

ILLINOIS INSTITUTE OF TECHNOLOGY

iit magazine

Winter 2010



Is **nuclear** the bright light in a **green** energy future?

PEDRO "PETE" RUSTAN Grateful Patriot **PICTURE THIS** Alumni Capture Life at Home
HORTENSE BRICE Teaching Science Teachers **RESEARCH** Foodborne Microbes, High-Speed Rail

Letter from the President

The Passing of IIT Leadership

Over the past six months we lost three major leaders—John Rettaliata, Tom Martin, and Henry Linden, all past presidents of the university. Under their leadership IIT achieved a position of preeminence among technological universities. Their accomplishments are briefly summarized on pages 34–35.

John Rettaliata was the second president of Illinois Institute of Technology. Most of the current buildings on Main Campus were constructed during his tenure (1952–1973), including the landmark Mies building S. R. Crown Hall. IIT Chicago-Kent College of Law was added to the university and IIT Stuart School of Business was founded during the Rettaliata presidency. Tom Martin (1974–1987) championed initiatives to increase the diversity of the campus, especially the enrollment of women and students from underrepresented groups. He also increased the overall enrollment of undergraduate students and directed the university to become a leader in distance education. Henry Linden brought national attention to IIT through his outstanding work as a faculty member in the field of energy and his leadership of the Institute of Gas Technology. When asked, he stepped up to serve one year (1989–1990) as president of IIT and moved the university through a difficult period.

Leaders of any organization face the tension between short-term solutions and long-term progress. The appreciation of tough decisions and those who make them is a lagging index. We owe presidents Rettaliata, Martin, and Linden a debt of gratitude for their vision and commitment to the long-term health of IIT. To honor them we are dedicating several prominent spaces on campus in their names. Their good work should be remembered and used as an inspiration for our current and future leaders.



John L. Anderson

John L. Anderson
President





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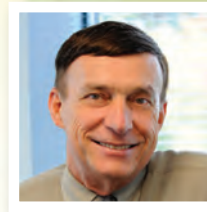
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IIT MAGAZINE ONLINE-ONLY CONTENT!

A new Web-only component has been added to
IIT Magazine online. Read extended coverage of
stories featured in the print edition as well as special
online-only content. Visit www.iit.edu/magazine
and find more!



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Letters

Article Spurs IIT Memories

Your article on Lois Graham ["A Lasting Impression for the Millenniums," fall 2009] tweaked my memory bank in many ways! I was one of the returning vets on the GI Bill and recall having Miss (at the time) Graham as a teacher's assistant in some of my classes in Machinery Hall. One recollection was having a metallurgy class on a Saturday morning and observing the structure of the "new" chemistry building sway and twist in a very strong wind, resulting in it being about 30 degrees out of plumb!



Her remembrances of Max Jakob and Professor William Goodman caused me to reflect on my thermodynamics, heat transfer, and air conditioning classes with these two icons in the mechanical engineering department. Goodman was to be my mentor and role model years later, as I worked for him and with him on various construction projects in the Chicago area.

Bill Goodman's passion for his field of expertise rubbed off on me and caused me to add air conditioning courses to my electives as an added load to my aeronautical option courses. Back in 1946–47 (my second year at IIT), the aircraft industry took a nosedive and experienced massive layoffs. Being married just one year and looking forward to having a family, I decided to switch fields. Goodman's passion came to the rescue, and I switched fields with no regrets.

Today, over 60-some years later, I'm still involved in that field after a 1978 move to Florida. After a career combining consulting and contracting, I currently "work" as an apprenticeship coordinator for our local air-conditioning contractors' association, helping to train the next generation of skilled technicians.

Thank you for your inspiring article on Lois Graham and the opportunity to reflect on pleasant memories. Much good health and happiness to Graham in her "quiet life of simple pleasures."

—Jerome Greenstein (ME '49)

Not That Kind of "Scarlet Fever"

Your recent story about Scarlet Fever taking over the campus ["Leave Only Footsteps," fall 2009] took me back a few years. The year was 1945 when I had the real scarlet fever. I was quarantined for three weeks and had to endure having the doctor coming to the house just about every day and giving me a shot in the rump.

Let's hope that this Scarlet Fever is better than the other version.

—Dave Roth (CE '71)

Write back!

IIT Magazine welcomes all signed letters to the editor and edits letters for content and clarity. Please send correspondence to:

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c/o Letters
3300 South Federal Street, Suite 503
Chicago, IL 60616

Email: iitmagazine@iit.edu

campusnews

FollowUP

Updates on the people and places previously covered in IIT Magazine

"The Greening of IIT" Fall 2008



Energy policy, emissions, transportation, stormwater/landscape issues, supply chain management, and green building are

the subjects of the Campus Sustainability Action Plan Working Groups, a new initiative that will develop plans for each of the six campus sustainability policy areas aligned with IIT's strategic plan. Each working group is composed of faculty, staff, students, and outside experts who meet monthly to share ideas, make decisions, and provide input and feedback.

The working groups are coordinated by the Office of Campus Energy and Sustainability, which is headed by Joseph Clair (M.S. MAE '95). The groups' findings and recommendations will be presented at the Sustainability Forum being planned for Earth Day, to be held this year on April 22.

"FDA Acceptance of NCFST Food Sterilization Process" Spring 2009

A process developed at the IIT National Center for Food Safety and Technology that makes low-acid food safe

while at the same time keeping its flavor intact has now been recognized by the food industry.

The pressure-assisted thermal sterilization process—also known as PATS—won an IFT Food Expo Innovation Award at the 2009 Institute of Food Technologists Annual Meeting and Food Expo in Anaheim, Calif. The awards program



honors outstanding innovation in products, equipment, instrumentation, technology, and services. A panel of eight jurors from industry, academia, and government reviewed 49 entries based on degree of innovation, technical advancement, benefit to food manufacturers and/or consumers, and scientific merit. Four entries were selected for recognition in 2009.

Five Years Strong, VoIP Lab Continues to Evolve

If it's inefficient and antiquated to use 150-year-old technology and a system of twisted wires and circuits to make phone calls, then why use them? So asks Carol Davids, director of IIT's VoIP Laboratory, which marked its fifth year in 2009.

VoIP, or Voice-over Internet Protocol, is a broadband application that allows phone service to operate over the "cloud" of the Internet, as opposed to running over the physical wires of traditional telephone lines. Introduced to mass market in 2004, when IIT's lab opened, VoIP is expected to be used in 20.4 million homes by 2010.

Since IIT launched its VoIP Lab, and subsequently, the VoIP Conference and Expo in the following year, early adaptors of the still-emerging technology have included businesses with the financial flexibility to merge the traditional phone (PBX, or private branch exchange) and Internet services.

"With VoIP you're blending together phone and Internet service, and therefore, in the long run, you can save on monthly costs as a result of not running two separate networks," says Davids, who ran test labs at Motorola and Tellabs. "Companies that use VoIP have the ability to do a lot of things they couldn't do with PBX—link together databases, customer service operations, and business operations. For example, as customers call in to place an order, their records can simultaneously show up on screen, and with a couple pushes of the button, the company can intercept an order and make real-time alterations. VoIP also adds data capabilities to a traditional phone service. Because of the initial setup cost, companies may not save money right away, but their customers will have a better experience."

The VoIP Lab, a teaching lab within IIT's School of Applied Technology (formerly the

Center for Professional Development), is located at SAT's Rice Campus. Equipped in part from gifts supplied by industry partners such as Alcatel-Lucent, it features several test beds—IMS, SIPConnect, SIP Peering, and IP PBX—that students use to conduct real-world analysis of VoIP system operation and performance. A goal of the lab is to research how to improve VoIP technology while addressing many of the challenges that plague its widespread acceptance.

"The biggest problem with VoIP has been location recognition. 911 capability is crucial to mass adoption," Davids says. Users of VoIP are identified by their VoIP address. Like a SIP (session initiation protocol) ID, which can be downloaded for use on cell phones with Internet services, the VoIP address doesn't identify where the caller is located. An Internet phone service such as Vonage may have the mailing address of a caller for billing purposes, but the very nature of VoIP allows users to place phone calls from anywhere. The VoIP Lab is planning work with both Texas A&M University and the National Emergency Number Association to expand testing of systems to support emergency response services over the Internet.

Davids says that some customers have been slow to migrate to VoIP because they are more comfortable with the settings of their traditional phone systems. Security is also a concern, one that is at the heart of a recent project undertaken at the VoIP Lab.

VoIP students and faculty developed a patent-pending appliance called vPurity—known internally as the "dragon"—for Salare Security, LLC that prevents hackers from using the virtual port that supports VoIP calls. Systems that support VoIP calls need to open a port in their firewalls to let calls in and out. A hacker could

send data other than the intended voice and video of the VoIP call through this port as well.

"Once you can set up a call, you can steal data," says Davids. "The dragon is designed to prevent this by using characteristics of the



Pravanti Madhurapantula (ITM, master's candidate) [left] discusses the VoIP Lab at the 2009 VoIP Conference and Expo.

Photo: Bonnie Robinson

legitimate data (voice or video) to filter out a hacker's data."

Students in the lab also developed a SIP phone for the hearing impaired. The SIP phone uses JAVA code that enables a hearing-impaired caller to use a computer keyboard to type in words, which are routed through a text-to-speech translation device and are heard on the other end of the line as "words." Students tested the phone for accuracy by using it to place an order for pizza delivery.

The lab's latest development, VoIIT, a VoIP service for the IIT community and its friends and sponsors, is now available for use. VoIIT is protected against data theft attempts by Salare's vPurity application. To visit VoIIT, go to <http://voip.itm.iit.edu> and click on the VoIIT link.

● <http://voip.itm.iit.edu>

IIT WELCOMES NEW TRUSTEES

In 2009, the IIT Board of Trustees inducted three new members.



A. Steven Crown is a general partner of Henry Crown and Company, a privately held company based in Chicago.

Eric C. Larson is founder and managing general partner of Linden LLC, a Chicago-based private investment firm focused exclusively on middle market healthcare and life science companies.

James C. "Jim" Tyree is chairman and chief executive officer of Mesirow Financial.

Many Voices, One Vision Update

IIT has begun work on priority initiatives outlined in the university's new strategic plan, *Many Voices, One Vision: A Strategic Plan for IIT 2010–2014*, approved by IIT's Board of Trustees in May 2009.

Distinctively define the IIT graduate

In fall 2009, a strategy group comprising students, faculty, staff, and alumni examined IIT's signature Interprofessional Projects (IPRO) Program and suggested transforming the six-credit-hour IPRO requirement into a two-phase sequence dubbed IPRO 2.0. This change will serve to reinforce and expand upon the IPRO experience by increasing student competency and skills building, enabling the formation of passionate and balanced teams, and providing additional time to address projects that surpass one semester. The IPRO 2.0 prototype is expected to begin in fall 2010.

A new initiative is underway to develop interdisciplinary degree programs, which will allow students to attain both undergraduate and master's degrees within five years. Being considered are co-terminal 4+1 degrees and degree programs for future professionals. Also under review is the concept of unlimited undergraduate pathways to a master's degree with professional offerings from IIT Chicago-Kent College of Law, IIT College of Architecture, IIT Institute of Design, and IIT Stuart School of Business.

IIT has taken preliminary steps to establish the International Academy, IIT's first residential college, to educate future global leaders. The academy will give students a global perspective that will complement their specific academic expertise and prepare them to lead diverse teams and enterprises in a global economy. One aim of the academy is to inspire students to address global challenges in vital areas such as energy, the environment, and health by promoting international connectedness, cultural understanding, ethics, social responsibility, and economic development.

Focus on interdisciplinary themes

IIT is researching how to incorporate design ideas from the College of Architecture and ID into the undergraduate curriculum. The two main design aspects being considered are how to identify opportunities and solve problems using design frameworks and other methods as well as how to think and represent objects visually. Academic activities may include an Introduction to Design workshop, the prospect of making design education a regular part of IPRO 2.0, and partnerships between the disciplines of design and engineering.

Elevate engineering's reputation to international stature

An upcoming event that will enhance the visibility of engineering at IIT is the *NAE Grand Challenges for the 21st Century: Chicago Summit 2010*.



Chicago Summit 2010.

Organized by IIT, Armour College of Engineering, and the Chicago Council on Science and Technology, in partnership with Northwestern

University, the University of Chicago, the University of Illinois at Chicago, and the University of Illinois at Urbana–Champaign, the Chicago summit will be held April 21–22, 2010. The National Academy of Engineering's five-city summit series aims to draw public attention to the challenges the United States faces regarding security, sustainability, and the quality of life, highlighting the role of engineering in helping the country to maintain excellence in these areas. Among the 14 grand challenge topics that the NAE has identified, the four topic areas to be discussed at the Chicago summit include global health; carbon, energy, and climate; clean water; and urban sustainability.

For updated information about the Chicago summit, visit www.iit.edu/grand_challenges or email grandchallenges@iit.edu.

MORE ONLINE

Many Voices, One Vision: www.iit.edu/mvov

NAE Grand Challenges for the 21st Century: Chicago Summit 2010: www.iit.edu/grand_challenges

utp watch

The United States Department of Commerce's Economic Development Administration awarded IIT a \$4.5 million stimulus grant to complete the Incubator building at University Technology Park. The grant was the largest of those distributed in the EDA's latest round of funding and one of the largest it has ever given for a technology incubator. This funding, combined with a \$2 million matching grant from the State of Illinois, will enable UTP to finish the build-out of 28,000 square feet of additional space, which will house up to 30 startup companies in the biotechnology and clean technology industries. The design of the new Incubator space is nearing completion, and UTP plans to start construction in early 2010.

UTP client Therapeutic Proteins, Inc. has begun construction of a Food and Drug Administration cGMP-compliant manufacturing facility within UTP's Technology Business Center and plans to begin operations in early 2010. TPI produces biological active pharmaceutical ingredients, specifically recombinant proteins, for the pharmaceutical market. TPI participates in regions of the global market where the sale of these raw materials is allowed, and once they can be sold as generic bio-similar products in the U.S., TPI will sell them domestically.

UTP also welcomed a new client, Consumer Health Advisors, which offers consumer health-management information services to large, self-insured employers and their employees.



Photo: Bonnie Robinson

Michael Davis and Kathryn Riley of the “Ethics in the Details” project

Introducing Ethics, Word-by-Word

An interdisciplinary team of IIT faculty members is giving the terms “low-dose” and “micro-insertion,” already familiar to scientists and engineers, expanded meaning as a way to more effectively bring ethics into the graduate classroom. Michael Davis, senior fellow at the Center for the Study of Ethics in the Professions and professor of philosophy, along with Kathryn Riley, chair of the Department of Humanities and professor of English, and CSEP Director Vivian Weil are implementing their concept “Ethics in the Details,” funded through a \$238,663 grant from the National Science Foundation.

The project integrates ethics into the graduate engineering curriculum through low-dose mini-lessons rather than through freestanding courses or modules. The heart of this integration lies in technical word problems or exercises, which comprise a large part of graduate engineering education. At one-day workshops, faculty and graduate-student teaching assistants are taught how to identify the ethical core of the problem and rewrite the problem to include that aspect. Something as simple as adding a human dimension to the problem—using the second-person “you” narrative form, for example—can make the subject more real and personal to the student. Participants also learn how to design a problem to measure the aspect of ethics being addressed and how to select problem formats appropriate for the class.

“During the early ’90s, we trained about 20 percent of IIT faculty in how to integrate professional ethics into their technical courses,” says Davis. “IIT was a world leader then. Since that time, we have been helping other universities do the same.”

The low-dose approach to ethics education offers several advantages. It takes far less time for instructors to revise technical problems than to prepare an entire course or large-scale module. Also, micro-insertions, continuously applied, allow students to view ethics more as a routine part of engineering and science, not as an event labeled “ethics.” According to Davis and Riley, early findings on the effectiveness of micro-insertions indicate that most students notice the presence of even a small amount and respond positively. An important aspect of the grant will allow for a further assessment of project effectiveness beyond what was done through self-reporting.

For the current project, the IIT team is collaborating with engineering faculty and engineering graduate students at IIT, Howard University in Washington, D.C., and the University of Illinois at Chicago, where a nanotechnology research laboratory is being utilized. Examples of ethical issues covered include whistleblowing, national security concerns, conflicts of interest, and cross-cultural differences in ethics.

In addition to assessment testing, the grant also supports the creation of an online database of engineering micro-insertion problems that will expand to include other science and technology disciplines. Coined “Ethics In-Basket,” the database is a continually evolving resource, providing the opportunity for anyone with a suggested micro-insertion problem to submit their good example for review by the site’s coordinators. The archive of posted problems will be available to faculty around the world.

“Even the choice of screw threads often has consequences for safety, economy, reliability, and disposability, and are all, in part, ethical issues,” Davis says, about how ethics decisions are fundamental to engineering. “As engineering projects get ever bigger and their impact on the future ever more long-term, the significance of those issues may be even greater.”

“Ethics in the Details” builds upon IIT’s longstanding success in undergraduate ethics education. NSF awarded three grants to CSEP from 1990–2005 for summer workshops attended by more than 160 faculty members. The center is also known for the Ethics

Bowl, a nationwide intercollegiate competition that poses questions on a wide variety of ethics issues. Now in its 16th year, the Ethics Bowl was conceived by Robert Ladenson, IIT professor of philosophy.

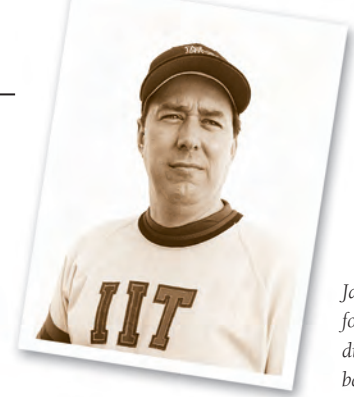
MORE ONLINE

Center for the Study of Ethics in the Professions: <http://ethics.iit.edu>

Online Ethics Center of the National Academy of Engineering: www.onlineethics.org

Uncle, Father, Friend

IIT Athletic Directors Play Multiple Positions



James Darrah, former athletic director and baseball coach

For many IIT alumni and students, the names John Joseph Schommer (CE 1912, M.S. 1918), James Darrah, and Lee Hitchen can elicit feelings of gratitude as strong as those raised by a favorite faculty member. IIT garnered a reputation for its athletic accomplishments in as early as 1912, when the celebrated Schommer served not only as athletic director but also coached Armour Institute of Technology's three sports teams while teaching four different science courses. Since Schommer's time, IIT athletic directors have been part of a history of mentorship both on and off the field.

With his student-bestowed nickname of "Uncle John" for showing care and concern, Schommer was a patriarch of the IIT family. In addition to being a multiple letter-winning athlete and faculty member, he was a trustee, a member of the Development Committee, president of the IIT Alumni Association, inaugural director of the student placement service, and state advisor to the Selective Service Board, helping students to complete their degrees before they were drafted into the armed forces.

A longtime IIT coach before he was named athletic director, Darrah gave of his time and talents to both students and celebrities, including retired Chicago Bulls player Michael Jordan, retired football and baseball professional Bo Jackson, and pop star Madonna, who headlined the movie *A League of Their Own*, filmed in part on Main Campus.

Former IIT baseball player John Abramic (CHE '97, LAW '01) says that Darrah strove to use baseball as a tool to instill positive qualities in his players. "He would constantly remind his players that the qualities necessary for a good athlete—such as putting team goals above all else, approaching a challenge with confidence, never fearing failure, and bouncing back quickly from a fall—were essential for successful leaders in pursuits beyond college," explains Abramic, who acknowledges that he attended several IIT baseball reunions to reconnect with Darrah.

Darrah recruited Scarlet Hawks Baseball Coach Stephen Born (CPE '05) to attend IIT, and Born played for him for two years before Darrah retired in 2003. "As much of a great baseball coach that he was, he was also a father figure to a lot of us," says Born. "He was the person we would go to whether it was concerning something good or bad. We could call him at any time, knowing he was there for us."

Like Darrah, Hitchen joined IIT as a coach. While he now heads the men's soccer team, and oversees all of the university's sports and recreation activities as athletic director, Hitchen never loses sight of the main reason why players are on campus.

MORE ONLINE

John Schommer, Super-Athlete: http://hoopedia.nba.com/index.php?title=John_Schommer



Athletic Director and Men's Soccer Coach Lee Hitchen talks with Megan Wright, Andrew Lichaj, and Jaime Banuelos (BA '07).

Photo: Bonnie Robinson

“The one thing that I believe in is that every student who comes here wants to graduate. My philosophy is to find a way to assist,” he says. When some athletes were having difficulty with a biology course, Hitchen even hired a tutor to provide them with extra learning opportunities.

Students say that Hitchen, a British expatriate, can relate to them and share advice based on his own experiences living abroad. “As a first-year student from Australia, I have found Coach Hitchen’s support to be one of the most conspicuous forces in my success in settling in here,” says Megan Wright (BIOL, 1st year), a member of the soccer team. “I have found him to be extremely professional while also being very approachable and down to earth.”

Between his second and third years, soccer player Andrew Lichaj (BADM, 4th year) was going through a rough period. Facing courses that were especially challenging and his father’s battle with cancer, Lichaj came close to no longer being an IIT student.

“Coach Hitchen never gave up on me and always wanted to help,” says Lichaj. “To me, he isn’t just my coach; he is also my really good friend.”

EDITOR’S NOTE: Check out the *Upcoming Alumni Events* listing on page 33 for information on the Southern California Baseball Gathering March 8–12. If you are a former IIT athlete who would like to host an alumni athletics reunion, or to stay current about IIT athletics, please contact Robbie Deveney, senior director of alumni and donor relations, at 312.567.5053.

Scarlet Hawks Swim and Dive to Success

Pumpkins were not the only awe-inspiring projectiles being launched on IIT’s Main Campus this past fall. Nineteen IIT swimmers and divers became national qualifiers at the Scarlet Hawks’ first official meet of the season, held on October 30, 2009. At the season’s halfway mark, six women had qualified in 19 individual and five relay events; 12 men had qualified in 29 individual and five relay events. These athletes will participate in the National Association of Intercollegiate Athletics Swimming and Diving National Championships in March 2010. Here are some highlights:

- **Victoria Masney** (ARCH, 1st year) qualified for three swim events at the first meet—in the 200-yard medley relay, 50-yard freestyle, and 100-yard butterfly. Her time in the latter event was one second off the Lady Hawks’ record. At mid-season, Masney added two more qualifying swims, in the 100-yard freestyle and 200-yard butterfly.
- Besides qualifying for five events, swimmer **Max Ramminger** (BADM, 2nd year) broke the Scarlet Hawks’ team record in the 100-yard freestyle at the Phoenix Invite, the final meet of 2009.
- In December, Ramminger, **Joe Taylor** (HUM, 4th year), **Neto Miller** (HUM, 2nd year), and **Andrew Mehr** (HUM/PS/PSYC ’09) competed in the 2009 AT&T Short Course National Championships in Federal Way, Wash. The meet featured a number of American and international Olympians.
- **Ian McNair** (PHYS, 1st year), a sectional diving champion who was ranked 16th in Illinois as a high school student, took second overall on the 1-meter and 3-meter boards at the Phoenix Invite and set national qualifying times in both. McNair qualified and took first on the 3-meter board in a meet against divers from Lindenwood University and also qualified on the 1-meter board during IIT’s first meet against the University of Chicago.



Photo: Michael Gross

Assistant Professor Jon Larson and Professor Patrick Corrigan

\$5 Million Grant to Fund New Center on Stigma

For many people the first signs of illness mean seeking treatment, whether at a pharmacy or doctor’s office. But two-thirds of individuals with mental disorders never pursue professional care to address their illness, and two-thirds of those who do seek treatment drop out of their mental-health program prematurely. Unlike a condition such as the common cold, these overlooked mental disorders are not largely benign and can range from short-term anxiety to severe psychiatric disorders, like schizophrenia.

To study the barriers that prevent people with mental illnesses from seeking help, IIT established the National Consortium on Stigma and Empowerment in September 2009. IIT Professor of Rehabilitation Psychology Patrick Corrigan is the principal investigator at the new center, which is being supported by a five-year, \$5 million grant from the National Institute of Mental Health. The center is a collaboration with senior scientists from Yale University, Rutgers, and the University of Pennsylvania, plus IIT Assistant Professor Jon Larson.

“In general, we believe there are great treatments out there for mental illness, but in reality, only one-ninth of people with mental illnesses are using them. New treatments are not very effective when people are not using those that are currently available,” says Corrigan, whose research has received support from the National Institutes of Health for more than 12 years. “The consortium seeks to address that problem and develop ways to overcome the stigma associated with mental illness.”

By removing the barriers to care, Corrigan says, individuals with mental illness are empowered and the treatment of mental illness can be improved. “The center gives us the luxury to be innovative and push the envelope with this issue,” he says.

It has been said that bartenders make the best psychologists. Assistant Professor of Industrial/Organizational Psychology Konstantin Cigularov, who grew up the son of a hospitality professor in Bulgaria and owned a cocktail bar during his undergraduate years, put that statement to the test. Discovering his fascination with human behavior by watching and talking with people, particularly in bars and restaurants, he decided to move from Bulgaria to the United States to earn a master's degree in psychological services.



Mixing Up a Lifesaving Solution

Later, Cigularov decided to pursue a Ph.D. to find a way to merge both business and psychology. At the time, he knew very little about industrial/organizational (I/O) psychology, but applied to Colorado State University, where he eventually earned a second master's degree and a Ph.D. in the discipline. Since then, Cigularov has been focusing much of his attention on promoting safer, healthier, and more productive workplaces and communities. His three main research areas are occupational safety and health, training/program development and evaluation, and work motivation.

"As a good bartender, I mix all three of them up well for a nice cocktail," Cigularov says.

In August 2008, Cigularov joined a team of occupational health professionals presented with the challenge of evaluating and helping to improve safety on the largest private construction project in United States history, the CityCenter and Cosmopolitan project in Las Vegas. In the first 18 months of the construction project, there were eight worker fatalities and in June 2008, workers walked off the job site because of safety concerns. At that point, *Las Vegas Sun* reporter Alexandra Berzon stepped in, investigating the situation and reporting her findings. Since summer 2008, the Safety Management Applied Research Team, of which Cigularov is a member, has worked closely with the Center for Construction Research and Training and the National Institute of Occupational Safety and Health to help survey more than 5,000 construction workers, 100 supervisors, and 70 superintendents and senior executives working on the project, analyze the survey results, and make recommendations based on their findings.

The team's proposals focus on a "top-down approach," suggesting that supervisors must make a commitment to safety, and reinforce and reward employees for taking safety precautions. Cigularov explains that I/O psychology has a large focus on leadership, training, and motivation—three areas that needed to be strengthened within the construction project. The group dedicated a portion of its attention to determining what motivates workers to take safety precautions and to advising supervisors to encourage employees to display positive and constructive

attitudes and actions, expectations, and communication about safety. They also recommended safety orientation programs, offered in both English and Spanish, ensuring that all employees have a clear understanding that safety comes first on that job site, and all job sites.

According to reports by the Occupational Safety and Health Administration, there were 5,071 deaths on the job nationwide in 2008. In Nevada, there were 25 workplace deaths reported from January 2008 to June 2009, which has led OSHA to review the entire state's occupational safety and health program. The research conducted by the Safety Management Applied Research Team comes at a crucial time when OSHA's new administration is moving from reacting to work-related injuries and fatalities to creating a plan for preventing them. OSHA encourages states to develop and operate their own job safety and health programs, and the plan developed by Cigularov and his team serves as a prime example of how cities and states can utilize outside teams of experts to help educate employers and keep workers safe.

Since Cigularov and his colleagues, along with two IIT graduate students studying under Cigularov, made their recommendations, there have been no fatalities at the construction site. Additionally, Berzon's investigative reporting on the construction project earned her the 2009 Pulitzer Prize for Public Service. The team presented a portion of its research findings at the 8th International Conference on Occupational Stress and Health in Puerto Rico and plans to present the remainder of its findings at the 25th Annual Society for Industrial and Organizational Psychology Conference in Atlanta in April 2010.

—Tanya Pantone

MORE ONLINE

Alexandra Berzon's *Las Vegas Sun* article:

www.lasvegassun.com/news/2008/nov/18/reports-perinis-safety-wanting

Berzon article after recommendations were made:

www.lasvegassun.com/news/2009/feb/19/perini-heeds-safety-critique/#/comments

Center for Construction Research and Training Site Safety Reports:

www.cprw.com/research-sitereport.html

Photo: Bonnie Robinson



Konstantin Cigularov

IIT is one of three academic institutions selected to receive up to \$8 million in total funding for wind energy research through the American Recovery and Reinvestment Act. **Mohammad Shahidehpour**, Bodine Professor and chair of the Department of Electrical and Computer Engineering, is principal investigator of the interdisciplinary IIT-led consortium, which will focus on the installation of a test turbine at an existing wind project in Marseilles, Ill. Additionally, IIT will purchase up to two turbines that will be used to perform reliability studies.

Natacha DePaola, professor and dean of IIT Armour College of Engineering, was invested as the Carol and Ed Kaplan Armour College Dean of Engineering Endowed Chair at a ceremony held on October 21, 2009. DePaola was also honored in October with a 2009 Woman of Achievement Award from the Chicago Alliance of Women. The award was given to 12 outstanding women in Chicago who were nominated by their peers and chosen by the program's sponsors for their career accomplishments and civic involvement.

Sean Keller, assistant professor at IIT College of Architecture, was honored with the 2009 Winterhouse Award for Design Writing and Criticism. Presented by AIGA and the Winterhouse Institute, the \$10,000 award is given for a writer's body of work.

Chow Lam, Distinguished Professor at IIT Institute of Psychology, received a \$750,000 award from the United States Department of Education for training in rehabilitation counseling.

Ralph T. Muehleisen, assistant professor and director of the Miller Acoustics Laboratory and the architectural engineering programs at IIT Armour College of Engineering, was elected as a fellow of the Acoustical Society of America for his contributions to architectural acoustics and acoustics education.

Jafar Saniie, Walter and Harriet Filmer Endowed Chair Professor in Electrical and Computer Engineering at IIT, was elected as a fellow of the Institute of Electrical and Electronic Engineers for his contributions to ultrasonic signal detection, estimation, and imaging.

Yongyi Yang (M.S. AMAT '92, Ph.D. EE '94), professor at IIT Armour College of Engineering, received a \$1.5 million grant to conduct breast cancer medical imaging research. This grant will help fund a longstanding line of research that will improve diagnosis and early detection of breast cancer.

Kenneth Zdunek (Ph.D. EE '91), senior research scholar at IIT Armour College of Engineering, was elected as a fellow of the Institute of Electrical and Electronic Engineers for his leadership in integrating voice and data communications in wireless networks.

Virtual Sustainability

Karl Stolley



While sustainability is, for most people, a buzzword for environmental preservation, for Karl Stolley, assistant professor of technical communication and co-director of the Usability Testing and Evaluation Center, sustainability means developing websites and other online materials that stand the test of time.

Through his research, Stolley explores digital sustainability and how, by contextualizing production practices in the history of a medium and predicting how the medium may develop next, it is possible to create artifacts on the Web that will be accessible many years later. He wants people to understand how and why websites should be revised over time to fit current standards.

"Writing always needs to be revised," says Stolley. "With Web pages, people fear that if they touch it, they will break it. That is no longer the case."

Building a sustainable website is not only beneficial to that site, but also to the stability of both the Web as a whole and other sites that may link to it. Many sites link to others on the Web and depend on those secondary sites to continue existing and functioning in order to remain credible. In the early days of the Web, re-launching was more common because when new Web browsers were released, entire websites would stop functioning, causing those managing the sites a great amount of difficulty. Without a way to efficiently reconfigure their existing sites, Web developers would opt for the lesser of the two evils, ultimately recreating an entirely new site.

"The idea behind a sustainable website is that if people are careful in designing their sites according to both the World Wide Web consortium standards and to their site content, they will not have to spend extra time redoing or re-launching their site, but can rather improve what is already there," says Stolley. "A very thoughtful Web writer and designer can actually redesign an entire site just by changing one file, instead of hundreds, if it is done carefully."

Stolley's website, www.sustainablewebdesign.com, addresses many of the deeper issues involving digital sustainability and advises those designing websites on how to work carefully to develop designs with lasting power. His site continues to be the No. 1 Google result for a search on sustainable Web design.

Throughout much of 2008, Stolley worked as part of a team to redesign *Kairos*, an electronic journal of rhetoric, technology, and pedagogy. Creating the first *Kairos* style guide, the team helped the journal come alive with a new look, features, and infrastructure, exemplifying the fact that websites may be redesigned entirely, without a re-launch. The team was praised and honored for its work at the Modern Language Association Convention in San Francisco in 2008 and won the Best Journal Design Award of 2008 from the Council of Editors of Learned Journals.

Stolley is also applying his expertise in technical communication for a new book he is writing as part of a *Guide to Writing* series by Greenwood Press. The book, which focuses on how to design and write Web pages, explores what it means to have a presence on the Web.

"People need to ask themselves what they want a Google search of their name or company to present," says Stolley. "I want people to understand that they can take control of their reputation on the Web."

In order to understand how people can control their Web reputation, one must grasp the relationship between humans and technology. Stolley explains that individuals must move from responding to technology to directly shaping and transforming it. Since joining IIT's faculty in August 2007, he has led graduate-level courses, teaching his students that when designing sites and programs they must consider what the end result should be and ask questions including, "Is this program user-friendly? Is it accessible? Is it enjoyable to use?" If the answer to these questions is yes, users will have an easier time shaping technology and will be more likely to contribute to it.

"The Web can be a thriving, sustainable place, with each of us as Web authors doing our part to make it that way," says Stolley.

—Tanya Pantone

MORE  ONLINE

Web Standards Project: www.webstandards.org

Kairos journal: <http://kairos.technorhetoric.net/about.html>

Karl Stolley blog: <http://karlstolley.com>

Safety Net: Identifying Microbial Risks to the Food Supply

An elaborate and still largely mysterious series of events at the genetic level helps microbial invaders infect food, resist disinfection, and cause disease. Wei Zhang, an authority on foodborne pathogens and assistant professor of biology at IIT, applies sophisticated comparative genomics techniques to more precisely identify disease organisms and unlock the source of their adaptability to changing conditions.

“My research is unique in the microbial safety area,” he explains, contrasting his integration of advanced genomic theory with more traditional means of analysis, such as microbial plate counting.

Zhang notes that in the United States alone, foodborne microbes are responsible for some 76 million illnesses, 325,000 hospitalizations, and 5,000 deaths each year. In addition to microbial research carried out under a series of grants from the U.S. Food and Drug Administration, he recently received a \$2 million cooperative agreement award from the U.S. Department of Agriculture Food Safety and Inspection Service to support its proficiency-testing program for the Food Emergency Response Network.

FERN, a consortium of federal, state, and local government regulatory agencies, jointly oversees laboratories for evaluating threat agents in foods. In the proficiency testing program, food pathogen samples are prepared at IIT’s National Center for Food Safety and Technology, where Zhang holds a joint appointment. The contaminated samples are shipped to more than 150 labs nationwide, where public health investigators use them to practice techniques for screening food. Additionally, proficiency tests are being developed for mobile civil support teams, who travel in specially equipped vans that can be rapidly deployed in the case of food safety and security emergencies.

In the lab, Zhang uses a variety of DNA fingerprinting and genomic techniques to identify subtle variations in disease-causing microbes. *Listeria monocytogenes*, a bacterial invader that contaminates many dairy products, is being investigated for the first time with pan-genomic DNA microarray technology, in a collaborative effort with the FDA, University of

Maryland, Cornell University, and Pennsylvania State University.

Under normal conditions, *Listeria* is a rod-shaped bacterium. But when cells are exposed to conditions of low nutrition, Zhang explains, they assume a ball shape, or *coccus*, capable of withstanding extremely high temperatures and pressures—the primary methods used in food processing for pasteurization. Zhang hopes to understand the underlying global transcriptomic changes responsible for *Listeria*’s transformation and survival.

DNA microarrays—in which hundreds of thousands of DNA sequences are deposited on a fingernail-sized chip and used to probe genomic characteristics—are also being applied to the study of *Clostridium botulinum*, a particularly lethal food pathogen. *Clostridia* are able to form spores—structures highly resistant to heat, which can survive and later germinate within foods. The genomic changes underlying spore formation remain poorly understood.

Salmonella, another common foodborne bacterium, can also alter their physical shape under conditions of stress. Like *Listeria* and *Escherichia coli*, *Salmonella* are enteric pathogens, whose ideal environment is the human gastrointestinal tract. But *Salmonella* have also developed means to survive desiccation in foods with low-water activity, including peanut butter. (A 2008 peanut butter contamination caused more than 600 cases of infection and a number of deaths.) Two forms, or serotypes, of *Salmonella* are under investigation in Zhang’s lab, *S. enteritidis* and *S. typhimurium*, under a new Agriculture and Food Research Initiative competitive research grant through the USDA’s National Institute of Food and Agriculture. To date, Zhang has identified more than 300 differentially regulated genes linked to bacterial stress adaption in food.

Wei Zhang

Photo: Bonnie Robinson

Annually, *E. coli* bacteria cause more than 73,000 cases of infection. One strain of O157:H7 was responsible for the 2006 multi-state poisoning that affected packaged spinach. Zhang analyzes these bacteria by studying single nucleotide polymorphisms—single changes within the coding portion of the bacterial genome that can be used for precise identification. “SNPs are extremely reliable molecular markers for studying the epidemiology of foodborne pathogens,” he notes. Using these rare markers, researchers can identify specific bacterial isolates. If two isolates share identical SNPs at multiple loci, there is a very strong likelihood they are derived from the same ancestral strain, allowing researchers to link patients to a single outbreak.

Zhang’s work has also demonstrated that enteric pathogens like *E. coli* O157:H7 have a remarkable ability to shuffle their genetic deck—trading DNA information with indigenous plant or soil microflora in order to heighten their virulence and enhance their ability to evade host defense systems. Better understanding of the genomic mechanisms allowing foodborne pathogens to survive and cause disease is paving the way to more effective food processing and oversight.

—Richard Harth



MORE ONLINE

Food Emergency Response Network: www.fernlab.org

Foodborne illnesses FAQ: www.cdc.gov/ncidod/dbmd/diseaseinfo/files/foodborne_illness_FAQ.pdf

A primer on SNPs: www.ornl.gov/sci/techresources/Human_Genome/faq/snps.shtml

MIDWESTERN NIGHT'S DREAM: IMAGINING HIGH-SPEED RAIL

THE YEAR IS 2031. Eight Midwestern states including Illinois have seceded from the Union, forming The Heartland States of America, a vast landscape stitched together by a 220-mph rapid train network. Within Chicago, a bustling area of shops, museums, and commerce forms Heartland Free City on formerly unused land surrounding I-290. Described as “equal parts Brasilia, Vatican City, and the Cayman Islands,” the thriving capitol has become a vibrant regional hub, with sleek towers, shaded esplanades, centers of government, and state infrastructure.

This sneak preview of the future—a blend of realism and whimsy—is courtesy of Romina Canna and David Goodman, assistant professors of architecture at IIT and owner-architects of R+D Studio, LLC. The pair was invited to join other architects in envisioning the impact of a proposed high-speed rail system on Chicago and the greater Midwest. The occasion was the 2009 centennial of Daniel Burnham’s landmark 1909 Plan of Chicago.

“We wanted to mark the anniversary by carrying out a similar speculation,” Goodman explains, referring to Burnham’s visionary document. The result was an interlinked exhibit and competition dubbed Burnham 2.0: A Composite Plan for the High Speed Rail City. The audacious urban planning initiative came about through the collaboration of the Chicago Architectural Club (Canna and Goodman are co-presidents), the Chicago Humanities Festival, and the Chicago History Museum.

Members of the Chicago Architectural Club worked in teams, dividing the metropolis into discrete zones. One project dealt with the area around parks, another with land near Union Station. The resultant patchwork of designs for reshaping Chicago following the advent of fast rail went on display at the Chicago History Museum at the end of 2008, in conjunction with an international competition to conceive an inter-modal train terminal for Chicago’s West Loop neighborhood.

A high-speed rail system of the sort that was proposed could dramatically alter the character of Chicago and the Midwest. According to projections, Chicago Union Station would have as many passengers moving through it annually as John F. Kennedy International Airport in New York, making the land near Union Station extremely valuable. Further, as Goodman stresses, one-third of the United States population currently lives within 500 miles of Chicago; the economy of his Heartland States of America would be the fourth largest in the world, in league with Japan.

The Obama administration is keen on the idea of a high-speed rail system focused around the president’s former hometown. Mobility continues to be a critical issue in the Chicago area, with slow train service

and snarled traffic. Adding to the immediacy of the issue is the necessity of weaning the economy from fossil fuels. The governors of eight states—Ohio, Michigan, Illinois, Indiana,

Wisconsin, Minnesota, Missouri, and Iowa—have signed a collaborative agreement to bring high-speed rail to the region, though many hurdles remain.

The notion of rapid, comfortable travel from Chicago to St. Louis in two hours is broadly appealing, but the price tag for such a system is hefty—many times the \$8 billion allotted through the economic stimulus package. (The estimate for a similar system in California is \$50 billion.) On the plus side, the high-speed system would radically reinvigorate the Midwest economy, creating an estimated 57,000 permanent jobs and 15,000 construction jobs.

While the Midwest awaits these transformations, Canna and Goodman’s plan provides a possible blueprint for the region’s high-speed future. The pair is developing a publication about their work, to be published by the Chicago Architectural Club.

—Richard Harth

MORE ONLINE

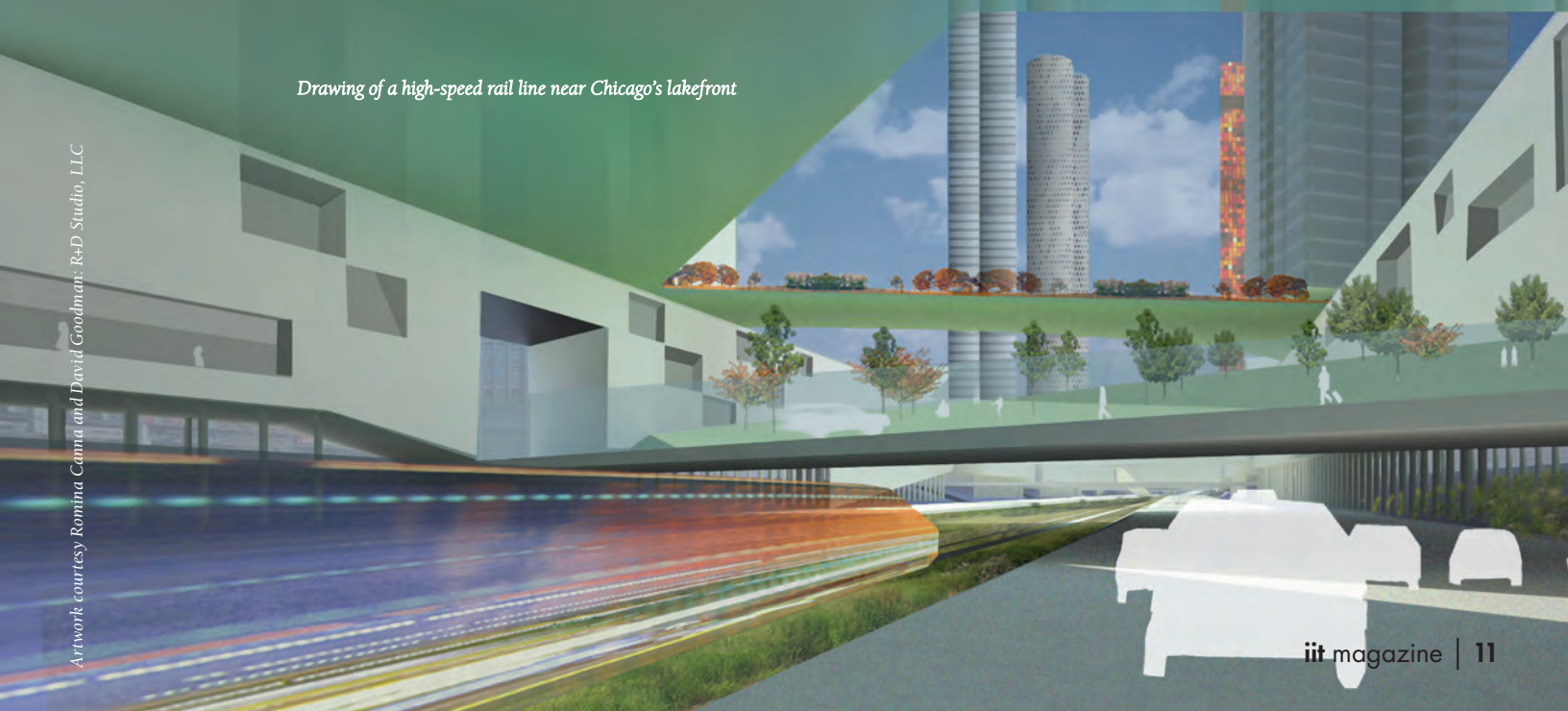
Chicago Architectural Club: www.chicagoarchitecturalclub.org

R+D Studio, LLC: www.rdstudio.info

Introduction to Heartland Free City: www.rdstudio.info/heartlandsplash.html

Drawing of a high-speed rail line near Chicago’s lakefront

Artwork courtesy Romina Canna and David Goodman: R+D Studio, LLC



IN GRATITUDE *for* FREEDOM

★ ★ ★ BY MARCIA FAYE

Delta Tau Delta brothers
on the American side of
Niagara Falls, 1970

and

At Chicago's
Pizzeria Due, 1969



Late into the night of August 23, 1967, Pedro “Pete” Luis Rustan Jr. (EE ’70, M.S. ’70) leapt from the shores of Communist Cuba into the dark waters of Guantánamo Bay, swimming one mile to the United States Naval Station and scaling over the Cactus Curtain to freedom.

More than 43 years later—with 27 of those years in distinguished service with the United States Air Force—Rustan is still swimming.

For many who know Rustan, none would be surprised to learn that the super-achiever was recently offered the position of director of the Mission Support Directorate at the National Reconnaissance Office in Chantilly, Va. It will be the third NRO move in six years for Rustan, who has also served as director of Science and Technology as well as director of Ground Enterprise for the organization, which builds and operates the nation’s surveillance satellites. In his new role, Rustan works with the community of satellite users—other intelligence agencies, the military, law enforcement, and the Department of Homeland Security, among others—to facilitate the devices’ capabilities, including data interpretation and retrieval, the availability of various products, and the types of services offered or types that can be designed to meet a user’s needs.

When Rustan retired as a United States Air Force colonel in 1997, employment at the NRO was not on his radar. Instead, he became a successful consultant in the private sector, advising companies on matters ranging from potential aerospace projects to the latest technologies for high-speed communications links. Then the September 11 attacks occurred, and in their aftermath Rustan found that his feelings for his new country sent him on a once-familiar course.

“I’m a big patriot,” he acknowledges, regarding his return to a career in the government in 2003. “I came from a country that had a lot of problems. I thought, I’d like to pay back the United States for taking me in and giving me

everything that I have. What I have is a wonderful life with the freedom to do anything that I want.”

Rustan felt his first rush of liberty after crossing an *Opuntia* cactus border, which Cuban troops planted along the northeastern edge of the naval base to deter Cubans from attempting to seek refuge in the United States. As luck would have it, Admiral Thomas Hinman Moorer, then chief of naval operations, was visiting the base; Rustan accompanied him to Miami and was given sanctuary at the Freedom Tower. Miami reminded Rustan too much of Cuba both culturally and politically, so he traveled to Chicago, where he got a job packing televisions for Magnavox. After three short weeks, he moved to the Rockville, Md., area, where his father’s friend helped him to obtain a position building computer modules and wiring circuit boards for Control Data Corporation.

Supplemented by loans from the Cuban Refugee Program, Rustan earned the down payment on his version of the American Dream: tuition at a prominent technology-focused university. It was something that he had desired ever since the fifth grade, when he and his classmates spent afternoons paging through magazines that featured articles on America’s national parks and institutions of higher learning.

“Poverty was my influence,” he explains. While his family was poor, his parents still found a way to send him to Guantánamo High School, where he was valedictorian and graduated at age 16. Studying at his classmates’ homes, Rustan could not help but notice their televisions and refrigerators, and that their parents had college degrees. “They had all kinds of things that my father and mother didn’t have, so I started working harder because I wanted to have more than what I saw.”

The Cuban government gave Rustan special permission to enter the Universidad de Oriente at 16 as an electrical engineering student; it also gave him his postgraduate assignment—to work in the copper mines, something he had no desire to do. He was required to perform forced labor, cutting sugar cane and harvesting rice and other crops for one month each year. On Saturdays there were military exercises, such as pretend practice in shooting down aircraft or launching missiles. At the same time, the government recognized Rustan’s accomplishments in the classroom, where he finished at the top each year, and rewarded him with sightseeing tours




MORE ONLINE

Clementine Project: <http://nssdc.gsfc.nasa.gov/planetary/clementine.html>

Cuba: www.state.gov/r/pa/ei/bgn/2886.htm

National Reconnaissance Office: www.nro.gov



[Left to right] Gary Masterson, Dave Tubbs, John Donald, Pedro Rustan, Loren Vogel, and Rod Sweer at a bridge get-together

around the island. While he enjoyed seeing all of his country, Rustan also witnessed things that further opened his eyes to the deterioration of life in Cuba: sites where nuclear submarine bases were being built for the former Soviet Union.

“By the time I was 19, it became obvious that the situation in Cuba was not going to get any better,” says Rustan. “By that time, my father had been a political prisoner for six years, and I was continuously watched throughout college to ensure that I would not become very negative against the revolution and the Cuban government.”

With her son safe in American territory, Rustan’s mother smuggled his college transcripts to him, carried in the socks of Cubans who were employed at the naval station. Rustan’s diligence earned him entry into all three engineering schools to which he applied—Massachusetts Institute of Technology, Rensselaer Polytechnic Institute, and Illinois Institute of Technology. Shortly after he entered IIT in 1968, Rustan pledged with the Delta Tau Delta international fraternity.

“The brothers treated me very well,” he says. “The fraternity taught me about America—how to eat, how to dress, and how to socialize correctly.”

Rustan’s “Delts” fraternity brothers also benefited from knowing their new refugee friend. “He would literally work around the clock to make sure he totally understood every assignment and was totally prepared for every exam,” says Dave Zook (IE ’73), Rustan’s “little brother” and roommate, now president and owner of Horizontech, Inc. “He pushed me to work harder, but at the same time, he had a fantastic sense of humor and enjoyed to the fullest the life and the close friendships we had in the fraternity. My fraternity days at IIT were some of the best of my life, and Pete’s influence and friendship to a young kid fresh out of high school in Montana were a big reason why.”

Rustan’s pledge brother, Gary C. Masterson, business transformation consultant for Spanlink Communications, Inc., gets together with Rustan and a few other Delts every five years or so for Lou Malnati’s deep-dish pizza and bridge. Masterson recalls how Rustan and study partner Loren Vogel (IE ’72) had desks facing each other topped by hutches that Vogel made. To ensure that Rustan hadn’t nodded off, Vogel would periodically light up a cigar and blow smoke at his partner through holes drilled in the hutches. This method apparently achieved its desired effect, and then some.

“Pete provided many of the freshman engineering students in our pledge class with extra tutoring in calculus and physics,” says Masterson. One young student Rustan tutored in math went on to obtain an advanced degree in the field. Kevin Meade (MAE ’74, M.S. AMAT ’78), IIT professor of mechanical engineering, was a freshman when Rustan was a graduate student. “I remember most his passion for math and for engineering,” says Meade. “He worked very long hours, never seeming to quit.”

IIT awarded Rustan a scholarship for his master’s education, which he was pursuing when the Selective Service called his No. 16 in the draft lottery, beginning his military career. He immediately put his education to use, looking at the effects of electromagnetic interference on pacemakers and publishing his results in the *Journal of the American Medical Association*. Rustan became a citizen in 1971, obtained his doctorate, and as a commissioned officer attained positions of increasing significance in technological research and academia at various military installations.

In 1991, Michael Griffin, former NASA administrator, assigned Rustan as program manager for the Clementine Project, whose objectives were to test sensors and spacecraft components used for extended periods in space, and to make scientific observations of the moon and asteroid 1620 Geographos. The mission made the unexpected discovery of finding ice at the lunar South Pole.

When Rustan entered the waters of Guantánamo Bay, he shot for the moon, and indeed, hit his target.

“Pete’s life story would say, ‘Don’t give up,’ and that improvement is always possible,” offers Griffin, who left NASA in 2009 and is now an eminent scholar and faculty member at the University of Alabama in Huntsville. “Set your goals high and then achieve them. Here’s a guy who was born in Cuba under a rather vicious Communist regime, and holds a Ph.D. in electrical engineering and occupies one of this nation’s highest and most trusted positions in government. What does that tell you?” ■



After winning Greek Week pushcart relay, 1970

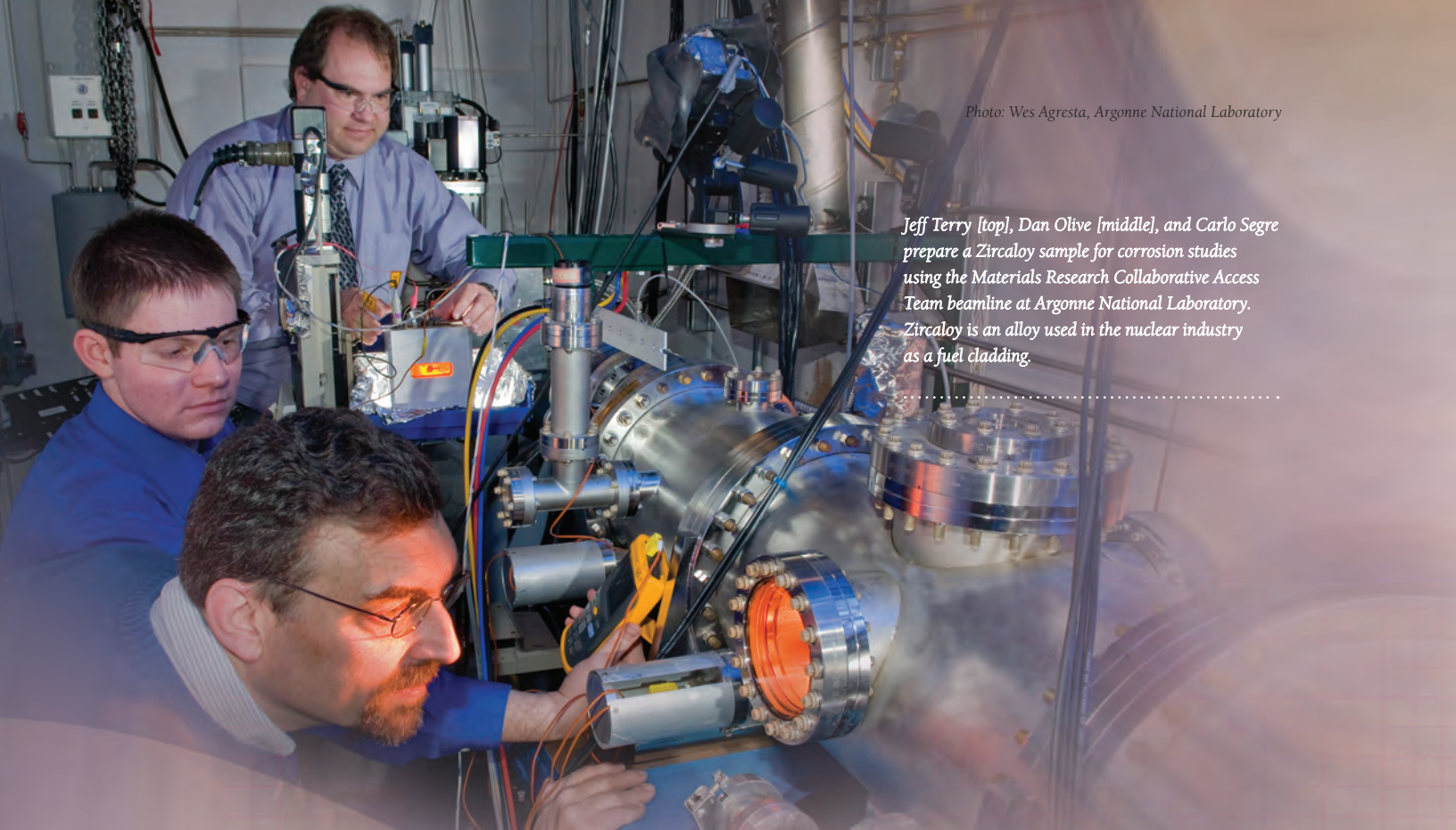


Photo: Wes Agresta, Argonne National Laboratory

Jeff Terry [top], Dan Olive [middle], and Carlo Segre prepare a Zircaloy sample for corrosion studies using the Materials Research Collaborative Access Team beamline at Argonne National Laboratory. Zircaloy is an alloy used in the nuclear industry as a fuel cladding.

THE NUCLEAR OPTION

Climbing Out of Our Energy Well

By Richard Harth

Jeff Terry, IIT assistant professor of physics, frets about the future of energy—probably more than most people. “I always think of that scene from the movie *Apollo 13*,” he says, describing the embattled spacecraft, which had begun filling up with lethal carbon dioxide. Back at mission control, someone declares, “*Power is everything.*” Even if all other problems are solved, the flight controller explains, without enough power to open the ‘chutes on re-entry, the crew is dead.

In Terry’s view, that spacecraft is a metaphor for our planet, where reserves of non-renewable energy are being depleted rapidly.

Terry is a strong advocate for the revival of nuclear energy, which has been largely abandoned in the United States since the late 1970s. “I like to think that I’m a true environmentalist,” he says, without irony. He’s not alone in this view. Even some career environmentalists—including Scott Howson, chairman of the Rappahannock Group of the Sierra Club, Greenpeace co-founder Patrick Moore, and biologist James Lovelock—have spoken out in favor of nuclear development. The Intergovernmental Panel on Climate Change report of 2007 also gives a cautious nod to nuclear as a “commercially available climate change mitigating” technology. It’s tough to say they’re in love with the idea. But, to paraphrase Winston Churchill’s riff on democracy, nuclear may be the worst energy solution—except compared to all the others.

Though nuclear power remains a contentious subject, often linked by the public with disasters like Chernobyl and weapons proliferation, the world’s growing consumption of energy and increasing awareness of the environmental pitfalls of fossil fuel use are prompting a fresh examination.

BEAM ME UP

Trained as a staff scientist at Los Alamos National Laboratory, Terry is an expert on the characterization of radioactive materials and has more than a decade of experience with synchrotron radiation research. In November 2008, he was recruited to run an ambitious new \$20 million project known as the Nuclear and Radiological Research Collaborative Access Team, or NRR CAT, at Argonne National Laboratory's Advanced Photon Source. Here, radioactive materials to be used in future nuclear reactors can be studied safely.

The work at NRR CAT will represent an important expansion of IIT's longstanding involvement with synchrotron research. The Center for Synchrotron Radiation Research and Instrumentation came together at IIT in the early 1990s, spurred by the construction of the Advanced Photon Source. Situated just 25 miles southwest of Chicago, APS is the largest synchrotron X-ray source in the western hemisphere.

In addition to IIT core members, CSRRI leverages the talents of faculty-researchers university-wide and is involved in collaborations with scientists from around the world. The center is also a training ground for the next generation of nuclear specialists, offering academic coursework as well as training workshops at national and international conferences. The Graduate Assistantships in Areas of National Need Fellowship Program at IIT supports doctoral candidates in physics with a specialization in synchrotron radiation-based research.

The synchrotron radiation at Argonne begins with electrons, which are produced by a heated cathode and accelerated to 99.999 percent of the speed of light, using Argonne's linear accelerator. The electrons are then fed into an oval-shaped booster synchrotron to speed them up even further before they are finally injected into the 1,104-meter storage ring, around which they whiz in circles, constrained in their paths by more than 1,000 powerful electromagnets.

These speeding electrons produce X-ray beams as they accelerate, decelerate, or change direction. Ports located around the ring allow the streams of X-rays to be sampled and applied to research. The flood of X-rays produced by the APS range in intensity from a thousand to a million times those produced by traditional sources.

Such beamlines are used for varied investigations, from the study of semiconductors, magnetic materials, and nanostructures to large biological molecules and new energy technologies, including fuel cells. As Carlo Segre, IIT professor of physics and a member of CSRRI explains, a synchrotron can be thought of as an enormous microscope, able to probe materials at the atomic scale, due to the very short wavelengths of X-rays.

MATERIAL WITNESSES

Synchrotron technology provides the opportunity to research and refine the materials used in nuclear reactors. "We're interested, for example, in studying how you make a fuel pellet and encapsulate it so that the uranium and other radioactive materials don't leak out," Segre explains. He has also been working with colleagues from the University of Santa Barbara to develop oxygen dispersion strengthened steel, a specialized material containing nanoparticles that exhibits improved performance under radiation conditions. The Advanced Photon Source is an ideal tool to characterize the behavior and appearance of the nanoclusters. This hybrid form of steel could be used eventually to line reactor wall vessels, which must withstand strong irradiation by neutrons.

Dan Olive, an IIT graduate student working with Terry, studies how plutonium behaves in the environment, specifically, how it is able to form colloids—chemical mixtures in which particles are suspended. Olive's work addresses nuclear energy's greatest Achilles heel—the problem of radioactive waste. Much of his research is conducted for the U.S. Department of Energy Waste Isolation Pilot Plant, or WIPP, a storage facility for radioactive materials in Carlsbad, N.M., which has supplanted the Yucca Mountain site, defunded in 2009.

Over time, fission products that absorb neutrons during nuclear reactions build up in nuclear fuel, eventually halting the reaction. The fuel must then be removed, though as Terry points out, it still contains most of its energy. "It's like throwing out the gas tank of your car when it's still three-quarters full because there's air inside of it," he says.

Though the Salado salt formation, which lies 2,000 feet underground and extends from Kansas to New Mexico, and currently houses the WIPP, is sufficient to store all of the country's nuclear waste for the foreseeable future, most experts agree that there must be a safe and effective means of reprocessing nuclear fuel, if we are to avoid running out of uranium.

"Reprocessing is really the way to go. Unfortunately, we're not quite there yet," Olive says. Such reprocessing involves the separation of neutron-absorbing waste byproducts from remaining fissionable material—the uranium or plutonium, which can then be used as reactor fuel. Critics of the procedure fear the diversion of resulting material, which could be used potentially for weapons.

According to Aleksandar Ostrogorsky, a new faculty member in IIT's Department of Mechanical, Materials, and Aerospace Engineering, proliferation and other safety concerns are important considerations, but fears may be overblown. He points to a generally positive track record for reactors, noting that most U.S. water-cooled and moderated reactor designs—pressurized water reactors and boiling water reactors—are safer than the Russian graphite pile device involved in the Chernobyl disaster. As for the threat of proliferation, Ostrogorsky notes that a number of countries now have access to the Zippe-type centrifuges and the know-how for enriching uranium, or they could use plutonium produced in their own reactors without having to pilfer supplies from U.S. reactors.

Ostrogorsky, who worked in the field of nuclear engineering from 1977–1982, is currently involved in research funded by the National Nuclear Security Administration (within the DOE) into a new generation of high-resolution gamma ray detectors that can keenly sense nuclear radiation. Such technology is widely applicable to many fields and may be used in future reactors for radiation monitoring.

NUCLEAR ABCs

In terms of environmental friendliness, nuclear energy is sandwiched between emission-free alternatives like solar and wind, and carbon-emitting technologies—including public enemy No. 1, the coal-fired power plant, which supplies the U.S. with more than 50 percent of its electricity but also is the leading source of mercury pollution and toxic particulates. The basic mode of power generation with each of these is the conversion of energy from one form into another. As Segre explains, both nuclear and conventional coal-fired plants rely on thermodynamic processes to heat water and use it to drive giant, magnetized turbines that generate electricity.

In the case of nuclear, the process works on the principle that very heavy elements like uranium are unstable. The uranium nucleus is held together by a specific energy, known as the binding energy, which is released in the form of gamma rays, neutrons, and kinetic energy when the nucleus is torn apart into more stable constituents.

Fission reactors use pellets of uranium, including the radioactive isotope U-235, encased in fuel rods. In the reactor's core, fissionable uranium undergoes a controlled chain reaction, releasing energy in the form of heat, turning pressurized water into pressurized steam to drive the electricity-producing turbines. The advantage over a coal plant is that during actual operation, there are no toxic emissions or CO₂ released from smokestacks (though some CO₂ is involved in the mining of uranium ore, refining, and enriching fuel, and construction of the plant itself). The disadvantage is that spent fuel persists at the end of its cycle as a long-lasting hazardous waste that must either be stored or reprocessed.

TOWARD A CARBONLESS FUTURE

The current energy picture is alarming. As Terry notes, fossil fuels today deliver 86 percent of our energy. Of the remaining 14 percent, roughly 40 percent is nuclear and about 20 percent is hydroelectric. Biomass is used much more widely than renewables like solar, geothermal, or wind power. "When we're talking biomass," Terry explains, "we mean people who are cutting down trees or plants and burning them to survive."

Nuclear energy will not provide a panacea for the world's energy woes. At best, it will be a slice of the new energy portfolio, which seeks to offset nearly all of the world's fossil fuels by mid-century, if goals set by the IPCC are to be met. Atmospheric CO₂ must be driven down and held to below 350–450 parts per million. The alternative, we are warned, is continued warming of the planet, with unknown and potentially catastrophic consequences.



Given these sobering estimates, one may wonder why carbon-reducing platforms, including nuclear, are not at the forefront of the nation's agenda. As chairman and chief executive officer of Exelon, owner of the country's largest fleet of nuclear reactors, IIT Board of Trustees Chair John Rowe has been pondering these issues throughout a lengthy career. He emphasizes that despite the gathering awareness of our energy predicament, new reactors continue to face daunting economic and political hurdles.

For the past 30 years or so, nuclear construction has languished due to a combination of public resistance and exorbitant cost. In addition, bureaucratic tangles from siting to reactor design approval and licensing are formidable, requiring about a decade for completion of a new plant. Though there has been some movement on Capitol Hill of late, Rowe remains skeptical. "Unfortunately, at the present time the only thing that's cheap is burning natural gas," he says, adding that convincing, bipartisan commitment to nuclear energy has yet to materialize.

Rowe says the prospects for meeting some of the more ambitious goals, which call for 350,000 megawatts of additional, carbon-free electrical energy by 2030, are bleak. "It's not going to happen," he insists, noting that 50,000 megawatts of additional nuclear by 2030 might be feasible. In the first 10 years of nuclear redevelopment, only 8,000–10,000 megawatts are projected, based on the construction of four to eight new plants. Rowe says an essential first step is the passage of aggressive climate legislation with incentives for carbon-free energy coupled with some system of cap and trade to limit carbon emissions.

In the second half of the century solar will have to play a very large role, but presently solar is uneconomic, at least without massive subsidies. Exelon estimates place natural gas at roughly \$10 a ton of avoided CO₂, whereas new nuclear comes in at around \$70 and wind varies from \$50–80 per ton. Offsetting CO₂ through sequestration or solar energy is even pricier. "I think it's terribly important that the first four to eight plants get built," Rowe stresses. "If they don't, we're not going to have a good base for building the 14 to 20 that we'll need going into the next decade."

In the wake of the December 2009 climate talks in Copenhagen, an increasing sense of urgency permeates discussion of our energy future. As demands for cleaner energy become ever more acute, the DOE hopes to expand its research base, with an eye toward maintaining existing nuclear facilities while paving the way for a new generation of reactors and safer means of disposing spent fuel. The NRR CAT project holds promise to be a valuable research element within the DOE's developing energy plan.

In the meantime, our daily energy consumption adds to the roughly 10 billion metric tons of carbon expelled into the atmosphere annually. According to the Energy Information Administration's Annual Energy Outlook for 2008, America's overall energy use is expected to grow by nearly 19 percent by 2030 while electricity demand alone is projected to climb by 30 percent during the same period. And every ton of CO₂ released into the atmosphere lingers there for a century—some of it for thousands of years. Turning the carbon tide will be slow.

TIME IS THE ENEMY

A profound transformation in the way the world acquires and uses energy has barely begun. According to the IPCC's 2007 report on climate change, world carbon output should ideally peak in just five years, before beginning a steep descent. The U.S. and other wealthy nations—the leading carbon polluters—need to slash carbon emissions 25–40 percent below 1990 levels by 2020, at a minimum. Added to the dilemma—rapid industrialization in the developing world and increasing population growth. "If we stay on this course and add another 4 billion people," Olive warns, "then even if we turn off our electricity and the U.S. goes dark, it won't matter." Global management of CO₂ is imperative, and new industrialization must be predicated on low carbon or carbon-free alternatives.

Today, concern for the environment—one of the very issues responsible for tabling nuclear energy three decades ago—may help drive the development of new reactors. It's an irony not lost on those involved in the nuclear field, as attempts are made to address what some authorities on climate change call the greatest challenge our species has ever faced.

Research into the behavior of radioactive materials, such as the new work planned for NRR CAT, will begin laying the groundwork for a nuclear renaissance, when it comes. If it comes. Political and economic barriers are wed to many remaining technological trials. "No one has yet had a eureka moment," Terry says, adding after a pause, "Boy, do we need one." ■

MORE ONLINE

Global campaign to reduce carbon: www.350.org

Exelon's 2020 low-carbon roadmap: www.exeloncorp.com/NR/rdonlyres/68F790FC-6ADB-422D-A7A5-36F3776748CC/0/080716Exelon2020_A_low_carbon_Roadmap.pdf

Technology behind nuclear reactors: www.howstuffworks.com/nuclear-power.htm

THROUGH A LENS, INTIMATELY



BARBARA CRANE

1 People of the North Portal (1970–71)

"I began to think specifically about the unique diversity of people in Chicago and chose the Museum of Science and Industry as the stage from which to view the massive cross-section of humanity that moves through its doors," says Crane. "The museum's visitors served as a microcosm of the city's race, class, age, and nationality, and as a way to look at the commonalities they all share."

2 Commuter Discourse (1978)

"The crush of people moving toward Union Station at the end of the day is fragmented by shapes created by light and shadow streaming down the canyons between buildings in the city," says Crane, who is part of the photograph as the shadow figure with the large bag over her arm. The quality of light, notes Crane, is essential to all of her imagery.

3 Urban Anomalies (2001)

Crane shot Urban Anomalies from Chicago's "E1" platforms, which allowed her to obtain unique views and look down onto rooftops of various neighborhoods. "The series explores the abstraction that occurs when a photographic frame is imposed on the architecture of the city," Crane says.



American photographer and environmentalist Ansel Adams said, "Photography, as a powerful medium of expression and communications, offers an infinite variety of perception, interpretation, and execution." Adams' words aptly describe the distinctive yet disparate photographic directions taken by IIT Institute of Design alumni **Barbara Crane** (M.S. PHOT '66) and **Robert E. David** (M.S. DSGN '73). While Crane, a groundbreaking artistic photographer, and David, official photographer for the Golden Gate Bridge Highway and Transportation District, have never met, they share several things in common besides their alma mater: a level of mastery in their chosen genres, a friend and colleague in Adams, and a love of the cities they each call home.

Visit www.iit.edu/magazine/online_exclusive to read expanded profiles on both Crane and David. Crane's work can be seen in the exhibit *Barbara Crane, Then/Now: The Eternal Thread of the ID Aesthetic*, in the Kemper Room Art Gallery at IIT's Paul V. Galvin Library through February 1. An exhibit of David's photographs of the Golden Gate Bridge and the surrounding San Francisco Bay Area will be on display in IIT's Hermann Hall Gallery Lounge, beginning with a reception on January 26. The exhibit will run through March 15. For more information, visit www.iit.edu/art. ■



ROBERT E. DAVID

1 Main Cable Inspection, Wedges in Place (June 26, 1998)

"Every 10 years the main cable of the bridge is thoroughly inspected," says David. "This photo shows where a 50-foot section of the main cable has been unwrapped and wedges have been driven into the wire strands to separate them to permit visual inspection of the interior strands." The bridge's main cable consists of 27,572 strands of 0.196-inch thick galvanized-steel wire arrayed into a 36-inch diameter circle.

2 Measuring Cable Band Bolt Tension (July 29, 1998)

"As part of the once-per-decade main cable inspection, cable bands and their associated bolts are scrutinized for structural integrity and appropriate tension," says David. "Cable bands hold vertical suspender ropes in position every 50 feet along the main cable." This photo, which shows the cable band nearest the top of the south tower, demonstrates the process of measuring the tension in one of the bolts.

3 Golden Gate Bridge from Presidio Bluffs (June 6, 1993)

"As I frequently do, I was on the lookout for colorful sunset conditions and was able to get to this location and set up my 8" x 10" camera in time to capture the moment at 8:15," says David. "The ¼-second exposure accounts for the blurs in the windswept foreground grass and the automobile traffic on the bridge. People frequently say that this photograph has a 'painterly' quality. In light of its apparent popularity, I published it as a poster."

4 Golden Gate Bridge from Fort Baker (January 1, 2000)

This night photograph taken from the United States Coast Guard station at the north end of the bridge was David's first for the new millennium. "The very clear and calm evening provided exceptional and peaceful conditions, allowing for the deep reflections of the bridge's illumination in the waters of San Francisco Bay," David explains. "A four-minute time exposure, including reciprocity allowance, enhanced this effect."



Any Old Way Won't Do

By **Marcia Faye**

Shelley Brown enjoyed two birthday cakes the year she was a freshman at Whitney M. Young Magnet High School on Chicago's Near West Side. One celebrated the day that she was born. The second cake changed the direction of her life.

"I owe my decision to pursue a lifelong career in biomedical research to Hortense Brice," says Brown, of the Chicago Public Schools biology teacher who assigned her class to come up with creative ways to portray a human cell in three dimensions. Brown envisioned a birthday cake as the cell, with its organelles drawn in colored icing.

"The idea for the cake may have been simplistic," says Brown, who is now a Ph.D. candidate in biomedical engineering at the University of Michigan. "But the impact Ms. Brice's teaching and that project had on my life was monumental."

In the 1990s, Brice regarded the still-emerging field of biotechnology with great interest and began educating herself by enrolling in teacher workshops on the subject at institutions ranging from the University of Chicago to Dartmouth College. Credited with bringing the study of biotechnology to CPS, Brice is now extending the field's reach to hundreds of classrooms through her leadership in a professional development program for CPS middle school and high school teachers.

Brice, who attended the Leadership Cohort master's program in IIT's Department of Mathematics and Science Education (MSED), retired in June 2009 after 42 years as a CPS educator. She is now devoting her time to a new program held in partnership with global medical products and services company Baxter International, Inc. Funded for five years, the program aims to train at least 30 teachers each year to bring biotechnology to the classroom.

Home base for the teacher development program is Lindblom Math and Science Academy, where Brice taught for the last four years of a career that also included appointments as biology teacher at Harlan Community Academy, biology teacher and science department chair at King College Prep High School, and biology teacher at Whitney Young. Her office is next to the biotechnology classroom and laboratory she established when she first came to Lindblom, still decorated as she left it, with clusters of colorful buckyball models hanging from the ceiling. Her voice is soft but her words convey a strong sense of self and purpose that is grounded in Southern-bred convictions of family, church, and education.

"My dad always used to say, 'Any old way won't do,'" says Brice about her father, who instilled in her this mantra as one of his many Alabama values. "And if I've shared anything with students over the years, I've told them very nicely, 'You are capable of achieving whatever you want. This work that you've given me is not consistent with what I see in you, and I will not accept this because any old way won't do.' It's so true. I tried to raise my son, Troy, that way, and people tell me that he's a great kid."

Hortense Brice in the biotechnology classroom/lab at Lindblom Math and Science Academy

Photo: Bonnie Robinson



Although she was born in the rural South, her mother made sure that books were a staple and typical Christmas gifts for Brice and her two sisters. Weekly trips to the local library and placement on the honor roll were all expected of the siblings, who would not play house but school, with eldest sister Brice as the teacher. When the family moved north, Brice's father learned the pipefitting trade and her mother went to school to become a medical technician. The sisters all graduated from college, with each chipping in to help pay the other's tuition costs. (Brice's late sister Delores "Dee" Parmer Woodtor earned a Ph.D. from Northwestern University and her sister Twinet Parmer earned a Ph.D. from the University of Iowa.)

For a short time Brice was married, though she raised her son singlehandedly after she and her husband divorced. Money was a little tight, but Brice knew how to make a stew of chicken drumsticks, veggies, noodles, and a dash of Lawry's seasoning go a long way.

"It's all in your philosophy. That's why I always sing my parents' praises as well as those of other older people who had some influence on my life," Brice explains. "Money is important, yes. But you can raise your children and bring them up properly without having a lot of money. It's about parental expectations and modeling, how high you raise the bar, and the importance you place on values, integrity, and character."

Brice has seen many parents make education a priority. After accompanying Brice on a class field trip to Lincoln Park Zoo, the mother of one Whitney Young student living in the Cabrini-Green public housing development was motivated to work two jobs—one that brought in money for daily living and a second for her daughter's new computer fund. Brice's own resourcefulness and determination netted thousands of dollars for laboratory tools through corporate grants she wrote to bring biotechnology to CPS.

Other priorities prevented the biotechnology program from gaining firm ground at both King College Prep and Whitney Young, but things changed when Brice went to Lindblom and met Principal Alan Mather, who encouraged her to write a course description to present to the Chicago School Board. The yearlong course was approved for launch at Lindblom, a selective-enrollment high school.

Mather spoke with Baxter representatives about partnership opportunities with the school and invited them to Lindblom's "Principal for a Day" program, where they observed the biotechnology course taught by Brice.

"They left saying, 'Now we know how we want to be involved,'" says Mather. "It was certainly her passion and competence that inspired those at Baxter to become involved in CPS. There is no other way to describe this partnership as coming from anywhere but from Hortense."

The Baxter grant provides \$2 million to support the Biotechnology Center of Excellence at Lindblom Math and Science Academy, \$1 million to support the CPS Renaissance 2010 model schools' initiative, and \$2 million to supplement ongoing learning opportunities for students and teachers throughout the city, including programs through MSED, which are benefiting from a gift of \$680,000.

Norman G. Lederman, MSED professor and chair, says that current science education reform emphasizes the integration of the sciences, orients science in a problem-based learning environment, and engages students through authentic, real-world problems.

"Emphasis on biotechnology is a very effective way to accomplish these goals," says Lederman. In recognition of Brice's contributions toward shaping the next generation of Midwest biotechnology and life sciences innovators and leaders, she was given the 2008 iCON Knowledge Builder Award from the iBIO Institute, an Illinois organization that promotes biotechnology education, training, and research.

Of the many recommendations made in the 2007 report *Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future*, issued by the Committee on Science, Engineering, and Public Policy, is one that states, "laying a foundation for a scientifically literate workforce begins with developing outstanding K-12 teachers in science and mathematics."

One influential teacher can make a lasting impression on a student, just as one did for Shelley Brown. ■

**"My dad always used to say, 'Any old way won't do.'
And if I've shared anything with students over the years,
I've told them very nicely,
'You are capable of achieving whatever you want.'"**

MORE  ONLINE

Baxter International, Inc.: www.baxter.com

IIT Department of Mathematics and Science Education: www.iit.edu/csl/msed

Renaissance 2010 Project: www.ren2010.cps.k12.il.us



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classnotes

1950s

Theodore Brown

(CHEM '50), Estero, Fla., authored two new books, *Imperfect Oracle: The Epistemic and Moral Authority of Science* (Pennsylvania State University Press) and *Bridging Divides: The Origins of the Beckman Institute at Illinois* (University of Illinois Press).

Ted Erikson

(CHE '52, M.S. CHEM '59), Chicago, qualified to swim in five events at the Senior National Games, held August 1–5, 2009. He is also planning a three-generation (father/son/grandsons) swim across Istanbul's Bosphorus in the 2010 Turkish Annual Competition.

Harold Gruen

(M.S. EE '59), Goleta, Calif., is retired as chief executive officer of Spectrum Technology.

→ Ronald Schauer

(EE '59), Boca Raton, Fla., spent 20 years with Siemens before he retired. Currently, he serves as an elder in his church and makes the curricula for theological studies. He enjoys golfing with his family. Schauer has one son, 49, and one daughter, 46, and grandchildren.

1960s

→ George Berg

(EE '60), San Diego, retired as captain for American Airlines and the United States Navy Reserve. He is enjoying grandchildren, golf, and California sun.

Jong Kimm

(ARCH '61, M.S. '64), New York, and his work were the subject of the book *Exploring Tectonic Space* by In Ha Jung (published in German and English by Ernst Wasmuth Verlag Tubingen–Berlin). The book includes discussions of the role of technology in Kimm's architecture and his concept of space. Some of his award-winning buildings include the 1988 Seoul Olympic weightlifting gymnasium; the Sonje Museum of Contemporary Art in Kyongju, Korea; and the Seoul Hilton International Hotel.

→ Norman Roth

(CE '62), Los Angeles, has an intellectual-property law practice in Los Angeles. He obtained a J.D. from Southern Methodist University School of Law in 1967.

→ John Watson

(BIOL '64), Daly City, Calif., is professor emeritus of biochemistry at the University of California, San Francisco. He and his wife, Valerie, have four children and five grandchildren.

Gerald Bepko

(LAW '65), Indianapolis, received an Honorary Doctor of Laws from Purdue University in May 2009. He has served two Indiana institutions of higher learning—Indiana University and Purdue—for 37 years as an instructor and administrator. Bepko is one of the few individuals to receive honorary degrees from both universities.

→ Richard Sutis

(ME '65), Naperville, Ill., retired as president of Goss International after 44 years of service. Sutis will retain his positions as vice chairman of the Board of Directors of Shanghai Goss Graphic Systems and member of the Board of Directors of Goss Graphics Systems Japan Corporation.

→ Charles Cairnes

(MATH '66), North Palm Beach, Fla., retired from the United States Navy, and is presently a principal with Charles W. Cairnes Jr. PA CPA. He and his wife, Deborah, enjoy competitive sailing and volunteering with the Boy Scouts. They have two children.

→ Jeryl Cordell

(PSYC '66), San Diego, spent 21½ years with the United States Navy before he retired. He is active in the symphony board, a special mayor's panel on water use, and county child welfare. He enjoys rugby, crew, volleyball, and traveling.

Barbara Crane

(M.S. PHOT '66), Chicago, had her photography featured in Barbara Crane: Challenging Vision, a 60-year retrospective exhibition, in the Chicago Cultural Center. The exhibit, held October 3, 2009 through January 10, 2010, was organized by the Chicago Department of Cultural Affairs.

→ Patricia Ecker

(M.S. SOCT '67), Camarillo, Calif., is partner in a small Los Angeles publishing company that produces materials for school districts. She and her husband have two grown children.

Linda Connor

(M.S. DSGN '69), San Anselmo, Calif., published the book *Odyssey: The Photographs of Linda Connor* (Chronicle Books), comprised of photographs she has taken of sites around the world.

Frank Doti

(LAW '69), Anaheim, Calif., celebrated 27 years of teaching law in southern California. He is a professor of law and holds the William P. Foley II Chair in Corporate Law and Taxation at Chapman University School of Law.

John Pikarski Jr.

(LAW '69), Chicago, received a lifetime achievement award from the Consul General of the Republic of Poland for his decades of effort on behalf of the National Polish-American Jewish-American Council. Pikarski is a principal in his firm, Gordon and Pikarski.

Joel Weisman

(LL.B. '69), Northbrook, Ill., was inducted into the International Press Club of Chicago's Journalism Hall of Fame.

Harvey Weiss

(BIOL '69, M.S. '72), Arlington Heights, Ill., has 17 patents in the biomedical product area.

1970s

→ John Ronge

(MET '70), Malibu, Calif., is an attorney and CPA practicing in Los Angeles. His wife, Arlinda, is a flight attendant for United Airlines. They have three sons.

→ Paul Ko

(CE '71, M.S. '72), Foster City, Calif., is a senior project director with the United States Department of Energy. He has two daughters.

William Schiemann

(PSYC '71, M.B.A. '73), Lebanon, N.J., published his second book, *Reinventing Talent Management: How to Maximize Performance in the New Marketplace*. He is chief executive officer of the Metrus Group, a research and consulting company that he founded in 1988, and serves as the chair-elect of the SHRM Foundation.

Felicia Dudek

(PSYC '72, M.S. REHB '74), Northbrook, Ill., was awarded the Distinguished Service Award from the Illinois Mental Health Counselors Association in November 2008. She received the Professional of the Year Award from the Illinois Alcohol and Other Drug Abuse Professional Certification Association in March 2009.

→ James Gatziolis

(LAW '73), Chicago, was elected first vice president of the board of directors of the Union League Club of Chicago in June 2009. He is a partner in the law firm of Quarles & Brady, LLP. Gatziolis and his wife, Shelley R. Smith, also an attorney, have two sons.

Steven Kramer

(LAW '73), Rancho Palos Verdes, Calif., joined the Los Angeles office of Sheppard, Mullin, Richter & Hampton as a partner. Kramer, who was previously with Mayer Brown, focuses his practice on civil litigation, SEC enforcement actions, and white-collar criminal defense.

→ **Rita Gorawara-Bhat**

(M.A.S. ARCH '74), Chicago, is a research associate in the Department of Medicine at the University of Chicago, where she conducts research on the influence of physical environments on physician-patient interaction. She and her husband have one son.

Idris Kothari

(M.S. EE '74), Saratoga, Calif., is co-founder, chief technical officer, and engineering vice president of Vertical Systems, a technology company that develops customer interfaces that enhance the guest experience at upscale hotels.

Michael Mercer

(M.S. PSYC '74, Ph.D. PSYC '80), Barrington, Ill., had his book, *Hire the Best & Avoid the Rest*, go into its 13th printing. He also created the widely used Dependability Forecaster pre-employment test.

→ **Eugene Moriarty**

(Ph.D. EE '74), Santa Cruz, Calif., is semi-retired from teaching electrical engineering at San Jose State University. He is a visiting professor in computer engineering at the University of California, Santa Cruz. He and his wife, Fran Guerrero, have two children.

Howard Primer

(LAW '74), Knoxville, Tenn., works with RenaissancePG, LLC, the owner and operator of large multi-family communities based in Knoxville.

Jeffrey Weiner

(LAW '74), Miami, won the seventh annual United Pipe Clubs of America contest. The UPCA is an organization for pipe smoking and collecting. Each year it holds a contest in which the person who keeps his or her pipe lit the longest wins. Weiner was named the 2009 U.S. National Champion with a time of 1:39:15.

→ **J. Edward Carryer**

(ENG '75), Stanford, Calif., and his wife, Sheri Sheppard, both teach mechanical engineering at Stanford University. Their daughter, Portia, is currently studying Medieval history/fiction writing.

The Honorable

William Pileggi

(LAW '76), Western Springs, Ill., was appointed supervising judge of the Cook County Circuit Court's Housing Section, which hears matters pertaining to building code violations and compliance brought by the City of Chicago and Cook County that impact the health and safety of occupants and the community.

→ **Hal Block**

(ARCH '77), Trabuco Canyon, Calif., is a trial attorney with Musick, Peeler & Garrett, LLP, practicing solely in construction litigation. He and his wife, Evita, and their four children live in Coto de Caza.

Michael Graff

(CHE '77), Houston, was appointed to the Air Liquide Group Executive Committee. Graff heads Air Liquide's industrial gas businesses in North America and the Caribbean, and in addition was recently appointed vice president of industrial risk management.

→ **Michael Kaufman**

(ARCH '77), Chicago, is a partner with Goettsch Partners, Inc.

→ **Robert Kerns**

(MATH '77), Rancho Palos Verdes, Calif., is president of Baja Hollywood Studios. He is involved with the Academy of Science Fiction Fantasy and Horror Films.

Terrence Lyons

(LAW '77), Lake Villa, Ill., practices law in Antioch.



Susan Solomon

(CHEM '77), Boulder, Colo., was inducted into the National Women's Hall of Fame in Seneca, N.Y., on October 11, 2009. It is another in a string of awards given to Solomon, who was the first person to explain how chlorofluorocarbons destroy the ozone layer. A senior scientist with the National Oceanic and Atmospheric Administration, Solomon shared in the 2007 Nobel Peace Prize in her role as co-chair of the Intergovernmental Panel on Climate Change. Solomon is a member of the National Academy of Sciences and a recipient of the National Medal of Science and the Grande Medaille from the French Academy of Sciences.

1980s

→ **Walter Augustin**

(EE '80), Altamonte Springs, Fla., retired from the United States Marine Corps following 27 years of active duty. He is a member of the U.S. Navy's Senior Executive Service and is currently serving as the technical director for the Naval Air Warfare Center Training Systems Division. He and his wife, Maria-Elena (PSYC '82), have two children, who are both pursuing their undergraduate degrees in engineering.

Robert Drea

(M.S. PHOT '80), Chicago, held the exhibit *Wounded in America*, which included his photographs of victims of gun violence, at Grace Episcopal Cathedral in San Francisco.

→ **Glenn Gentile**

(ME '80), San Diego, works at Hewlett-Packard as a manufacturing specialist in Web-based media products such as photo papers and five-meter-wide banners for inkjet-type printing.

→ **Brad Krygier**

(MGT '80), Winter Park, Fla., is vice president of sales and senior loan officer for Fidelity Mortgage Services, Inc. He and his wife, Diane, have two children.

Robert Schillerstrom

(LAW '80), Naperville, Ill., was inducted as a fellow of the DuPage Academy of Bar Leaders in May 2009 and announced his intention to seek the Republican nomination for governor of Illinois in the 2010 election. He and his wife, Mary Beth, have three children.

→ **Ronald Miller**

(M.P.A. '81), Chicago, retired as a United States Navy commander. Miller is active as a volunteer webmaster for several organizations and enjoys golfing, biking, and genealogy. He has two children, Aaron and Joanne.

Melissa Shyan-Norwalt

(M.S. PSYC '81), Cambridge City, Ind., is an animal behaviorist who consults with pet owners nationwide via email and telephone, making in-person visits when needed. She obtained a doctorate in experimental psychology from the University of Hawaii at Manoa and did a postdoctoral fellowship at the University of Texas Health Sciences Center at Houston.

Kenneth Solomon

(LAW '81), Frontenac, Mo., is a member at Gallop, Johnson & Neuman in St. Louis and has been approved by the United States District Court, Eastern District of Missouri as a "certified neutral" in the court's alternative dispute-resolution program. Solomon serves as chair of his firm's intellectual property practice.

Check out IIT on **You Tube**



IIT's YouTube page has clips ranging from the annual Pumpkin Launch to Commencement, and will soon feature faculty and student projects.

www.youtube.com/user/IITToday

→ **Michael Parks**
(CS '84), Poway, Calif., enjoys shooting photos and traveling to Chicago to visit family.

→ **David Pyrce**
(M.B.A '84), Murrieta, Calif., is chief executive officer of Nexsun Energy, a renewable energy, biofuels, and clean tech firm. Nexsun's mission is to generate an attractive investment return while contributing positively to the development of clean, renewable resources that will lead to a more sustainable future for generations to come. Pyrce and his family enjoy the California lifestyle—going to the beach, the mountains, and the desert.

→ **Nabeel Riza**
(EE '84), Orlando, Fla., is a professor of optics and electrical engineering in the College of Optics and Photonics at the University of Central Florida, where he founded the Photonic Information Processing Systems Laboratory. Riza's works have yielded more than 294 publications and 38 patents.

Steven Ross
(LAW '84), Chicago, is a bar attorney in the Chicago Bar Association's juvenile law program.

→ **Jeffrey I. Gross**
(EE '85), San Diego, is a technical director with BAE Systems. He and his wife, Kim, and their children, Ethan, 5, and Kayla, 3, enjoy California's sunshine and their koi fish.

Krista Johns
(LAW '82), Pleasanton, Calif., was appointed vice president of instruction at Berkeley City College in August 2009. She most recently served as dean of English and business at Diablo Valley College. Johns serves on the Pleasant Hill Chamber of Commerce board of directors and is the group's secretary. She also is a member of the small business loan committee of Contra Costa County's Community Development Block Grant Program.

Maryann Jones
(LAW '82), Anaheim, Calif., retired as dean and president of Western State University College of Law, roles she held since 2004. With more than 19 total years of service at WSU, Jones served as a full-time faculty member, acting dean, associate dean, and dean of the university's former Irvine Campus.

→ **Fera (Wagner) Mostow**
(LAW '82), Burbank, Calif., is vice president of business and legal affairs, music for Disney-ABC Television Group, The Walt Disney Company. Mostow is also a licensed marriage and family therapist.

Michael O'Donnell
(LAW '82), Lemont, Ill., was inducted as a fellow of the DuPage Academy of Bar Leaders in May 2009. He is a partner with the firm Novelle & O'Donnell, Ltd.

→ **Mark Ferrante**
(LAW '83), Chicago, is a trial lawyer who assists plaintiffs with litigation of complex injury matters involving serious injury or death caused by motor vehicle and premises liability accidents, medical negligence, defective products, and aviation and construction accidents. In April 2009, Ferrante celebrated the 18th anniversary of his solo-practice law office.

Thomas Greeson
(LAW '83), Reston, Va., was awarded the 2009 Calhoun Award by the Radiology Business Management Association. The award is given to an individual who has made outstanding contributions to radiology business management and has provided dedicated service to the association. *Nightingale's Healthcare News* listed Greeson as one of the top 10 "Outstanding Physician Practice Lawyers" in the United States in 2004 and 2009. Greeson is a partner in the life science health industry practice group at the Falls Church, Va., office of Reed Smith, LLP.

→ **Allen Villanueva**
(ARCH '83), Chicago, is the owner of STUDIO Villanueva Architecture, LLC. He has a 6-year-old daughter and enjoys coaching volleyball at her school.

→ **Michael Darmody**
(EE '84), Poway, Calif., is an independent consultant in the IT industry specializing in mobile, wireless, and security applications. He enjoys scuba diving and traveling.

→ **Soliman Khudeira**
(CE '84, M.S. '87, Ph.D. '99), Chicago, is a project director with the Chicago Department of Transportation. He enjoys teaching, volunteering, and taking short trips with his wife, Zahra.

Dimitris Lois
(CHE '84), Athens, Greece, was named chief operation officer for Coca-Cola Hellenic Bottling Company S.A. and is responsible for all of the company's regional business units. Prior to joining Coca-Cola Hellenic in March 2007, Lois held various senior management positions with Frigoglass S.A.

→ **Gary Hoffman**

(ME '86), San Diego, is a senior applications developer with Solar Turbines, Inc. He and his wife, Julie, enjoy hiking and playing tennis in the San Diego area. They have two daughters, ages 17 and 20.

Lisa Liewald

(LAW '86), Riverside, Ill., was recognized by *Cambridge Who's Who* in July 2009 for demonstrating dedication, leadership, and excellence in legal services. Liewald is a private practitioner specializing in intellectual property, child custody, and contested divorce law. She is a former president of the Bohemian Bar Association.

Barbara de Marigny

(LL.M. '87), Houston, received the 2009 Larry M. Katz Distinguished Service Award from the American Bar Association, Section of Taxation. A partner with the Houston office of Gardere Wynne Sewell, LLP, de Marigny focuses her practice on federal income taxation, partnership taxation, limited liability companies, domestic and international joint ventures, and tax planning for business transactions.

→ **Peter Falk**

(CS '88), Coronado, Calif., is a researcher at the Air University Center for Strategy and Technology. He was most recently United States Navy commanding officer at the Naval Computer and Telecommunications Station in San Diego.

Mathy Stanislaus

(LAW '88), Washington, D.C., was appointed by President Barack Obama to serve as assistant administrator for the United States Environmental Protection Agency Office of Solid Waste and Emergency Response. He co-founded and currently co-directs New Partners for Community Revitalization, Inc., a nonprofit organization whose mission is to advance the renewal of New York's low- and moderate-income neighborhoods through the redevelopment of brownfield sites.

Thomas Walsh

(BA '88), Haverhill, Mass., is married and has three children, ages 8, 5, and 3. Walsh's nephew, Nils Bergman, began his freshman year at IIT in fall 2009.

→ **Gina Powell-Ribeiro**

(PSYC '89), Kissimmee, Fla., is an organization development consultant and new business developer. Her husband, Jose, is a P.E.-licensed engineer working at NASA. The couple has a 5-year-old child.

1990s

→ **Rosemary Krimbel**

(LAW '90), Chicago, is general counsel with the City of Chicago's Department of Business Affairs and Consumer Protection. She and her husband, John, are ballroom dancers and have been married for 25 years. Their son, Ben, is an economist for Booz & Company in Tokyo.

→ **Deborah O'Brien**

(LAW '91), Longwood, Fla., heads the Orlando office of the Chicago-based law firm Lewis & Gellen, LLP. She and her husband, Chris, have two children, ages 11 and 8.

Scott Wineberg

(LAW '92), Waukegan, Ill., has left the Lake County Public Defender's Office, where he was employed for 17 years, and has established a law practice in Waukegan. He continues to concentrate on juvenile and criminal cases, including traffic and DUI cases.

Don't lose touch with your friends!

There are so many ways to reconnect with your alma mater. Join social-networking sites to stay in touch with old friends, professors, and classmates, and to keep up with the university as a whole. The best way to reconnect, though, is to come back for a visit!

The class of 1960 celebrates its 50th reunion this year at Homecoming!

Come home and see us at Homecoming this September. Hang out at the new Bog, visit the renowned McCormick Tribune Campus Center, or simply enjoy the beautiful greenery on Main Campus. You won't believe how much the campus has changed. We hope you'll take this opportunity to attend your special reunion. You'll be welcomed back to campus with enthusiasm and feel like a part of the excitement all over again.

Reconnect with IIT today!

But don't wait until Homecoming to look us up. Register at IIT's alumni website to start reconnecting today. It's a free service, and once you're a registered member you can start writing to old friends, connect with former professors, and catch up with university news. Be sure to check the site often; important upcoming events, such as the date for Homecoming, will be announced periodically.

Register today at <http://alumni.iit.edu>



ILLINOIS INSTITUTE OF TECHNOLOGY

→ Ramiro

Atristain-Carrion (M.B.A. '93), Chicago, is a vice president at Harris Bank and teaches at DePaul University. He enjoys volunteering on the Alumni Advisory Council of Dominican University, where he chairs a leadership program with alumni from Spain, and serving as treasurer for his 5-year-old son's school.

→ W. Rick Duel

(EE '93), Chicago, engineers, builds, and maintains two-way radio systems used by the Chicago Police Department, Chicago Fire Department, Emergency Medical Services, and others. He also enjoys ham radio and builds ham radio repeaters in his spare time. Duel is a member of the Knights Templar.

→ Peter Thieman

(LAW '93), Washington, D.C., has joined the Washington, D.C. office of Sonnenschein Nath & Rosenthal as counsel to the energy and regulated industries practice. Thieman was previously with White & Case.

→ Tony Valevicius

(LAW '93), Chicago, is senior counsel at Brown, Udell, Pomerantz & Delrahim, Ltd. He enjoys rugby and bodybuilding.

Jason Wilen

(ARCH '93), Bartlett, Ill., recently joined the Chicago firm Brook Architecture, Inc. as vice president.

Michele (Therrien)

Krause (LAW '94), Frankfort, Ill., joined the newly formed firm of Ginsberg, Jacobs, LLC in June 2009 as a partner. Krause practices commercial real estate law, with a particular focus on retail and office leasing on behalf of both landlords and tenants.

Andrea Bertone

(MAL '95), Charlotte, N.C., was named president of Duke Energy International, one of the largest electric power-holding companies in the United States and Latin America. She had previously served as DEI's general counsel and as legal director for DEI Parapanema. Bertone has a law degree from the University of São Paulo in Brazil.

Christine Boardman

(LAW '95), Chicago, was appointed a trustee of the Illinois State University Retirement System board by Governor Pat Quinn in July 2009. The system provides retirement pensions and other benefits for staff members and employees of state universities, community colleges, and some state agencies. Boardman is president of the Service Employees International Union Local 73.

→ Alexander Juden

(CE, TE '95), San Diego, is a professor of mathematics at Southwestern College in Chula Vista.

→ Leslie Robbins

(LAW '95), Hillsborough, Calif., is a patent attorney at Elan Pharmaceuticals in South San Francisco. She and her husband, Doug, have a son, 3½, and a daughter, 18 months.

Matthew O'Hara

(LAW '96), Chicago, received the 2009 Sean Halpin Award from Reed Smith, LLP for his commitment and service to *pro bono* representation on behalf of a client on death row in Illinois and three men detained at Guantánamo Bay. O'Hara concentrates his practice on the litigation and trial of complex commercial litigation matters in federal and state courts throughout the United States.

Mark O'Meara

(LAW '96), Chicago, was promoted to partner at the Chicago office of Chapman and Cutler in June 2009. He is a member of the banking department, representing banks and financial institutions in documenting and structuring secured and unsecured transactions.

Emily Miao

(LAW '97), Chicago, spoke at the Arizona State University 2008 Strategic Alliance Workshop on issues relating to intellectual property protection for startup companies applying for SBIR/STTR grants. She also participated in the panel on the Analysis of a Technology License Agreement at the Patent Law Institute's 2008 Advanced Licensing Agreements Conference.

Farhana Shah

(Ph.D. CS '97), Islamabad, Pakistan, is founding director of the Institute of Information Technology at Quaid-i-Azam University, where she is also a professor of information technology. Her area of research is intelligent tutoring systems and linguistics.

→ Pariyaporn

(Songtrakul) Wada (M.A.S. ARCH '97), San Diego, is an associate architect with Lord Architecture, Inc. She and her husband, Takuma Wada (M.A.R. ARCH '98), have two children, ages 5 and 7.

Robert Brevelle

(CS '98, M.S. '98), Rowlett, Texas, was appointed vice president of intelligence solutions at DRS Defense Solutions.

Susan E. Stevens Stout

(ARCH '98), Olive Branch, Miss., and her husband, Chasen, welcomed their first child, Isaac Roy, in February 2009.

Brian Barrett

(LAW '99), Joliet, Ill., was sworn in as circuit court judge in Will County in May 2009. Barrett is filling the newly created Fifth Subcircuit, Judgeship A and is assigned to hear criminal misdemeanors/DUI. He is running for election in the February primary.

→ Kim Turkington

(M.B.A. '99), San Diego, is a product manager for Teradata Corporation. Turkington enjoys playing golf and racquetball, and traveling with his family.

Adam Weber

(LAW '99), The Hague, Netherlands, joined the United Nations Office of the Prosecutor in The Hague in April 2008. Assigned to the International Criminal Tribunal for the former Yugoslavia, he concluded the trials of Milan Lukic and his cousin, Sredoje Lukic. Weber's current case is the prosecution of Jovica Stanišić and Franko Simatovic, the heads of the intelligence services for Yugoslavia.

2000s

Jason Bettendorf

(LAW '00), Chino, Calif., is an associate at Wesierski & Zurek.

Stuart Dorf

(LAW '01), Farmington Hills, Mich., was appointed senior vice president of XSite Validation, a company providing online commercial real estate analysis. Prior to joining XSite, Dorf was a banking and finance attorney at Maddin, Hauser, Wartell, Roth & Heller, PC. In addition, he was the national sales manager at NRC Realty Advisors, LLC. Dorf also co-founded InStadium, LLC, the country's leading provider of restroom advertising in more than 240 major league stadiums and premier sports venues.

James Heath

(LAW '01), Detroit, is an assistant attorney general in the health care fraud division of the Michigan Attorney General's Office. He was a 2005 fellow in the Michigan Political Leadership Program, a nonpartisan training institute for would-be officeholders.

Teisha Johnson

(M.S. MCOM '01), Chicago, received a Diversity Mini-Grant from the Association of Schools and Colleges of Optometry for a program held at the Illinois College of Optometry in July 2009. Focus on Your Future Summer Program, a week-long event aimed at introducing underrepresented minorities to the profession of optometry and the ICO, was created by Johnson and was funded for the second consecutive year.

Ben Hunter

(AE, ME '03) and **Janel (Hatton-Santiago) Hunter** (ME '02), Rockford, Ill., are both licensed professional engineers. The Hunters were married in 2004, and are employed in the Turbine Systems Division of the Woodward Governor Company. Ben is a product development engineer and Janel is a components test engineer.

Juliana Campagna

(LAW '03), Berwyn, Ill., is a visiting professor at the John Marshall Law School, where she teaches lawyering skills and United States law courses to international students. She obtained an LL.M. in international business and trade law, and is sole shareholder of her own law firm, dividing her practice between tax and business issues for small and mid-size businesses, and lawyering skills seminars for international law firms.



Help Us to Identify the Next Generation of Undergraduates at IIT for Fall 2010

To uphold the tradition of excellence in undergraduate education, we're asking our alumni to help connect IIT with the brightest and most promising future students. You can be a valuable partner in our future—and theirs.

If you know a talented prospective first-year or transfer undergraduate, please email or call Jerry Doyle, vice provost for undergraduate enrollment and financial aid (doyle@iit.edu, 312.567.5203). The student will receive a letter indicating that you referred him/her, along with our viewbook about the undergraduate programs at IIT. We will also send the student the latest edition of *IIT Magazine* and a poster describing the Fall 2009 IPRO Day on Main Campus.

In addition to the fine merit- and need-based financial aid programs at IIT, we are pleased to renew our commitment to the following initiatives:

Alumni Scholarship Application: Children and grandchildren of alumni, and siblings of currently enrolled IIT students are eligible to apply for the Alumni Undergraduate Scholarship (awards range from \$1,000–\$2,500). For more information, please contact Jill Sifuentes, associate director for undergraduate enrollment and recruitment, at sifuentes@iit.edu.

First-Semester Book Voucher: New first-year or transfer students who enroll at the university upon the recommendation of IIT alumni will receive a \$100 book voucher in the alumnus/a's name toward the purchase of their first-semester's books.

To learn about supporting these programs with a tax-deductible gift, please contact Brandon O'Hare, annual giving officer, at bohare@iit.edu or 312.567.5029.

There is no better testimony to the quality of an IIT education than the endorsement of its alumni. Thank you for lending your support to this important alumni initiative.

http://iit.edu/undergrad_admission

Christopher Williams

(LAW '04), Chicago, was quoted in a front-page article in the August 18, 2009 edition of *USA Today* entitled "Bad economy sparks more complaints of wage theft." Williams was quoted as the executive director of Working Hands Legal Clinic, a not-for-profit organization providing *pro bono* legal services in employment law to low-income workers in and around Chicago.

Timothy Caister

(LAW '05), Merrillville, Ind., rejoined Northern Indiana Public Service Company as director of electric regulatory policy. Prior to rejoining NIPSCO, Caister was associate general counsel for Ameren Services Company in St. Louis. Caister formerly served as an attorney for NIPSCO and as a manager of regulatory and government policy.

Eric Burger

(Ph.D. CS '06), Sterling, Va., was appointed chief technology officer for NeuStar, Inc. Prior to joining NeuStar, Burger was acting general manager of the Communications Products Division at BEA Systems, Inc., where he also held the posts of deputy chief technology officer and vice president of engineering earlier in his BEA tenure. Burger holds 17 published patents in the United States, with several pending, and holds additional patents in other countries.

Jason Nickla

(LL.M. '06), Omaha, Neb., joined UNeMed, the technology arm of the University of Nebraska Medical Center, as a licensing specialist, and works with faculty to receive, evaluate, protect, market, and license their new discoveries that were developed at UNMC. Nickla and his wife, Mindy, welcomed their first child in June 2009.

Nathan Hinch

(LAW '07), Winfield, Ill., opened Hinch Law, in Winfield, serving the legal needs of small and mid-size businesses, and especially those in the construction, design, and real estate development community.

Robert McKenzie

(LAW '07), Wheeling, Ill., joined the Chicago office of Arnstein & Lehr as an associate, and concentrates his practice on business, creditor's rights, litigation, and aviation. He comes to the firm from Lavelle Law, Ltd., where he founded and managed the Aviation Law Group. McKenzie is a Federal Aviation Administration Certified Flight Instructor and commercial pilot.

Joseph Silvia

(LAW, LL.M. '07), Washington, D.C., is an associate with Weiner Brodsky Sidman Kider, PC. Silvia is currently enrolled in the master of laws program in international law at George Washington University. He and his wife, Lynn Marie, were married in July 2009.

Brian Bailey

(LAW '08), Fort Wayne, Ind., joined the intellectual property group at Baker & Daniels, LLP, where he practices from the firm's Fort Wayne office. Bailey focuses his legal practice on patents. His technological experience includes medical devices, automation equipment, and automotive technologies.

Gina Bicknell

(LAW '08), Chicago, an attorney with Marshall, Gerstein & Borun, LLP, earned the Certified Licensing Professional credential from the Licensing Executives Society. Bicknell concentrates on intellectual property transactions for universities, small startups, and large corporations.

Matthew Kriezelman

(LAW '08), Chicago, joined the firm of Kriezelman, Burton & Associates, LLC, where he is practicing immigration law.

Graham Balkany

(ARCE, ARCH '09), Chicago, is a researcher with the Gropius Coalition in Chicago. Historic preservation efforts he and the group have made to save several Walter Gropius-designed buildings on the Michael Reese Hospital campus have been the focus of articles in the *Chicago Tribune* and other publications.

David Poli

(EE '09), Park Ridge, Ill., completed internships at Argonne National Laboratory and Ball Aerospace in Boulder, Colo., and accepted a position with Sargent & Lundy, LLC in Chicago.

advocate for justice

BY
MARCIA FAYE

THIS IS THE GOSPEL ACCORDING TO **JOE**:



“YOU DON’T CARE IF THEY’RE INNOCENT OR GUILTY; IT DOESN’T MATTER.
THIS IS WHAT MATTERS: CAN THEY PROVE IT?
THAT’S WHAT THE SYSTEM IS DESIGNED FOR, AND I BELIEVE IN THE SYSTEM.
I BELIEVE THERE WAS A LOT OF BLOOD SHED ON THE BEACHES OF NORMANDY
AS WELL AS IN VALLEY FORGE TO PROTECT THE CONSTITUTION.
DO INNOCENT PEOPLE GET CONVICTED? ABSOLUTELY.
DO GUILTY PEOPLE GO FREE?
FOR SURE THEY DO, BECAUSE THE CASE CAN’T BE PROVEN.
YOU JUST HAVE TO BELIEVE IN THE CONSTITUTION.”

m eet criminal defense attorney Joseph R. Lopez (LAW '83), aka "The Shark," whose client list comprises some of Chicago's most notorious and colorful citizens: Fernando King, the No. 2 man of the Latin Kings street gang; Anthony "The Hatch" Chiaramonti, reputed mob boss; and Lopez's biggest fish to date, Frank "Frankie Breeze" Calabrese Sr., reputed hit man and a central figure in the Operation Family Secrets trial, a federal case that made headlines the world over during the summer of 2007. In the city's biggest underworld trial in decades, Calabrese Sr., along with four other members of the Chicago Outfit crime syndicate, was convicted of taking part in a racketeering conspiracy that included gambling, loan sharking, extortion, and murder. In January 2009, Lopez's client was sentenced to life in prison.

A framed copy of page one from the June 22, 2007 issue of the *Chicago Tribune* with the headline "1st Shots of Outfit Trial" hangs in Lopez's office in the Loop's Monadnock Building. Also on the wall is the poster child for his self-discipline and sense of control, both qualities that Lopez forged in the weight room. "I used to be a bodybuilder when I was a kid and Arnold Schwarzenegger was my hero," he says, looking at the supersized, autographed *Muscle & Fitness* cover of the iron icon, flexing in all of his pre-gubernatorial glory. With his broad upper body and trim lower torso in the tailored suits and bright shirts he favors, Lopez can cut as intimidating a figure as some of the clients he represents.

While his nickname, "The Shark," which Lopez uses on his vanity plates and email address, might have been muttered under the breath of a disgruntled prosecution attorney, his buddies from Southern Illinois University in Carbondale first gave him the moniker. "I guess I was ruthless in whatever I did," Lopez offers, lowering his steady gaze only momentarily, humor aside.

Someone who was always the social but independent sort, Lopez thrived in college and never had the desire to join any of the neighborhood gangs; however, he still gained an education that can only come from the streets. "I learned a lot about gangs as a kid; I've been around drug dealers and wiseguys for most of my life," he explains. "I know how it all works, which is one of the reasons I wanted to go in a different direction, to get away from the things I knew from the past."

Lopez had intended to go into divorce law, but two experiences influenced him to redirect his plans. When he became the only student in several classes at IIT Chicago-Kent College of Law to obtain a hung jury in a mock murder case trial, his teacher, The Honorable Warren D. Wolfson, praised him as a natural at criminal law and suggested that he consider practicing the specialty.

"I recall Joe Lopez's passion and determination on the courtroom floor," says Wolfson, Illinois Appellate Court judge and now interim dean for DePaul University College of Law. "He was teachable but never abandoned his own personality. I was not surprised to learn he has become an effective and devoted criminal defense lawyer."

Shortly after Lopez's graduation, a colleague approached him about representing some drug dealers in a federal court case. The Shark bit the bait and was hooked.

"I enjoy doing this because I like taking on the government; it's not so much the client as it is taking on the system," says Lopez, who admits that he's always been a bit of a revolutionary, a child of the 1960s hippie movement who protested the Vietnam War because he felt draftees shouldn't have to go if they didn't want to participate. "To me, fighting the system is what it's all about. There has to be somebody out there to challenge the government, whether state or federal, and I enjoy doing it. Every trial is the Super Bowl."

For all his bravado, Lopez knows that criminal defense attorneys are not well liked, even despised, and while he may at times find this prevailing attitude frustrating, he makes no apologies for the work that he does. Those who question Lopez's zeal to represent the clients that he does may be equally perturbed that his clients' innocence, or lack of it, is not his concern.

"Being legally responsible and morally responsible are two separate issues. If you kill somebody and you get away with it, then you'll maybe have to answer to a higher power, if you believe in God," says Lopez. "I don't press clients to confess to me, like some lawyers do; I'd rather not know." Wolfson, who spent 18 years in the practice of criminal defense, takes a similar view. "I believe defense lawyers should not judge their clients; rather, lawyers should sincerely believe in the presumption of innocence, challenging the prosecution to prove its case beyond a reasonable doubt," he says.

After spending weeks and oftentimes months building a case that may be up against a slate of government wiretaps, surveillance tapes, fingerprints, and informants heavier than any of the poundage he's ever hoisted in the weight room, Lopez relinquishes it all into the capable hands of his fellow Americans. And while he knows there could be a psychological hairline separating the "more than likely" from "beyond a reasonable doubt," he is hopeful that the evidence will compel them to do what is right.

"Our jury system is the best in the world—the best in the world," Lopez emphasizes. "But like with anything, you're going to find good jurors and bad jurors; some jurors will just not find someone not guilty no matter what the evidence. You can't change the nature of people. You have to deal with it and find other ways to try to convince them. It's not an easy thing. We lose most of the jury trials that we do, but any concession is a victory."

For Lopez, even a reduced sentence is a triumph that is as noble as any of the battles that were fought in defense of the Constitution of the United States, a country that he points out, ironically, was founded by law-breakers.

"People are powerless unless they have a criminal defense lawyer," he says. "We're the bridge between them and liberty."

Velocity *broadening its reach*



The Velocity Initiative broadened its reach to IIT alumni in fall 2009, with more students and new graduates joining the effort to connect with alumni about their IIT experiences.

Velocity welcomed new full-time ambassador Isida Karpuzi (ARCH '09). Full-time ambassadors have been visiting alumni in California, Connecticut, Florida, Kansas, Minnesota, New Jersey, New York, and Texas, while student ambassadors continue to visit with alumni in Chicago and the suburbs.

"I am amazed at our alumni's interesting lives, the variety of professions the same major can lead to, and of course the thoughtful remarks they make," says Karpuzi.

"What impresses me the most is that

almost all of the alumni I have met so far show a continuing interest in learning, even after they retire, and they are always looking forward to developing their knowledge further."

"My interview with a Velocity ambassador really made me think about IIT," says Richard Ward (ME '59), who lives in Chicago. "It helped me decide—after 50 years—to come back for my reunion this past fall. I'm so glad I came back. I had a wonderful time reconnecting and look forward to staying involved with IIT."

Velocity ambassadors will continue their nationwide road trip throughout 2010. The Velocity Initiative is enhancing its website to include stories from ambassadors and alumni.

- www.iit.edu/giving/velocity

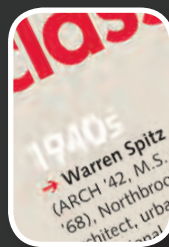
Velocity ambassador Isida Karpuzi (ARCH '09)



DISCOVERIES

Fun facts we've learned about IIT alumni during Velocity interviews:

- **An MAE Ph.D. alumnus in Kansas** who holds four patents also helped to develop the space suits still worn by United States astronauts.
- **An ME M.S. alumnus** who holds 30 patents related to electronics communication also invented the AT&T Universal Wiring plan and designed the technology that allowed the Beijing Olympics to be broadcast throughout the world.
- **An ARCH alumnus** who has managed real-estate developments worldwide is currently managing Goldman Sachs' \$2 billion development in New York.
- **A PSYC M.S. and Ph.D. alumna** has done pioneering work in forensic psychology.



See What's New Through Velocity

The Velocity Initiative is revealing new and exciting information about your fellow classmates. In this and future issues of *IIT Magazine*, all alumni class notes that resulted from a Velocity interview are marked with the → icon. To submit your own class note online, visit www.iit.edu/alumni or write to us at alumni@iit.edu.

INVESTING IN THE FUTURE

The Quiet Generosity of Louis and Dorothea Schult



Dorothea and Louis Schult

Sometimes gifts to IIT come with great fanfare and publicity. Other times they are made quietly, with little or no advance notice. IIT has received 131 unexpected estate gifts in the past 20 years from alumni, alumni spouses, or friends of the university. These gifts, totaling \$33 million, have helped the university to fulfill its mission and provide scholarships for deserving students. Yet, the donors never informed the university during their lifetime that they had made provisions for IIT in their estate plans.

One of these unexpected estate gifts came from Louis Schult, who passed away at the age of 96 in 2007. Since IIT had no knowledge that Schult was planning to give his estate to the university, IIT never got the chance to recognize him during his lifetime. But thanks to James Fine, Schult's attorney and friend of 30 years, the story of this generous man and his wife, Dorothea, can be told. Schult, who attended Armour Institute for some time, was very grateful for the education he received and the life it made possible. He spent his career at General Electric and traveled all over the world, opening factories and plants, often taking Dorothea with him. According to Fine, the Schults enjoyed life, living comfortably yet modestly.

Although humble, the Schults left behind a legacy that will be made well known to the students of IIT who will benefit from their generosity. Four scholarships each year will bear the Schult name, and programs across the university will be enriched by Louis and Dorothea's support.



**DON'T KEEP
YOUR GIFT
A SECRET**

If you have named IIT as a beneficiary of your estate, please let us know so we may properly thank you and include you as a member of our esteemed Gunsaulus Society.

For more information about the Gunsaulus Society, please contact Elaine Clay, assistant director of planned giving, at 312.567.5028 or plannedgiving@iit.edu.

Gunsaulus | SOCIETY



Homecoming Chess

A chess tournament was just one of the activities featured during Homecoming Week, held September 20–26, 2009.



Homecoming Group

A group of undergraduate friends pose in their red Homecoming Week T-shirts.



Homecoming Hawks

Students join the IIT Scarlet Hawk at the Homecoming Parade.



Golden Alumni Awards

Jim Leyerle (CHE '59), Diane Oestreich (CHEM '59), and President John Anderson distribute medallions to the Class of 1959 and alumni from earlier classes.



Golden Alumni Society Reunion

More than 100 alumni, retired faculty, and Gunsaulus Society members attended the 2009 Golden Alumni Society Reunion, celebrating the classes of 1959 and earlier with a special recognition of the military service of IIT alumni.



ID Class of 1959

The ID Class of 1959 and other classmates from the late 1950s and 1960s celebrated their 50th reunion on October 24. Alumni were awarded medallions with the IIT seal by ID faculty member Judith Gregory.



DePaola/Kaplan Investiture Ceremony

Natacha DePaola, who was invested as the Carol and Ed Kaplan Armour College Dean of Engineering Endowed Chair on October 21, 2009, is joined by her benefactors.



IIT Stuart Executive of the Year Award

Ellen Costello, president and chief executive officer of Harris Financial Corp., was named the IIT Stuart School of Business Illinois Executive of the Year at an award luncheon held on September 11, 2009.



Nate Thomas Event

Celebrants join Nate Thomas at a tribute held in his honor on June 27, 2009. Thomas served at IIT for 22 years in various staff positions and helped to increase enrollment of African-American students in the 1970s and '80s.



Upcoming Alumni Events

For information about upcoming alumni events listed below and other alumni activities, contact the Office of Alumni Relations at 312.567.5040 or alumni@iit.edu.

Engineers Week Events

IIT Rice Campus
Wheaton, Ill.

Engineers Week Speakers Forum Thursday, February 18, 2010

Hear a discussion about current topics in engineering. This free event includes a light dinner.

Engineers Week Expo Saturday, February 20, 2010

Plan to attend this family-friendly, free event that makes engineering, science, and mathematics fun and accessible to learners of all ages. Children can join in hands-on activities that feature Lego robotics, model airplanes, lasers, and bicycles. An alumni-only event will take place from 10–11 a.m. Expo events will run continuously until 3:30 p.m. Advance registration is required.

Asian Alumni Meeting Friday–Sunday, February 26–28, 2010 Mumbai, India

Activities include a welcome dinner, sightseeing outing, and food processing and safety innovation symposium.

NetSecure—the IT Security and Forensics Conference and Expo Thursday, March 4, 2010

IIT Rice Campus
Wheaton, Ill.

This multi-track technical conference attracts 200-plus professionals to discuss security, forensics, ethical hacking, policy and compliance, privacy, security of wireless and cloud computing, identity theft, and much more. For more information, please visit www.iit.edu/cpd.

Thirsty Thursday Thursday, March 4, 2010, 5–7 p.m. WestEnd Bar and Grill 1326 W. Madison Street, Chicago

Join other Chicago-area alumni for an after-work networking event. Check the IIT Alumni Association website (<http://alumni.iit.edu>) for a Cubs Thirsty Thursday in the spring and a White Sox Thirsty Thursday in the summer.

Southern California Baseball Gathering Monday–Friday, March 8–12, 2010 Irvine and San Marcos, Calif.

After watching the IIT baseball team play Concordia University at Irvine on March 8, join the team and President John Anderson for dinner in Orange County. From March 9–11, the team will play California State University San Marcos; join President Anderson at dinner at a location to be announced. On March 12, take a tour of the Marine Corps Air Station Miramar, followed by lunch at the Officers' Club with President Anderson and the baseball team. For more information, contact Marian Quirk at 312.567.5000 or quirk@iit.edu.

Mies' Birthday Party Thursday, March 25, 2010, 6 p.m. S. R. Crown Hall IIT Main Campus

For more information, contact Kelly Merrion at 312.567.5025 or khyman@iit.edu.

Alumni Awards Ceremony/Luncheon and IPRO Day Friday, April 23, 2010 Hermann Hall, IIT Main Campus

Join with other members of the IIT Alumni Association to celebrate the accomplishments of our distinguished alumni. The ceremony will begin with a reception at 11 a.m. and will be followed by a formal luncheon and presentation of awards at noon. For more information, please contact the Office of Alumni Relations at 312.567.5040 or alumni@iit.edu.

IIT Commencement Saturday, May 15, 2010

Alumni Holiday International Discovery Tours

Treasures of South Africa April 20–May 4, 2010

Enjoy a specially designed itinerary and exceptional opportunities to experience the breadth of culture, landscape, and wildlife of South Africa.

Grand Journey Spain October 14–26, 2010

This great itinerary starts in Madrid, then heads north to Segovia, Avila, Salamanca, and Burgos. You'll continue on to the wine country of La Rioja, with stops in Bilbao and Zaragoza, before concluding the journey in Barcelona.

For more information, contact <http://iit.ahitravel.com> or Marian Quirk at 312.567.5000.



obituaries

Zalman Lavan

M.S. ME '62, Ph.D. '65

Department of Mechanical, Materials, and Aerospace Engineering



Solar energy pioneer Zalman Lavan looked to the sun as inspiration for more efficient ways of heating and cooling. An international authority on thermodynamics, Lavan maintained a solar energy research station on Main Campus and led students in projects on how the sun could best be utilized as a source of heat and hot water. In the mid-1970s, Lavan and his team won an international university

competition in Albuquerque, N.M., with their solar energy collector, taking the top prize in a field of entrants that included Massachusetts Institute of Technology and the University of California, Berkeley. Lavan also produced a study that demonstrated how properly installed window shades could decrease home-cooling costs by 21 percent and heating costs by 8 percent.

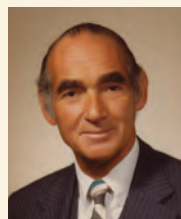
A native of Poland, Lavan grew up in Israel and immigrated to the United States in 1953. He served on the IIT faculty from 1965–1991 and was known for his mentoring skills, supervising the dissertations of many master's and doctoral students. A consultant to energy companies the world over, Lavan held many patents for his innovative research.

Lavan is survived by his wife of 52 years, Florence, two sons, and four grandchildren.

Henry R. Linden

Ph.D. CHE '52

Department of Chemical and Biological Engineering



While Henry R. Linden could be described in many ways—teacher, mentor, researcher, and visionary—two generations of IIT students and colleagues gave him the moniker that perhaps characterized best his far-reaching reputation: “Mr. Energy.” Since his first faculty appointment at IIT in 1954, Linden devoted his career to issues such as global climate change, the hydrogen economy, efficient fuel utilization,

sustainable global energy systems, and industrial ecology, and in so doing, established IIT as a center of excellence in energy engineering.

For 30 years, Linden served at the Institute of Gas Technology, including 17 years as director and four years as president and trustee. He also secured federal funding and approval to establish the Gas Research Institute, a cooperative research and development effort with the natural gas industry, and served as its first president and on its board from 1977–1987. When Linden retired from GRI, he became a full-time faculty member and established a comprehensive research and education program in sustainable global energy development at IIT. From 1989–1990, Linden served as the university's interim president. In 1990, he was named Max McGraw Professor of Energy and Power Engineering and Management.

Linden served on numerous government advisory bodies from the Kennedy through the Clinton administrations, and held a presidential appointment during the Ford administration. He authored or coauthored more than 240 publications on energy issues, and received 27 patents. His honors were many and included national awards, such as the Homer H. Lowry Award for Excellence in Fossil Energy Research from the United States Department of Energy, and professional awards, such as a Lifetime Achievement Award from *The Energy Daily*. IIT presented Linden with the Professional Achievement Award, the Alumni Medal, and induction into its Hall of Fame.

Linden was a member of the National Academy of Engineering and a fellow of the American Association for the Advancement of Science, the American Institute of Chemical Engineers, and the Institute of Energy.

Linden is survived by his wife of 42 years, Natalie, two children from his first marriage, and a granddaughter.

Thomas Lyle Martin Jr.

IIT President (1974–1987)



IIT continued to grow beyond its Main Campus core during the presidency of Thomas Lyle Martin Jr. A pioneer in distance education, Martin expanded programs offered at the Downtown Campus and acquired the Midwest College of Engineering, now IIT's Rice Campus. He oversaw a significant increase in enrollment and in the 1970s, spearheaded a groundbreaking effort to actively reach out to and recruit minority and female students, assisted by a \$100 million capital campaign that he undertook and completed. The Center for the Study of Ethics in the Professions was also established during his tenure.

Before coming to IIT, Martin served as dean of engineering at the University of Arizona, the University of Florida, and Southern Methodist University. He also was a higher-education consultant to the heads of state of two foreign countries and the author of seven books. The director of many corporate and charitable boards, Martin was a founding board member of the Dallas–Ft. Worth Regional Airport. Among the many honors he received was fellowship in the Institute of Electrical and Electronics Engineers and membership in the National Academy of Engineering. Martin was also awarded the Bronze Star Medal as captain during World War II.

Martin is survived by his wife of 25 years, Mildred, a daughter and stepdaughter, a son, two grandchildren, two stepgrandchildren, and two brothers. He was preceded in death by his first wife, Helene.

John Rettaliata

IIT President (1952–1973)



Under his watch, IIT's Main Campus was formed, IIT Chicago–Kent College of Law was added, and IIT Stuart School of Business was founded. John Rettaliata, the university's second president—and its youngest—following the merger of Armour Institute of Technology and Lewis Institute, oversaw the greatest growth period in IIT's history. His tireless fundraising efforts realized a \$20 million annual

budget and the funding for S. R. Crown Hall, while his innovative vision of cooperative education did much to cement IIT's prominence as an academic leader in higher education.

A Johns Hopkins University-educated fluid dynamicist, Rettaliata built steam turbines for military destroyers while employed at the Allis-Chalmers Manufacturing Company, which led to a position on the United States National Advisory Council's subcommittee on aeronautics gas turbines. During and just after World War II, Rettaliata's work on government assignments helped the country to develop its leadership in aeronautical research and led to other gains in gas turbine technology.

Even as IIT president, Rettaliata continued his service to the nation. He held a seat on the National Advisory Council on Aeronautics and was appointed by President Dwight D. Eisenhower to the National Aeronautics and Space Council, where he and other council members drew up plans for what would be the United States space program. Despite the many activities in which he was involved, Rettaliata maintained strong ties with IIT's students and assembled his own student advisory board known as the Black Knights.

The recipient of six honorary doctorates, Rettaliata also was honored with numerous awards, including mayoral proclamations, military commendations, fellowship in the American Society of Mechanical Engineers, and induction into IIT's Hall of Fame.

Rettaliata is survived by his wife, Caryl Pucci Rettaliata, two sons, a daughter, and three grandchildren.

Allan H. Roush

Department of Biology



Allan H. Roush served on the faculty of IIT for 31 years, retiring as professor emeritus of biochemistry in 1982. He is remembered for the support and encouragement he gave to his students, who saw Roush not only as teacher and thesis advisor but also as a mentor and friend. Peers, too, recall Roush as being a well-respected colleague who had a wonderful sense of humor, even leaving behind a set

of Texas longhorns in his office at IIT for his successor's enjoyment.

Roush was born in Hardin, Mont., and left the state to pursue graduate studies in New York. He worked in research and development at Merck & Company, then served for three years in the United States Navy, where he met his wife, Anna Lee. After obtaining his doctorate in biochemistry, Roush joined IIT. He returned to Montana upon his retirement and devoted his life to volunteer work at the Museum of the Rockies and to his many hobbies, including Japanese language studies, geology, mycology, and chess.

Roush is survived by his wife of 65 years, a son, and many nieces and nephews.

inmemoriam

Stanley Lind

CHE '32
Stillwater, Minn.

Dorothy Mullen

HE '36
Evanston, Ill.

Joseph Lopina

CE '37
Glenview, Ill.

Raymond Kliphardt

ARCH '38
Northbrook, Ill.

Joe Nagano

CHEM '44
Los Angeles

Thomas Pelican

M.S. GT '44
Colorado Springs,
Colo.

Leonard Savory

M.S. CHE '44
Estes Park, Colo.

John Valentine

CHE '44
Temecula, Calif.

Arthur Marcussen

ME '45
Stuart, Fla.

John Mitchell

EE '45
Schaumburg, Ill.

Benjamin Borgerson

CHE '47
Evanston, Ill.

Bernard Feldman

M.S. EE '48
Watsonville, Calif.

Albert Malis

ME '48
Encino, Calif.

Kenneth Miller

CE '48
Rockford, Ill.

Robert Sims

IE '48
Advance, N.C.

Harry Asher

ME '50
Las Vegas, Nev.

George Hallinan

FPSE '50
Leawood, Kan.

Sten Hodgson

ME '51
Scotch Plains, N.J.

Don Robinson

EE '54
Davis, Calif.

Donald Purper

ME '56
Scottsdale, Ariz.

Henry Hertwig

ME '57
Naperville, Ill.

Robert Joyce

IE '57, M.B.A. '60
Santa Ana, Calif.

Melvin Kaplan

LAW '58
Chicago

Raymond Rudnik

ME '58
Palatine, Ill.

Frank Deal

MATH '59
Statesville, N.C.

Marilyn Ryon

HE '59
Saint Peters, Mo.

Edward Weber

MATH '59
Evergreen, Colo.

Ira Rohter

PS '60
Honolulu

Judith Campbell

MATH '63
Joliet, Ill.

Richard Kovach

EE '64
Phoenix, Ariz.

James Droege

LLB '65
Chicago

John Hurley

ME '66
Dover, N.H.

Edward Olewinski

CHE '71
Naperville, Ill.

Thor Gunnarsson

M.S. MAE '74
Grand Terrace, Calif.

William Wilkinson

LAW '76
Chicago

Ana De La Torre

LAW '79
Washington, D.C.

Evette Zells

LAW '83
Durham, N.C.

Richard Sachtschale

EE '91
Clayton, Calif.

Sharon Chybk

M.S. CS '92
North Aurora, Ill.

By Marcia Faye

Ears Open to the Universe



That Grote Reber's mother taught Edwin Hubble—of the eponymous Hubble Space Telescope—in grade school may have been a portent that her own son would rise to new cosmologic heights. But it was the serendipitous discovery made in 1931 by Bell Laboratories physicist Karl Jansky, who detected radio waves emanating from the center of the Milky Way galaxy, that inspired the 22-year-old Reber (EE '33) to do what no one before him had done. He built the world's first radio telescope—a 32-foot dish-shaped antenna in the backyard of his home in Wheaton, Ill., and in 1939, detected the same static-hiss sounds that Jansky heard. More importantly, Reber designed his parabolic dish to survey large swaths of the northern sky, producing the first high-resolution radio map of the heavens and paving a new celestial path for astronomers to follow.

"Grote Reber not only made a series of important astronomical discoveries," says K. I. Kellermann, radio astronomer and senior scientist with the National Radio Astronomy Observatory at Green Bank, W. Va., "but he forcefully brought these discoveries to the attention of an initially non-receptive astronomical community, thus changing in a fundamental way the course of astronomy over the second half of the twentieth century."

The perseverance and innate curiosity that characterized Reber contributed to his extraordinary achievements. He received an amateur radio license for W9GFZ, a station he built and operated, when he was 16, and in the years after graduating from IIT, worked

With a vision to create an even bigger radio telescope minimally affected by refraction in the ionosphere and other interference, Reber left the country for the clear skies of Tasmania. From 1954–1974, he assembled a series of telescopic arrays to study galactic and solar radio emissions at even longer wavelengths. Reber also explored a number of other scientific interests, building his own battery-powered car and energy-efficient home and continuing his studies on the directional growth of beans.

Reber's name lives on in ways as varied as were his interests—with an asteroid (6886 Grote), an annual award (The Reber Medal, administered by the Queen Victoria Museum in Launceston, Tasmania), and a

MORE ONLINE

WiNCom publications: www.cs.iit.edu/~wincomweb/publications.html

Grote Reber biography by K. I. Kellermann: www.journals.uchicago.edu/doi/pdf/10.1086/423436

News of "sky waves," from 1948 *Time* magazine: www.time.com/time/magazine/article/0,9171,794056,00.html

at several radio manufacturers during the day while probing the sky at night. For a short period, he worked as a physics research assistant at IIT and enrolled in optics and astronomy courses at the University of Chicago. In 1948, Reber left the Midwest for Washington, D.C., where he worked for the Bureau of Standards until 1951.

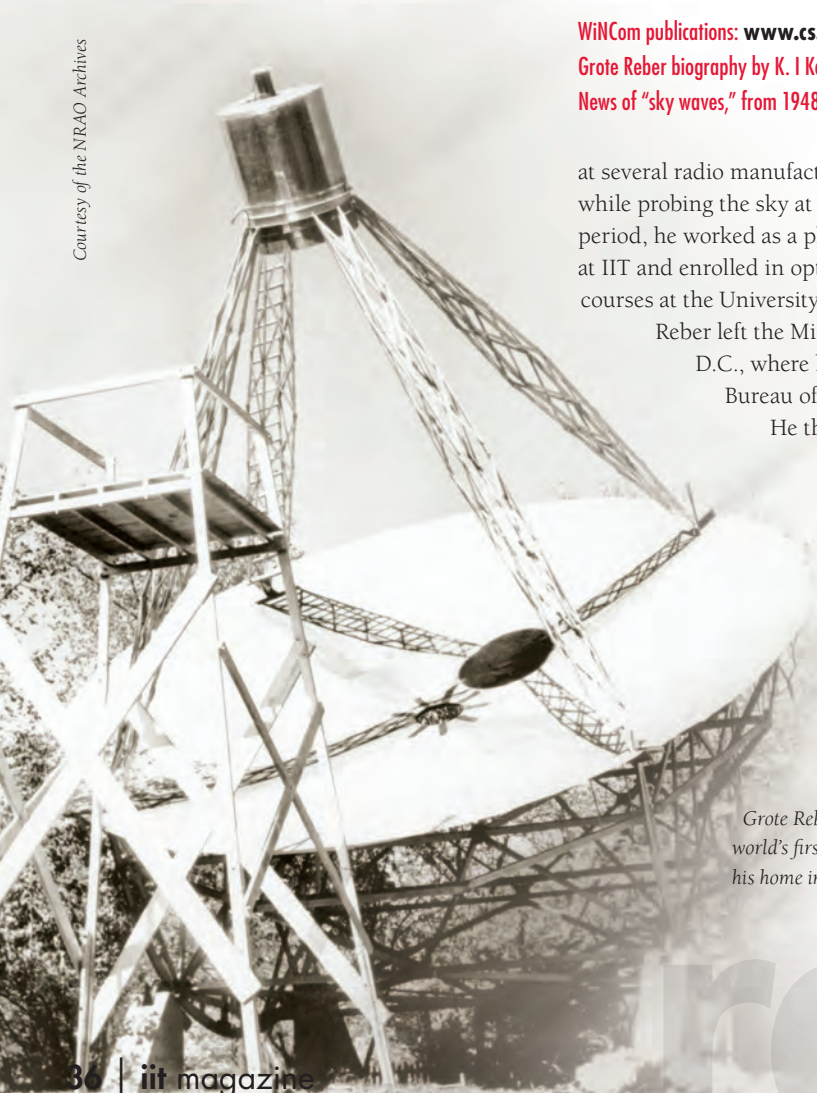
He then moved to Hawaii, where he built a large rotating antenna that operated in long wavelengths, contrary to many astronomers who were focusing on the short wavelength range.

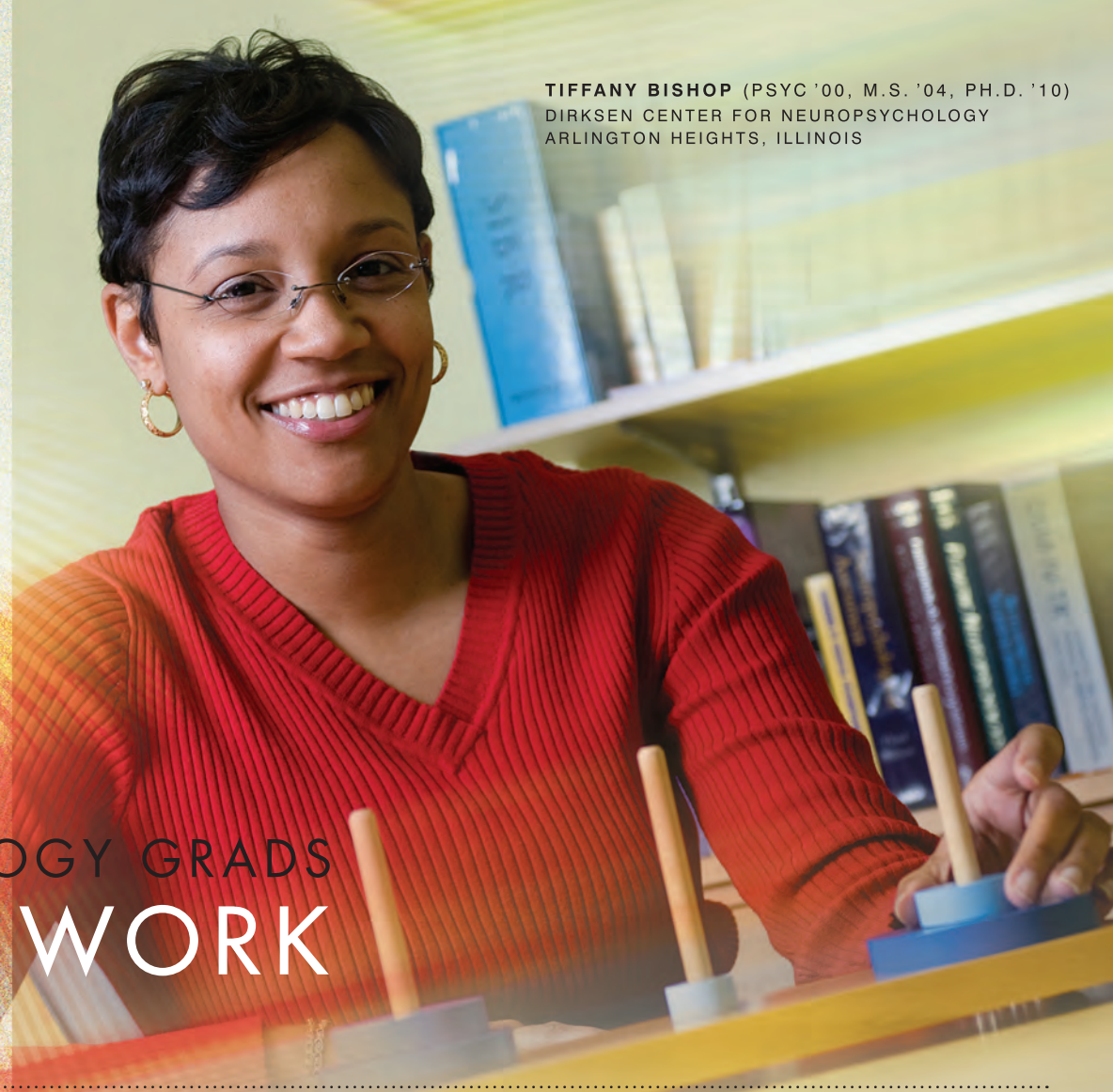
Grote Reber's radio telescope—the world's first—built in the backyard of his home in Wheaton, Ill.

museum (the Grote Reber Museum at the Mt. Pleasant Radio Telescope Observatory in Cambridge, Tasmania). His spirit also carries on in pioneering radio work being conducted today through the Wireless Network and Communications Research Center (WiNCom) at IIT.

Dennis Roberson, IIT vice provost for new initiatives and research professor in computer science, notes that while Reber established the first extraterrestrial radio observatory, WiNCom has established the first permanent terrestrial spectrum observatory, which is looking at human-generated radio waves in the Chicago area. "To my knowledge, this is still the only continuously operating spectrum observatory in the world," says Roberson, WiNCom co-founder. "We have been collecting data for more than two years." Funded through a grant from the National Science Foundation, the project will analyze anomalies and trends in gathered data, and examine opportunities for improved spectral utilization suggested by the observed usage patterns.

Courtesy of the NRAO Archives





TIFFANY BISHOP (PSYC '00, M.S. '04, PH.D. '10)
DIRKSEN CENTER FOR NEUROPSYCHOLOGY
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We are equipping students with expertise in multiple aspects of human behavior that have applications across industrial, educational, and health sectors. Our focus on science and technology is helping students to develop valuable skills—including research, data analysis, and critical thinking—that give them a boost in the job market. Just ask Tiffany Bishop (PSYC '00, M.S. '04, Ph.D. '10), who is working at the Dirksen Center for Neuropsychology, where she helps to ensure that children with special needs receive the services they require so that they can grow and develop into productive members of society.

“Both my undergraduate and graduate careers at IIT have prepared me for this career path. The curriculum is well rounded, and I am well trained for both clinically focused and research-focused careers. During my time at IIT, I was afforded the opportunity to complete practicum experiences at several outstanding institutions, including the University of Chicago and Illinois Masonic Medical Center,” Tiffany says.

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