ABSTRACTS

ART FROM AN INDUSTRY'S PAST

Electro, born of salvage from Newark's recently demolished Westinghouse plant, hunkered down at the College of Architecture and Design's latest exhibit of art that evokes our industrial past.

The 21st-century Electro makes an ironic comment on the walking, talking Westinghouse robot that enthralled visitors to the 1939-1940 World's Fair with the seemingly boundless promise of U.S. technology and economic strength. Electro's creator is Matt Gosser, special lecturer at the college and organizer of the exhibit, which featured the work of more than 40 artists. ■ NJIT "stands today as one of the nation's most prominent research schools, specializing in nanotechnology, solar physics, and polymer science..."

—The Princeton Review

NJIT A "BEST VALUE"

The Princeton Review has ranked NJIT among the nation's top 50 public undergraduate institutions for outstanding value that encompasses both affordability and academic quality. According to The Princeton Review, NJIT "stands today as one of the nation's most prominent research schools, specializing in nanotechnology, solar physics, and polymer science...and retains its reputation as New Jersey's top choice for the hard sciences." This select listing was published as the university launched an online media campaign (www.njit.edu/ edge/comparison) to publicize the exceptional value that NJIT offers to our country's most talented young men and women.



PUTTING HOT AIR TO WORK ON THE ROAD

Eric Mattessich, NJIT industrial engineering major, has invented a way to make good use of hot air wastefully emitted by automotive exhaust systems to increase the efficiency of hybrid vehicles. So innovative is Mattessich's concept that it has been featured in *Popular Science* and *The New York Times*. Mattessich's system employs two small turbines, one operated by exhaust pressure and another by steam produced from exhaust heat. The turbines generate electricity that helps to charge a vehicle's battery. Waste heat has long been used in this manner at large power plants. But Mattessich's design is small enough for a compact car. The enterprising NJIT student hopes to patent his concept and, ultimately, to see an automaker put it to work on the road. ■

The team based their innovative technique on principles related to the identification of defective or vulnerable components in digital electronic circuits.

HEALTHCARE BLOOMS WITH U.S. AND U.K. PARTNERSHIP

NJIT faculty and colleagues at other American and British universities are engaged in a transatlantic initiative to accelerate progress on many healthcare fronts. Among more than 30 projects already funded by the United Kingdom's White Rose Health Innovation Partnership are four in which NJIT is participating.

William Hunter, biomedical engineering professor, is collaborating on two projects: a device to measure brain activity in patients with degenerative disorders such as Parkinson's disease, and a technique for diagnostic imaging of metabolic processes.

Michael Jaffe, biomedical engineering research professor, and **Treena Arinzeh**, associate professor of biomedical engineering, are developing an innovative wound dressing.

Gordon Thomas, physics professor, is working with researchers from the University of Leeds on technology for assisting children with developmental coordination disorder (DCD). ■

NJIT White Rose Partners

U.S. – Princeton, Rutgers, University of Medicine and Dentistry of New Jersey

U.K. - Universities of Bradford, Leeds, Sheffield, York ROSC



ALTENKIRCH AMONG THE MOST INFLUENTIAL

New Jersey Monthly magazine has named NJIT President Robert A. Altenkirch one of the Garden State's 101 most influential people for 2009. In addition to leadership as an educator, Altenkirch was cited as "a highly visible figure on the Newark political landscape." The magazine highlighted his service as chair of the Newark Downtown Core Redevelopment Corporation, which oversees projects like the Prudential Center, and his role in the Gateway Project, designed to promote dynamic redevelopment of the neighborhood surrounding the NJIT campus. ■

TRACKING MOLECULES THAT CAUSE DISEASE

A research team led by NJIT Associate Professor Ali Abdi, Department of Electrical and Computer Engineering, has charted a new analytical path to identifying molecules believed to be instrumental in the development of cancer, mental illness and other complex disorders.

Abdi's cross-disciplinary team – expert in biology, engineering, math and other fields – based their innovative technique on principles related to the identification of defective or vulnerable components in digital electronic circuits. Their research indicates that these principles can be adapted to identifying comparably dysfunctional molecules in human cellular signaling networks. The failure of such molecules to help regulate biological processes can play a key role in the development of



human disorders. Identifying and studying these molecules with greater precision promises deeper insight into the genesis of disease as well as better treatments.

Abdi and his colleagues presented their results in an article featured on the cover of *Science Signaling*, published by the American Association for the Advancement of Science. The article is titled "Fault Diagnosis Engineering of Digital Circuits Can Identify Vulnerable Molecules in Complex Cellular Pathways." This work has also received prominent attention in MIT's *Technology Review* magazine and the National Institutes of Health/ Stanford University's *Biomedical Computation Review*. Mathematical modeling at NJIT could facilitate the forecasting of earthquakes and avalanches.



PROGRESS TOWARD PREDICTING EARTHQUAKES

Mathematical modeling at NJIT – specifically modeling how certain forces propagate through granular materials such as sand and salt – could facilitate the forecasting of earthquakes and avalanches. This work is being advanced by a four-year, \$378,603 National Science Foundation grant awarded to Louis Kondic, associate professor of mathematical sciences, and carried out in collaboration with colleagues at Duke, Rutgers and Yale.

Kondic will study how the physical properties of granular materials can lead to jamming, large force fluctuations and, ultimately, the collapse of buildings. Both earthquakes and avalanches involve similar material states and reactions. Researchers now believe that a better understanding of these phenomena can lead to new methods for predicting when and where earthquakes and avalanches will occur.

END NOTES



Distinguished Professor Alok K. Chakrabarti (left) with Robert English, interim dean of the School of Management

A CELEBRATION AT SOM

Alok K. Chakrabarti was honored in March by colleagues and friends at NJIT's School of Management (SOM) for two decades of dedicated service to the school, which includes the special distinction of serving as founding SOM dean. Chakrabarti joined NJIT in 1988, and in eleven years as dean led SOM through its initial Association to Advance Collegiate Schools of Business (AACSB) accreditation. Also serving as Foundation Chair in Management of Technology, he has made notable contributions to the field as an educator and researcher.

FELLOW HONORS FOR THREE

Kamalesh K. Sirkar, distinguished professor of chemical engineering and Foundation Professor in Membrane Separations, has been elected a Fellow of the American Association for the Advancement of Science; Nirwan Ansari, professor of electrical and computer engineering, is now a Fellow of the Institute of Electrical and Electronics Engineers (IEEE); and M. Ala Saadeghvaziri, professor in the Department of Civil and Environmental Engineering, has been named a Fellow of the American Society of Civil Engineers (ASCE). ■

BOOK SHELF





Thousand Mile Song: Whale Music in a Sea of Sound (Basic Books, 2008) by **David Rothenberg**, humanities professor, was named one of the ten best science and technology books for 2008 by Booklist Online, a publication of the American Library Association.

Carol S. Johnson, assistant professor of humanities, has published *The Language of Work: Technical Communication at Lukens Steel, 1810 to 1925* (Baywood Publishing Company, Inc., 2009), which traces the evolution of written forms of communication at the company during this period and the role of such communication in corporate culture. ■

For the latest about all NJIT sports: www.niithighlanders.com

STUDENT-ATHLETES **BUILD ON STELLAR** ACHIEVEMENTS

The NJIT banner continues to be held high by young men and women who compete impressively across a wide athletics spectrum

GREAT WEST HONORS SEVEN

Students participating in three women's sports were named to the Fall 2008 Great West Conference All-Academic Team.

The honorees were Cara Constantino (architecture) and **Daisy Gallegos** (information technology) in cross country; Sabrina Baby (management), Katrina Hornstein (mechanical engineering) and Erica Schultz

(management) in volleyball; and Erika Taugher (mechanical engineering) and Christi Taylor (mathematics) in soccer.

Constantino, Hornstein and Taylor are also enrolled in Albert Dorman Honors College. With the exception of Taugher, a Dorman Honors scholar who completed her BS in 2008 and was on the dean's list each year as an undergraduate, all will compete in 2009.

To be selected for the team, such outstanding individuals



must achieve a minimum cumulative 3.2 grade point average and participate in at least 50 percent of the contests scheduled. Academic selection is based on their most recent GPA.

Volleyball Team Captain Sabrina Baby

ERICKSON **FIRST ECAC CHAMPION**

Steve Erickson, a junior majoring in management, won the Flight A Singles Championship of the Eastern College Athletic Conference (ECAC) Open, hosted by Connecticut's Trinity College. Erickson is the first NJIT men's player to capture the ECAC Open Championship. The number-one men's player for the Division I Highlanders, Erickson was outstanding in all three of his matches, scoring an impressive 6-2, 6-0 in the championship final.



SAEED SPEEDS **ON VAN** CORTLANDT COURSE

Junior Umar Saeed, a civil engineering major, finished second in the season-ending University Division five-mile race at the 100th IC4A Cross-Country Championships, the most prestigious college cross-country event in the East. Saeed's time was 25:32, one second behind the first-place winner and 40 seconds better than the NJIT record for the course in New York City's Van Cortlandt Park.

