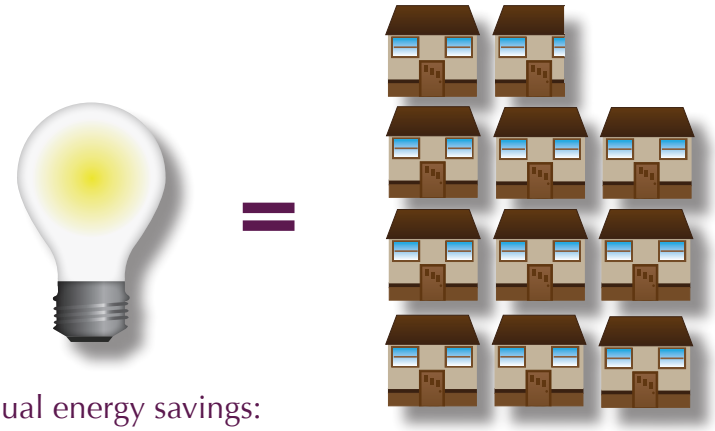
Technology was integrated into building construction from the ground up. Communication equipment rooms on each floor serve as hubs for network and telecommunications services. Extension of the fiber network and telecommunications infrastructure supports more than 1,500 voice and data devices, wireless services, and networks that control monitoring and various security systems. The building's modern conference rooms are also fully equipped to support voice and network services.

Ongoing technology support and enhancements will ensure that the building continues to meet the needs of researchers and advance scientific collaborations.

> **"Researchers increasingly understand the need to connect with IT professionals for guidance in employing technology to gather, store, manage, and analyze the growing quantities of data."**
>
> **Thomas T. Fogg, M.S., M.P.H.**
> *Executive Director for Operations, CTSI*

Data Center Honored for Energy Efficiency

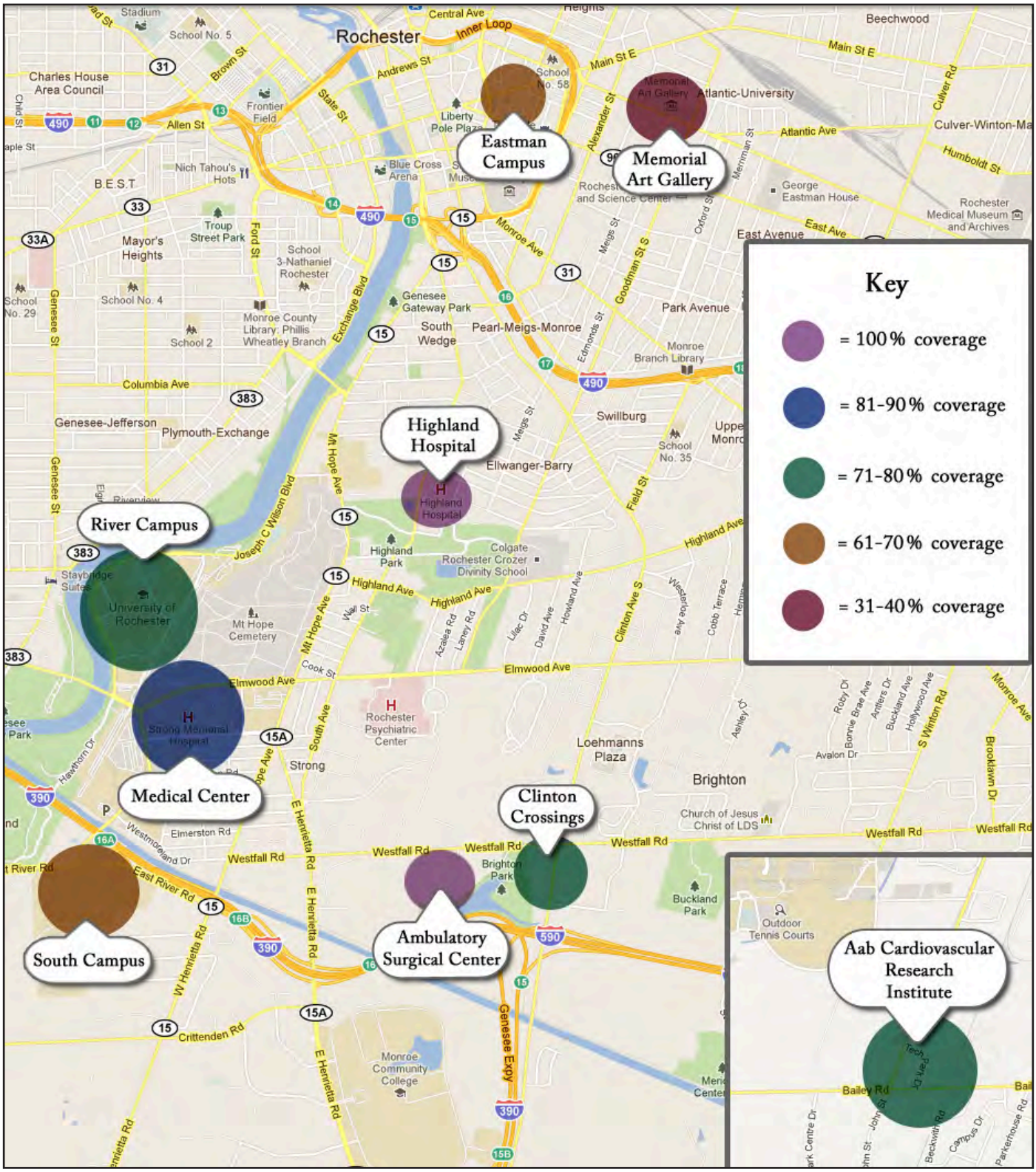
The New York State Energy Research and Development Authority (NYSERDA) recognized the Data Center as a High Performance Building. The University's energy-saving investments have reduced energy costs by $101,000 annually. The Data Center is rated to perform 42 percent above code, thanks to sustainable features such as a building management system to optimize systems efficiency and a cooling system that takes advantage of Rochester's moderate climate.



Annual energy savings:
745,000 kilowatt hours

= energy consumed by
10 single-family homes

Wireless Network Coverage Expands on Main Campuses

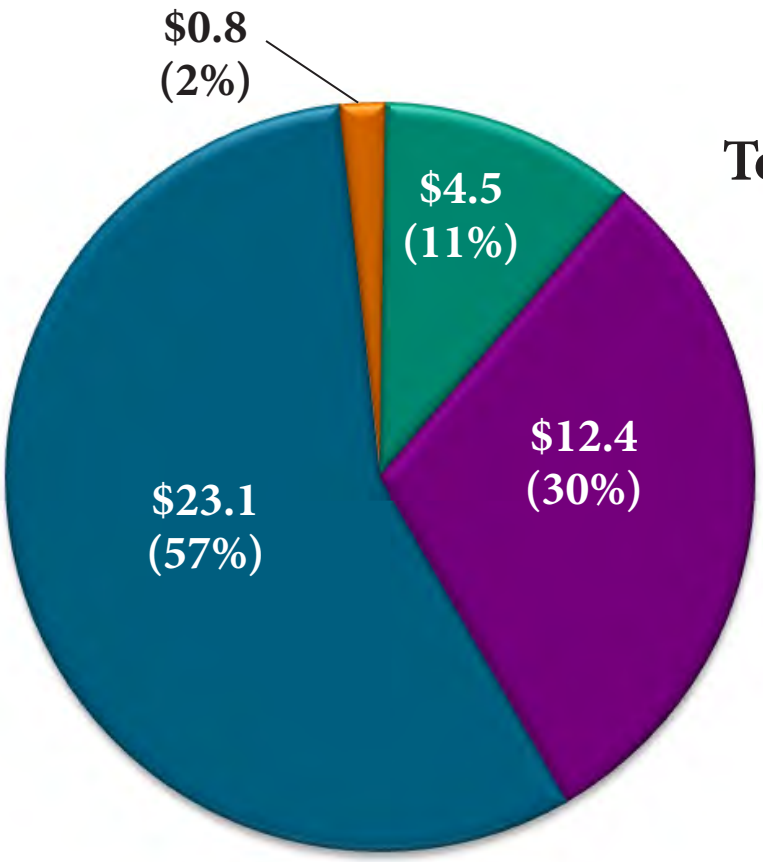


Over the past 18 months, the wireless network has expanded considerably in response to student feedback and the University's continued growth. Between April 2010 and June 2011, wireless coverage was extended to several buildings on River Campus, more residence halls, shared spaces and common areas, the Eastman School of Music, the Memorial Art Gallery, and the new Saunders Research Building in the Medical Center. More is planned for the next three years.

University-Wide

Annual Payroll for Staff in IT Job Codes by Division *

Fiscal Year 2011
$$ in Millions



Total: $40.8M

- Strong Memorial Hospital/Faculty Practice
  School of Medicine & Dentistry
  School of Nursing
- University Central Administration
- Arts, Sciences and Engineering
- All Others: Simon, Eastman, Warner, and Memorial Art Gallery

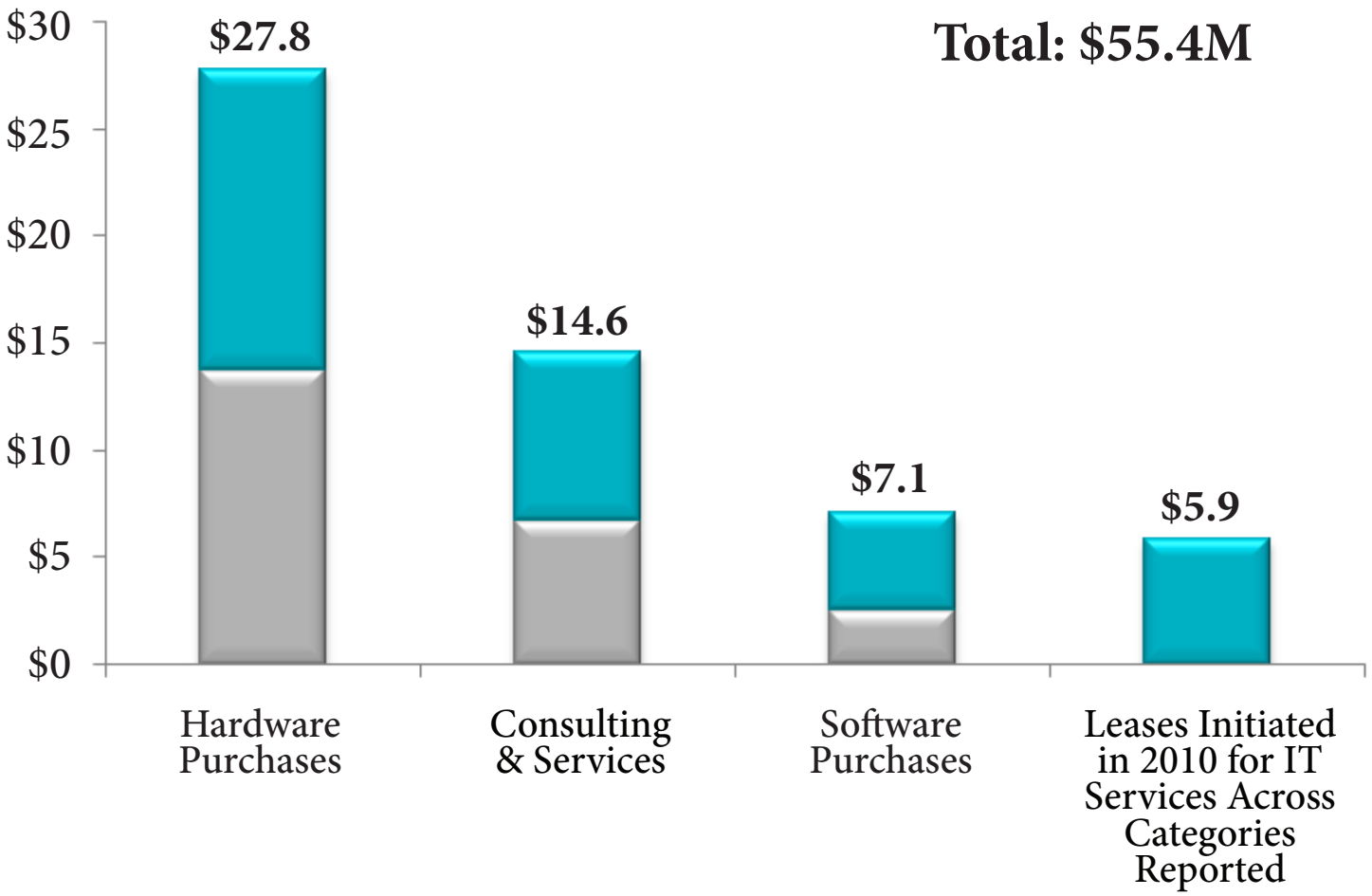
* Excludes benefits and Time as Reported (TAR)
While individual pay rates are available in HRMS, actual costs can only be determined through examination of payroll data, which would require a different analysis.

Source: Human Resources

Financial Overview

Vendor Payments for Technology

Calendar Year 2010
$$ in Millions



eRecord expenditures

Note: This represents one year of the eRecord project, not the total project.

Sources: Corporate Purchasing, University Finance, Treasury Office, and Financial Services, SMH

IT Committees

IT Steering Group

This group is focused on establishing more prioritized coordination and decision making for IT across the University.

Chair: Ralph W. Kuncl, Provost and Executive Vice President

Committee Members:
Bradford C. Berk, Sr. Vice President for Health Sciences and Chief Executive Officer, Medical Center
Peter Lennie, Sr. Vice President and Robert L. and Mary L. Sproull Dean of Faculty of Arts, Sciences and Engineering
David E. Lewis, Vice President for IT and Chief Information Officer
Bill Murphy, Vice President of Communications
Ron Paprocki, Sr. Vice President for Administration & Finance and Chief Financial Officer
Jerry Powell, Assoc. Vice President and Chief Information Officer, Medical Center
Sue Stewart, Sr. Vice President and General Counsel

IT Governance Council

This group, established in 2007, serves as a University-wide advisory body to the Office of the Vice President for IT regarding the use of information technology in support of the University's core missions of teaching and learning, research, healthcare, and community service.

Chair: David E. Lewis, Vice President for IT and CIO

Committee Members:
Anjan Bagchee *(School of Medicine & Dentistry)*
Michael Bell *(River Campus Libraries)*
Julie Buehler *(University IT)*
Holly Crawford *(Budgets & Planning)*
Rajiv Dewan *(Simon School)*
Tom DiPiero *(Dean's Office; Arts, Sciences and Engineering)*
Adam Frank *(Physics & Astronomy)*
Eric E. Fredericksen *(University IT)*
Dave Garcia *(Warner School)*
Susan Gibbons *(River Campus Libraries)*
Brian Harrington *(School of Nursing)*
David A. Krusch *(Medical Informatics, Medical Center)*
Joseph Meister *(Advancement)*
Lori Packer *(University Communications)*
Jerry Powell *(Medical Center)*
Samantha Singhal *(University IT)*
Helen Smith *(Eastman School of Music)*
Nancy Speck *(University Registrar)*
Scott Strenger '12 *(Student Association)*
Douglas Wylie *(University Controller)*
Ted Vaczy *(Info Systems Division)*

IT Campus Leaders

Information technology leaders from across the University share information, develop recommendations and proposals, and support subgroup and special interest group collaborations through the IT Campus Leaders Group.

Chair: David E. Lewis, Vice President for IT and CIO

Committee Members:
Joe Anderson *(Biology)*
Anjan Bagchee *(School of Medicine & Dentistry)*
John Barden *(University IT)*
Michael Bell *(River Campus Libraries)*
Julie Buehler *(University IT)*
Kate Crowley *(University IT)*
Robert Evangelista *(University IT)*
Hoss Firooznia *(Mathematics)*
Eric E. Fredericksen *(University IT)*
Dave Garcia *(Warner School)*
Brian Harrington *(School of Nursing)*
Rick Haverty *(Info Systems Division)*
Tony Lenzo *(Political Science)*
Eric Lobenstine *(Chemistry)*
Sharon Martinez *(Web Services, Medical Center)*
Dave Munson *(Physics & Astronomy)*
Julie Myers *(University IT)*
Alex Nakonechnyi *(Simon School)*
Chip Nimick *(University IT)*
Jerry Powell *(Medical Center)*
Alex Ryskin *(Laboratory for Laser Energetics)*
Michael Schell *(Radiation Oncology)*
Kevin Sciacca *(Info Systems Division)*
John Simonson *(Hajim School)*
Helen Smith *(Eastman School of Music)*
Ted Vaczy *(Info Systems Division)*
Evi Vanoost *(Rochester Center for Brain Imaging)*
Eileen Wirley *(University IT)*

and Collaborations

University of Rochester Medical Center Academic IT Group

The goal of this committee is to leverage technology resources and promote collaboration across the Academic/Research Enterprise of the Medical Center.

Co-Chair: Anjan Bagchee, Project Director, School of Medicine & Dentistry

Co-Chair: Ted Vaczy, Director of Planning and Academic IT, Info Systems Division

Committee Members:
Steve Brewster *(Web Services, Medical Center)*
John Barden *(University IT)*
Pat Beato *(Medical Center Finance)*
Jeffrey Bloss *(School of Medicine & Dentistry)*
Steve Clary *(Medical Center Libraries)*
Tina DePalo *(Info Systems Division)*
Dawn DePerrior *(Info Systems Division)*
Chris DaSilva *(Orthopaedics)*
Michael Goonan *(Medical Center Finance)*
Bob Greisberger *(School of Medicine & Dentistry)*
Brian Harrington *(School of Nursing)*
David A. Krusch *(Info Systems Division)*
Sharon Martinez *(Web Services, Medical Center)*
Daniel McCarthy *(Community and Preventive Medicine)*
Brendan Mort *(Center for Research Computing)*
Richard Partridge *(University IT)*
William Passalacqua *(School of Medicine & Dentistry)*
Jerry Powell *(Info Systems Division)*
Peter Robinson *(Office of Sr. Vice President for Health Sciences)*
Kevin Sciacca *(Medical Center Administration)*
Mark Schwartz *(Medical Center Facilities)*
Julia Sollenberger *(Medical Center Libraries)*
Eileen Wirley *(University IT)*

College IT Community

The goal of the College IT Community is to leverage technology resources and promote collaboration throughout Arts, Sciences and Engineering.

Chair: Paul Slattery, Dean of Research, Arts, Sciences and Engineering

Co-Chair: Eric E. Fredericksen, Assoc. Vice Provost, University IT

Committee Members:
Joe Anderson *(Biology)*
Stefano Bastianelli *(Residential Life)*
Glenn Berger *(University IT)*
Cheryl Bodensteiner *(Dean's Office; Arts, Sciences and Engineering)*
Lisa Brown *(University IT)*
Andrea Campbell *(University IT)*
Cynthia Carlton *(River Campus Libraries)*
Dave Costello *(Computer Science)*
Kate Crowley *(University IT)*
Robert Evangelista *(University IT)*
Mat Felthousen *(University IT)*
Mike Finger *(University IT)*
Mike Fitch *(University IT)*
Hoss Firooznia *(Mathematics)*
Jessica Foster *(Dean's Office; Arts, Sciences and Engineering)*
Michael Frank *(Art & Art History)*
Chris Freemesser *(Brain & Cognitive Sciences)*
Rich Hayden *(River Campus Libraries)*
Garry Henderson *(Registrar's Office)*
Tony Lenzo *(Political Science)*
Robert Lindholm *(Hajim School)*
Eric Lobenstine *(Chemistry)*
John Lonneville *(University IT)*
Arthur Loveland *(Clinical & Social Psychology)*
Mike Masco *(Auxiliary Operations)*
Brendan Mort *(Center for Research Computing)*
Dave Munson *(Physics & Astronomy)*
Julie Myers *(University IT)*
Russell Nordquist *(Center for Research Computing)*
Joe Pasquarelli *(University IT)*
Jason Pickup *(University IT)*
Rich Pink *(University IT)*
James Prescott *(Hajim School)*
James Roche *(Computer Science)*
Rich Sarkis (*Physics & Astronomy*)
John Simonson (*Hajim School*)
Sean Singh (*University IT*)
John Strong (*Hajim School*)
Evi Vanoost (*Rochester Center for Brain Imaging*)
Eileen Wirley *(University IT)*
John Wolfe *(University IT)*

Data Security Task Force

The Data Security Task Force provides guidance on how to maintain and strengthen the University's information security through policy development, project prioritization, and security awareness.

Chair: Ralph W. Kuncl, Provost and Executive Vice President

Co-Chair: Sue Stewart, Sr. Vice President and General Counsel

Committee Members:
Salim Alani *(University Audit)*
John Barden *(University IT)*
Pat Beato *(Medical Center Finance)*
Michael Bell *(River Campus Libraries)*
Julie Buehler *(University IT)*
Christine Burke *(Medical Center Counsel)*
Mark Cavanaugh *(Environmental Health & Safety)*
Richard Crummins *(Office of General Counsel)*
Tim Eldred *(Human Resource Management Systems)*
Kathy King-Griswold *(Office of Treasury Management)*
David E. Lewis *(Office of Vice President for IT)*
Sharon Martinez *(Web Services, Medical Center)*
Walter Mauldin *(University Security)*
Mike McClure *(Info Systems Division)*
Joseph Meister *(Advancement)*
Julie Myers *(University IT)*
Chip Nimick *(University IT)*
Jason Pickup *(University IT)*
Jerry Powell *(Medical Center)*
Barb Saat *(Human Resources)*
Paul Schneider *(University Audit)*
Samantha Singhal *(University IT)*
Nancy Speck *(University Registrar)*
Ted Vaczy *(Info Systems Division)*
Eileen Wirley *(University IT)*
Douglas Wylie *(University Controller)*

Research Computing Sponsors

The Research Computing Sponsors provide support and strategic guidance to the Center for Research Computing.

Convener: Eric E. Fredericksen, Assoc. Vice Provost, University IT

Sponsors:
Julie Buehler, Deputy Chief Information Officer, University IT
David E. Lewis, Vice President for IT and Chief Information Officer
Brendan Mort, Interim Director, Center for Research Computing
William Passalacqua, Sr. Assoc. Dean; School of Medicine & Dentistry
Jerry Powell, Associate Vice President and Chief Information Officer, Medical Center
Edward Puzas, Sr. Assoc. Dean of Basic Research; School of Medicine & Dentistry, Center for Musculoskeletal Research
Paul Slattery, Dean of Research; Arts, Sciences and Engineering
David J. Topham, Vice Provost and Executive Director of Health Sciences Center for Computational Innovation
Ted Vaczy, Director of Planning & Academic IT, Info Systems Division

Research Computing

Leading faculty researchers from across the University collaborate on high performance research computing. Their efforts result in a more effective and efficient approach to computational research through the Center for Research Computing (CRC). The CRC provides researchers with the technology, software, training, and support necessary to fully utilize high performance computation in research activities spanning all areas of academic scholarship.

Chair: Adam Frank, Professor of Physics & Astronomy

Co-Chair: Eric E. Fredericksen, Assoc. Vice Provost, University IT

Researchers:
Miguel Alono *(Institute of Optics)*
Stephen J. Burns *(Mechanical Engineering)*
Stephen Dewhurst *(Microbiology & Immunology)*
Cynthia J. Ebinger *(Earth & Environmental Sciences)*
Alan Grossfield *(Biochemistry & Biophysics)*
Jay Hong *(Economics)*
Michael C. Huang *(Electrical & Computer Engineering)*
David A. Krusch *(Surgical Oncology & Medical Informatics)*
Jingming Ma *(Biostatistics & Computational Biology)*
David H. Mathews *(Biochemistry & Biophysics)*
Kevin S. McFarland *(Physics & Astronomy)*
Alex Pouget *(Brain & Cognitive Sciences, Center for Visual Science)*
Alex Ryskin *(Laboratory for Laser Energetics)*
Michael Scott *(Computer Science)*
Curtis Signorino *(Political Science)*
Paul Slattery *(Physics & Astronomy)*
Minjae Song *(Economics)*
Harry A. Stern *(Chemistry)*
John A. Tarduno *(Earth & Environmental Sciences)*
David J. Topham *(Microbiology & Immunology, Center for Vaccine Biology & Immunology)*
Allen Topolski *(Art & Art History)*

College Teaching, Learning, and Technology Round Table

This Round Table, which includes faculty, staff, and students, aims to help the College make better-informed decisions, sustain collaborative change, and develop better strategies for using technology to improve teaching and learning. The model for this committee comes from the American Association for Higher Education and the Teaching, Learning, and Technology Group.

Interim Chair: Morris Eaves, Richard L. Turner Professor of Humanities, English Department

Co-Chair: Eric E. Fredericksen, Assoc. Vice Provost, University IT

Faculty Members:
Tanya Bahkmetyeva *(College Writing Program)*
Brian Bell *(College Writing Program)*
John G. Bennett *(Philosophy)*
Mike Gage *(Mathematics)*
Steve Manly *(Physics & Astronomy)*
Ronald Rogge *(Clinical & Social Psychology)*
Deb Rossen-Knill *(College Writing Program)*
Nikolaus Wasmoen *(College Writing Program)*
Miron Zuckerman *(Clinical & Social Psychology)*

University Administrators:
Suzanne Bell *(River Campus Libraries)*
Lisa Brown *(University IT)*
Ovide Corriveau *(Dean's Office; Arts, Sciences and Engineering)*
Robert Evangelista *(University IT)*
Mat Felthousen *(University IT)*
Jessica Foster *(Dean's Office; Arts, Sciences and Engineering)*
Vicki Roth *(Learning Assistance)*
Nancy Speck *(University Registrar)*

Undergraduate Students:
Bradley Halpern '12
Sonja Page '13

Graduate Students:
Rachel Lee *(College Writing Program)*

Ex-Officio Members:
Richard Feldman, Dean of the College
David E. Lewis, Vice President for IT and Chief Information Officer

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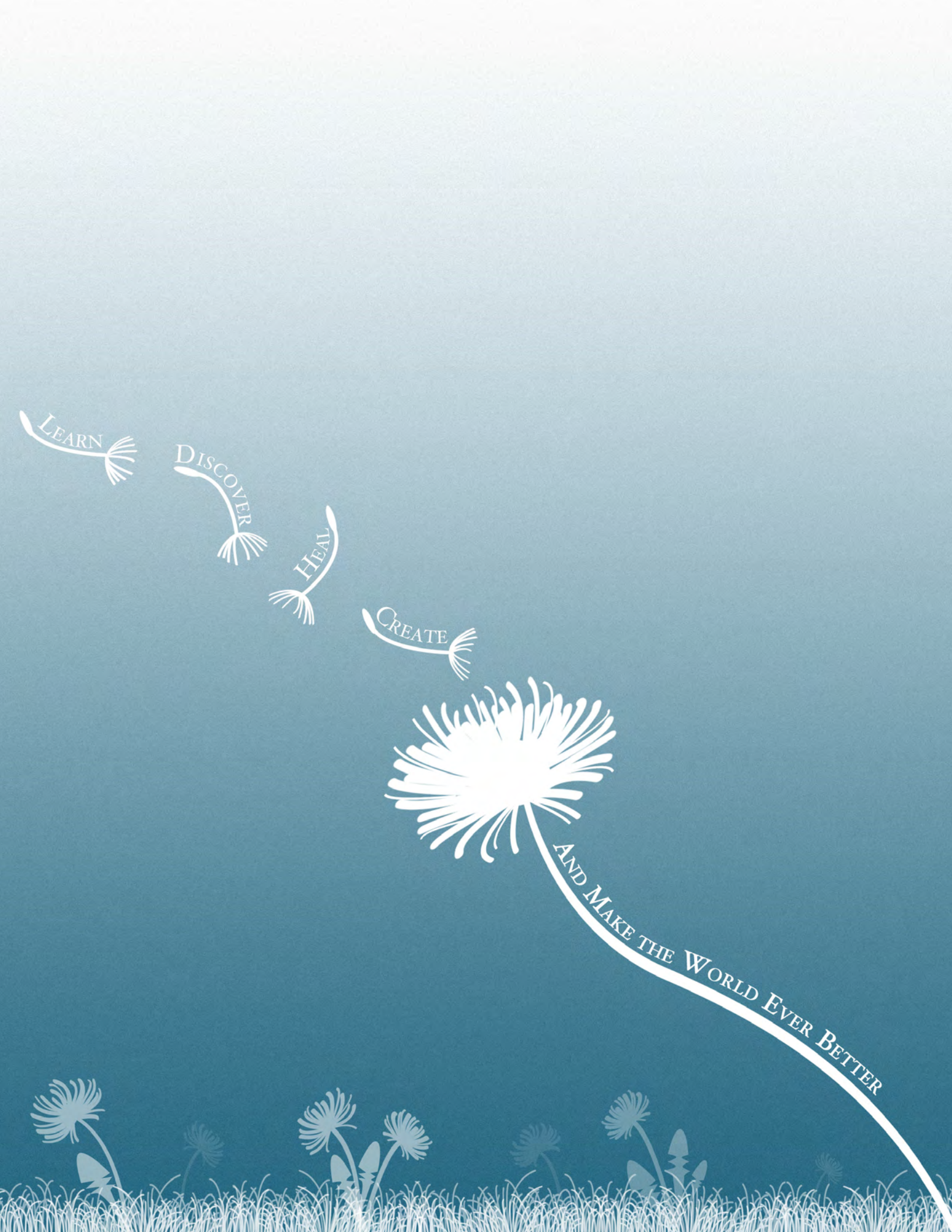
Learn
Discover
Heal
Create
And Make the World Ever Better