THECOOPERUNION

MEDIA UPDATE

10.9.2012

U.S.News & WORLD REPORT usnews.com

Best in Undergraduate Engineering

On these pages, *U.S. News* ranks undergraduate engineering programs accredited by ABET (formerly known as Accreditation Board for Engineering and Technology). The rankings are based solely on a survey of engineering deans and senior faculty at all accredited programs, conducted during the spring of 2012. Surveys sent to the dean and a faculty member at each accredited program asked them to rate programs with which they're familiar on a scale from 1 (marginal) to 5 (distinguished). Students who prefer an engineering program that focuses on its undergrads can use the list below of top institutions whose terminal engineering degree is a bachelor's or master's; universities that grant doctorates in engineering, whose programs are ranked separately, may boast a wider range of offerings at the undergraduate level. Thirty-four percent of those surveyed returned ratings of the group below; 54 percent did so for the doctorate group. Respondents were also asked to name 10 top programs in specialty areas; those mentioned most often appear here.

Top Programs >>> AT ENGINEERING SCHOOLS WHOSE HIGHEST DEGREE IS A BACHELOR'S OR MASTER'S

Rank	School (State) (*Public)	Peer assessment score (5.0=highest)
1.	Rose-Hulman Inst. of Tech. (IN)	4.6
2.	Harvey Mudd College (CA)	4.4
3.	United States Military Academy (NY)*	4.2
4.	United States Air Force Acad. (CO)*	4.1
4.	United States Naval Academy (MD)*	4.1
6.	Cooper Union (NY)	4.0
6.	Franklin W. Olin Col. of Engineering (MA)	4.0
8.	Calif. Polytechnic St. U.–San Luis Obispo*	3.9
9.	Bucknell University (PA)	3.8
10.	Embry-Riddle Aeronautical U. (FL)	3.6
10.	United States Coast Guard Acad. (CT)*	3.6
10.	Villanova University (PA)	3.6
13.	Baylor University (TX)	3.5
14.	Calif. State Poly. Univ.–Pomona*	3.4
14.	Milwaukee School of Engineering	3.4
14.	Santa Clara University (CA)	3.4
17.	The Citadel (SC)*	3.3
17.	Embry-Riddle Aeronautical U.–Prescott (AZ)	3.3
17.	Gonzaga University (WA)	3.3
17.	Kettering University (MI)	3.3
17.	San Jose State University (CA)*	3.3
17.	Swarthmore College (PA)	3.3
17.	Union College (NY)	3.3
17.	Valparaiso University (IN)	3.3
25.	Lafayette College (PA)	3.2
25.	Loyola Marymount University (CA)	3.2
25.	Smith College (MA)	3.2
25.	U.S. Merchant Marine Acad. (NY)*	3.2
25.	Univ. of Colo.–Colorado Springs*	3.2
25.	University of San Diego	3.2
25.	Virginia Military Institute*	3.2
32.	Bradley University (IL)	3.1
32.	Rowan University (NJ)*	3.1
32.	Trinity University (TX)	3.1
35.	Boise State University (ID)*	3.0
35.	Manhattan College (NY)	3.0
35.	Miami University–Oxford (OH)*	3.0
35.	Oregon Inst. of Technology*	3.0
35.	Univ. of Arkansas–Little Rock*	3.0
35.	Univ. of Massachusetts–Dartmouth*	3.0
35.	University of Michigan–Dearborn*	3.0
35.	University of Portland (OR)	3.0
35.	Webb Institute (NY)	3.0
44.	Brigham Young University–Idaho	2.9
44.	California State U.–Long Beach*	2.9
44.	California State U.–Los Angeles*	2.9
44.	Loyola University Maryland	2.9
44.	Maine Maritime Academy*	2.9
44.	Mercer University (GA)	2.9
44.	New York Inst. of Technology	2.9
44.	Northern Arizona University*	2.9
44.	Purdue University–Calumet (IN)*	2.9
44.	San Francisco State University*	2.9
44.	Seattle University	2.9
44.	University of Alaska–Anchorage*	2.9
44.	Univ. of Wisconsin–Platteville*	2.9

Best in the Specialties >>>

(*Public)

AEROSPACE/AERONAUTICAL/ASTRONAUTICAL

1. Embry-Riddle Aeronautical U. (FL)
2. United States Air Force Acad. (CO)*
3. Embry-Riddle Aeronautical U.–Prescott (AZ)
3. United States Naval Academy (MD)*
5. California Polytechnic State U.–San Luis Obispo*

BIOMEDICAL/BIOMEDICAL ENGINEERING

1. Bucknell University (PA)
2. Rose-Hulman Inst. of Tech. (IN)

CHEMICAL

1. Rose-Hulman Inst. of Tech. (IN)
2. Bucknell University (PA)
3. Rowan University (NJ)*

CIVIL

1. Rose-Hulman Inst. of Tech. (IN)
2. United States Military Academy (NY)*
3. California Polytechnic State U.–San Luis Obispo*
4. Bucknell University (PA)
5. United States Air Force Acad. (CO)*

COMPUTER ENGINEERING

1. Rose-Hulman Inst. of Tech. (IN)
2. Bucknell University (PA)
2. California Polytechnic State U.–San Luis Obispo*
4. Harvey Mudd College (CA)
5. United States Air Force Acad. (CO)*

ELECTRICAL/ELECTRONIC/COMMUNICATIONS

1. Rose-Hulman Inst. of Tech. (IN)
2. Cooper Union (NY)
2. Harvey Mudd College (CA)
4. California Polytechnic State U.–San Luis Obispo*
4. Franklin W. Olin College of Engineering (MA)

INDUSTRIAL/MANUFACTURING

1. Kettering University (MI)

MECHANICAL

1. Rose-Hulman Inst. of Tech. (IN)
2. California Polytechnic State U.–San Luis Obispo*
3. Cooper Union (NY)
3. United States Military Academy (NY)*
3. United States Naval Academy (MD)*

Note: Peer assessment survey conducted by Ipsos Public Affairs. To be ranked in a specialty, a school may have either a program or course offerings in that subject area. Based on a recommendation from the American Society for Engineering Education, a few engineering schools with small doctoral programs are part of the bachelor's and master's category. Extended undergraduate engineering rankings can be found at *www.usnews.com/bestcolleges*.

*Exerpt from original article

Regional College North Rankings

Regional College North Methodology

These colleges focus on undergraduate education but grant fewer than half their degrees in liberal arts disciplines. Regional Colleges include Cooper Union, Florida Southern College, Ohio Northern University, and Carroll College.

These rankings are split into 4 regions: North, South, Midwest, and West.

Show 10 schools

- Rankings
- Rankings Data

#1 Cooper Union

New York, NY

Founded in 1859, Cooper Union is a private institution. Cooper Union follows a semester-based academic calendar and its admissions are considered most selective.

Tuition and fees: $40,250 (2012-13)
Enrollment: 927
Setting: Urban

*Exerpt from original article

Best Value Schools Regional Colleges (North)

Best Value Schools Methodology

Which colleges and universities offer students the best value? The calculation used here takes into account a school's academic quality, as indicated by its 2013 U.S. News Best Colleges ranking, and the 2011-2012 net cost of attendance for a student who receives the average level of need-based financial aid. The higher the quality of the program and the lower the cost, the better the deal. Only schools ranked in or near the top half of their categories are included, because U.S. News considers the most significant values to be among colleges that are above average academically.

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The New York Times

September 13, 2012

‘Ruptures’: ‘Forms of Public Address’

By HOLLAND COTTER

41 Cooper Gallery
Third Avenue, between Sixth
and Seventh Streets
East Village
Through Oct. 13

With presidential elections nearing, and Occupy Wall Street fading from the headlines, a fresh surge of political consciousness-raising has to be a good idea. That’s the premise behind “Ruptures: Forms of Public Address,” a group show of socially alert art at Cooper Union that is less a meditation on specific issues than a call to action as an interruptive end in itself.

Some artists introduce disturbances directly into the public sphere. You’d probably look twice if you saw someone wearing one of Ida Applebroog‘s sandwich boards with quotations she’s collected: “First Enslave Mankind,” “Chaos Is Useful,” “Look It’s a Sausage.” (Several are unprintable here.)

And it would be hard not to notice the words emanating from one of Krzysztof Wodiczko’s customized military Humvees: projected onto walls and broadcast from tapes, they are statements by American Iraq war veterans about traumatized postcombat lives.

A few artists walked right into loaded terrain. The Egyptian muralist who calls himself Ganzeer covered Cairo with the words “When Injustice Becomes Law, Rebellion Becomes Duty” during the Arab Spring last year and ended up in jail. On a recent June 4, the anniversary of the Tiananmen Square student massacre, the artist Liu Wei spent the day there trying to interview people on video about the event and encountered, time after time, evasion, amnesia or hostility.

Certain actions are so oblique that you have to wonder about their effect. Igor Grubic’s slow-motion street dances, derived from news videos of neo-Nazi demonstrations in Belgrade, Serbia, and Zagreb, Croatia, seem too abstract to suggest their references. On the other hand, a performance piece (a demonstration? a march?) organized in Tirana, Albania, in 2003 by Mircea Cantor, with participants carrying large mirrors instead of placards, is such a suggestive visual knockout that it needs no explanatory words beyond its title, “The Landscape Is Changing.”

Change, of course, is the show’s real theme. The curators, *Saskia Bos and *Steven Lam, Cooper Union deans — Mr. Lam is also an artist — seem to be saying that at a time and in a culture with ideology-heavy data streaming from every direction, art’s job is to interrupt the flow: not to be right, not to be wrong, but to open a space for hard, resistant thought.

*Art Dean
**Associate Dean Art

Forbes

Auto Trend Tacker blog

Althea Chang, Contributor

VEHICLES

8/20/2012

New Twists And Turns In Driver Education

Adjust the seat, put on your seatbelt, adjust your mirrors…

Most experienced drivers now know that there's more to driving than your parents or even your average driving school can teach you. But new ideas about driver's education are expanding lessons beyond the basic rules of the road right at the start.

Firemen hose down a skid pad in a parking lot where kids learn to lose–then regain–control of their vehicles. It's all in the name of safety as a part of program developed by Tire Rack, an independent tire testing company that's branched out into driver education.

Tire Rack's Street Survival program pairs up teen drivers with driving coaches in parking lots across the country to learn what to do in a variety of what-if scenarios. What if the driver in front of you loses control? What if you hydroplane?

"Unfortunately with what is required to obtain a license, they are completely guessing in those situations," says Matt Edmonds, Vice President of Tire Rack.

The number of fatal car accidents increases during summer months, simply because younger drivers spend more time behind the wheel, Edmonds explains, citing government reports that, over the past five years, an average of eight driving-aged teens were killed per day in car accidents during the summer.

But you don't even need a learners permit to understand the impact of impaired driving.

Public service announcements repeatedly warn young drivers of the risk of texting while driving for instance, but there's nothing like using a driving simulator to see the effects of being so distracted, especially with kids who haven't spent any time behind the wheel at all.

At the Cooper Union for the Advancement of Science and Art in New York, engineers have been testing hot seat simulation and steering wheel feedback from realistic hardware combined with simulation software to help even those without any road time at all learn to drive safely.

And it's not your average driving game. While most driving games out there encourage players to drive as fast as they can without crashing, this program is being developed specifically to teach safe driving.

"The impact of showing what it is to drive without the distraction and with the Yash Risbud distraction in a real immersive sense we think will have a huge impact on their first driving experience," says *, Cooper Union's Director of Research.

"We're taking the approach of what our teenagers do best: they play games. And they play them very well," says Risbud.

* C.V. Starr Research Foundation, director, EE'92, MEE'94

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The Economist
Sep 1st 2012 | from the print edition
Technology Quarterly: Q3 2012

Lighting the way

Energy technology: Cheaper and better solar-powered electric lights promise to do away with kerosene-fuelled lanterns

WHICH plastic gadget, fitting neatly in one hand, can most quickly improve the lives of the world's poorest people? For the past decade the answer has been clear: the mobile phone. But over the next decade it will be the solar-powered lamp, made up of a few light-emitting diodes (LEDs), a solar panel and a small rechargeable battery, encased in a durable plastic shell. Just as the spread of mobile phones in poor countries has transformed lives and boosted economic activity, solar lighting is poised to improve incomes, educational attainment and health across the developing world.

As previously happened with mobile phones, solar lighting is falling in price, improving in quality and benefiting from new business models that make it more accessible and affordable to those at the bottom of the pyramid. And its spread is sustainable because it is being driven by market forces, not charity.

Phones spread quickly because they provided a substitute for travel and poor infrastructure, helped traders find better prices and boosted entrepreneurship. For a fisherman or a farmer, buying a mobile phone made sense because it paid for itself within a few months. The economic case for solar lighting is even clearer: buying a lamp that charges in the sun during the day, and then produces light at night, can eliminate spending on the kerosene that fuels conventional lamps. Of the 1.4 billion people without access to grid electricity, most live in equatorial latitudes where the sun sets quickly and there is only a brief period of twilight. But solar lamps work anywhere the sun shines, even in places that are off the grid, or where grid power is expensive or unreliable.

The potential savings are huge. According to a recent study by the International Finance Corporation, an arm of the World Bank, $10 billion a year is spent on kerosene in sub-Saharan Africa alone to illuminate homes, workplaces and community areas. Globally, the figure has been put at $36 billion. Flexiway, an Australian-Argentine maker of solar lamps, found in its trials in Tanzania that households often spent more than 10% of their income on kerosene, and other studies have put the figure as high as 25%. And kerosene does not merely eat up household income that could be spent on other things. It is also dangerous. Kerosene lanterns, a century-old technology, are fire hazards. The wicks smoke, the glass cracks, and the light may be too weak to read by. The World Health Organisation says the fine particles in kerosene fumes cause chronic pulmonary disease. Burning kerosene also produces climate-changing carbon-dioxide emissions.

Take a look at some of the solar lamps now available in Africa, Asia and Latin America, and their advantages are immediately apparent. Even the most basic solar lamps outperform kerosene lanterns. A typical device takes eight to ten hours to charge, and then provides four or five hours of clear, white light from high-efficiency white LEDs. The number of times solar lamps can be charged before their internal batteries wear out has improved enormously in recent years, along with their ability to cope with dust, water and being dropped. The starting price of $10 or so is still too high for the poorest customers to pay, at least up front. But as with mobile phones, prices continue to fall and novel business models are starting to provide new ways to spread the cost.

Let there be light

"The technology end of the solar business is there—now we have to think of the business model," says Nick Hughes, co-founder of M-KOPA, a start-up based in Kenya. He previously helped develop M-PESA, Kenya's world-leading mobile-money transfer scheme, which is used by nearly 70% of the adult population and has spawned imitators in many other countries. Mr Hughes now wants to apply the same thinking to lighting.

The M-KOPA system consists of a base-station with a solar panel, three lamps and a charging kit for phones—an entire electrical system for a small house that would normally cost around $200. Customers in Kenya pay $30 up front and then pay off the balance in small instalments using their mobile phones. As long as they keep making payments, the system provides free light and power, and eventually they own it outright. Using mobile money as a flexible payment mechanism means that relatives can chip in remotely and allows farmers to vary the size of payments depending on their cashflow. It also provides a mechanism for the government to provide subsidies for households with infants, or children studying for exams. In addition, the base-station provides a payment record which could be used by banks as a credit history when offering loans or mortgages. The first commercial units went on sale in June. "Solar lamps work anywhere the sun shines, even in places that are off the grid."

Eight19, a start-up spun out of Cambridge University, has a similar model in which small payments, like those used to buy kerosene, allow the purchase of a solar-lighting system to be spread out. Users of its IndiGo system pay around $10 up front. They then buy scratch cards for as little as $1 each, and send the number on each card by text message to a central server that responds with an access code that is tapped into the IndiGo unit and provides a certain number of hours of lighting. Again, each payment goes toward buying the system outright, and a typical family will have paid for it after 18 months of use. Even while paying off the loan with scratch cards, users pay half as much for each hour of lighting as they did with kerosene. With both M-KOPA and Eight19 models, the lights go out if the payments stop, providing an incentive to keep paying.

Another novel approach is that taken by SociaLite, a scheme developed by Wa Polytechnic in Ghana and the Cooper Union in New York. It involves a centralised, village-level system with a large solar panel that charges a car battery. This is used, in turn, to charge smaller batteries in the lanterns, which are built using local materials. A family pays $4-5 for the lamp (in effect, for membership of the scheme) and then $1-2 a month for recharging. These charges enabled the villagers to pay for the entire system within 18 months or so. Everything is designed to be maintained and repaired by locals: if a lamp fails it is replaced with another one while being repaired. This improves reliability, and centralising the solar charging reduces the cost of each lamp.

Lighting Africa, a World Bank project whose aim is to "catalyse markets for modern lighting", has certified a list of solar lamps that meet minimum standards for reliability and recommended targets for brightness and run time. One of the suppliers on its list is an American company, d.light, which specialises in durable, utilitarian designs. Its workhorse is the S10 lantern. It is intended to deliver ambient light rather than directed light for tasks, and contains a nickel-metal-hydride battery, rather than a cheaper nickel-cadmium cell. In an informal test of solar lights carried out by *The Economist* in Africa, users grumbled about the soapy quality of light and lantern-style design. But the company has won plaudits for its other models: its largest lamp, the S250, was included by the British Museum in its "History of the World in 100 Objects" exhibition as the 100th object. The smaller S1 model, which costs $8, is intended for use as a desk lamp (see photo above).

Tried and tested

The N200 lantern made by another American firm, Nokero (for "no kerosene"), has a design inspired by a light bulb, and costs about $15. It worked well for cooking, cleaning and sitting around a table, but was deemed less suitable for studying. The Solar Muscle, a solar lamp made by Flexiway, can be used as a desk light. Its compact, square design, with a solar panel on one side and LEDs on the other, also allows several lamps to be snapped together to make a larger panel. The square design arose after an earlier, circular version was mistaken for a landmine, says James Fraser of Flexiway. The firm can pack 2,750 of its $10 lamps in a cubic metre—a plus in countries where transport is expensive. They are being distributed by NGOs in Papua New Guinea and several African countries.

The best solar lamp among those tested was the Sun King, produced by an Indian company, Greenlight Planet. It was purchased off the shelf from an African supermarket for $24. The Sun King's almost dazzling light was appreciated by users, as was its seemingly unbreakable design. The awkward-looking wire stand worked well. The lamp's only drawback was that its solar panel is separate, rather than being built into the lamp.

As with mobile phones a decade ago, there is still plenty of scope for improvement and innovation. On the technical front, the biggest remaining problem is the batteries. Nickel-metal-hydride batteries are more expensive and less polluting than nickel-cadmium cells, and have a longer life. Lithium-ion batteries, the sort found in laptops and mobile phones, are better still, but are too expensive. Most solar lamps allow the battery to be replaced once it wears out, and some (such as Flexiway's) use standard-sized rechargeable batteries to make replacement as simple as possible. But this creates a new pollution problem: there are no facilities to recycle the old batteries. Flexiway suggests that entrepreneurs selling rechargeable batteries could offer a discount when old batteries were traded in and gather them up for centralised recycling, but it is unclear whether this model would work.

*excerpt from original article

crain's new york business.com

REAL ESTATE

Hip crowd reshapes Bowery triangle

Creative vibe draws Web firms, trendy retailers and pricey condos

http://www.crainsnewyork.com/article/20120916/REAL_ESTATE/309169985#ixzz28oU7vget

Just three years ago, the owner of 411 Lafayette St. emptied all but a third of space in the handsome six-story brick-and-masonry building, spent $6 million fixing it up, and waited.

Buck Ennis[+] Enlarge

BOLD ARRIVAL: Cooper Union's newest building on Bowery.

Steve Meringoff, a principal at real estate investment firm Himmel + Meringoff, which has owned the building for nearly 30 years, recalled the experience as "painful."

Happily, it also paid off. Today, 411 Lafayette is fully occupied, with tenants that include two media companies, a photography studio and administrative offices for New York University. Meanwhile, the ground-floor space in the 103,000-square-foot building was recently used to stage a photo show chronicling the lives of New York City sanitation workers.

"There's a new breed of tenants here that are driving the market," said Mr. Meringoff, who noted that per-square-foot office rents in the area have jumped by about $20 in the past five years, to $50.

In fact, the narrow, eight-block-long triangular slice of lower Manhattan running north along Lafayette Street from East Houston Street up to Astor Place, and from Lafayette one block east to Bowery, is becoming Manhattan's newest hot spot. It boasts an eclectic mix of office, hotel, residential, academic and cultural tenants.

At the base of the triangle on the south side of Houston Street, Kushner Cos. has renovated the landmarked 126-year-old Puck Building at 295 Lafayette St. Two blocks up is newly trendy Bond Street, with its starchitect-designed condominiums. And up at the top of the triangle, developer Edward Minskoff is erecting 51 Astor Place, which is expected to boast the highest-priced office space outside midtown.

Some landlords say that the Fumihiko Maki-designed building—where asking rents are expected to rise as high as $115 a square foot—is helping to elevate everyone's sights. In 2008, the developer bought the property for $100 million from Cooper Union, the college that has dominated the local landscape for more than 150 years.

Since then, he's razed the old building and begun work on a 13-story, 440,000-square-foot, granite-and-glass office tower. Paul Glickman, a broker with Jones Lang LaSalle—which is heading leasing for the building—reports that several technology and digital-media companies have expressed interest. Many other landlords in the area, however, are pinning their hopes on much the same audience.

"The creative vibe here is more suitable for those companies," said Mr. Meringoff. "They don't want to rub elbows with the suits in the elevators of traditional midtown buildings."

RETAIL CACHET

For example, the Kushner Cos.' Puck Building—home to several Internet and media companies—is charging $65 per square foot following its $10 million makeover. Since December, a new 35,000-square-foot REI sporting-goods store has been drawing an outdoorsy crowd to the building's ground level. It's the first foray in New York City for the Washington state-based retailer.

For smaller retailers as well, setting up shop in the triangle brings a kind of cachet. With few storefronts to be had, especially along Bowery, asking rents are on the rise. They range from $80 to $125 per square foot (up from $45 to $50 five years ago), according to Faith Hope Consolo, chairman of the retail group at Prudential Douglas Elliman Real Estate.

Newcomers include Patagonia Surf—the chain's first outpost on the East Coast—at 313 Bowery, and fashion-apparel stores DIGS, at 284 Lafayette St., and Intermix, reportedly eyeing a space on Bond Street.

Prices for residential units are also rising despite the lackluster economic backdrop.

"We're seeing a number of buildings turning their penthouses or even multiple units into these super-high-level spaces with jaw-dropping price tags," said Anthony Lolli, chief executive of Rapid Realty Franchise.

'ALWAYS BUSY'

At the Astor Place Tower, a 21-story, 39-unit condominium building, a three-bedroom duplex penthouse with four and a half baths fetched $10 million. Similarly, down on Bond Street, the seven duplex condos at 41 Bond, which were completed last year, are sold out—including one that the CEO of Tommy Hilfiger bought for $7 million.

Meanwhile, several boutique hotels on Bowery, including the Bowery Hotel and the Standard, have been attracting a hipster overnight crowd at about $400 a night. One block west on Lafayette Place, the historic Public Theater has just emerged from a $35 million renovation that is helping to draw bigger crowds to neighborhood bars and eateries.

Marko Zivkovic, restaurant manager of the Gemma, located in the lobby of the Bowery Hotel, said his business has grown more than 12% in the past year alone. "We are always busy," he said.

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NEW YORK
HOME DESIGN

Design News

By Jen Ortiz
Published Aug 22, 2012

Krzysztof Wodiczko Image The Veteran Vehicle Project, 2008-present, featured in Cooper Union's "Ruptures: Forms of Public Address" exhibit.
(Photo: Charles Roderick/Courtesy of the Artist and Galerie Lelong)

Streets of Rage

As we approach Occupy Wall Street's first anniversary, reflect on how public spaces become stages for protest at the Cooper Union's (41 Cooper Sq., at Third Ave., LL1; 212-353-4100) exhibit "Ruptures: Forms of Public Address." The collection, which opens Tuesday, September 4, features work by a roster of international artists who share a concern with democracy and art in public space. Admission is free, and the show runs through October 13.

This event is listed by the following outlets:

Architect's Newspaper
Art 21
ArtCat
City Guide NY
City Limits
Club Free Time
Culture Mob
Darien News online
Eventful
Fresh 102.7 FM
Hot List
Love My Zip
MetroMix
My Fox NY
New York Activist
New York magazine
North Jersey.com
Norwalk Citizen
NY Daily News
NY Metro Parents
NY-1
Things to Do in NYC
Upcoming/Yahoo
Zvents

http://nymag.com/homedesign/features/design-news/

CLINICAL IMPLICATIONS OF BASIC RESEARCH

The Shear Stress of Busting Blood Clots

David M. Wootton, Ph.D.,* and B. Rita Alevriadou, Ph.D.

"Clot-busting" fibrinolytic drugs are administered to patients who have had a heart attack or ischemic stroke. These drugs are delivered systemically or, when possible, locally through a catheter placed within the obstructed vessel. Korin and colleagues[1] found that if tissue-type plasminogen activator (t-PA) is packaged in a "shear-activated nanotherapeutic" (SA-NT) particle, local blood-flow profiles can distribute the drug to where it is needed most. The results of their study involving mouse models of acute arterial thrombosis and pulmonary embolism suggest that the total administered dose can be reduced by a factor of approximately 100, as compared with intravenously delivered t-PA. The potential benefits associated with this approach are faster reperfusion, lower risk of hemorrhage, and earlier initiation of fibrinolytic therapy, possibly by first responders.

The idea that fluid forces and, in particular, shear stress (the tangential force per unit of area exerted by the flowing blood) can modulate the rate of clot dissolution is not new. Approaches that use parallel-plate flow chambers and perfusion of either human whole blood or plasma containing a fibrinolytic drug over preformed mural fibrin clots have already shown that the rate of clot dissolution is enhanced at higher shear stress. This enhancement is due to increased transfer and replenishment of the drug on the front surface of a clot, permeation through the fibrin mesh of the clot, and mechanical tearing of its three-dimensional structure.[2] Given the tremendous clinical benefits and considerable risks associated with fibrinolytic drugs, continued reevaluation of the relationship between flow and clot dissolution is warranted. Korin and colleagues have leveraged the unique features of the stenotic flow field to good effect.

SA-NTs are platelet-sized aggregates that self-assemble from hydrophobic nanoparticles, which have an average diameter of 200 nm. Experiments with the use of a rheometer and microfluidic chambers show that SA-NTs are stable under normal arterial shear stress but disaggregate at the high shear stresses that are typical of arterial stenoses. The surface of the nanoparticles is coated with t-PA to render the particles biochemically active; the t-PA is bound by surface conjugation with the use of streptavidin–biotin. With this new design, SA-NTs sequester most of the t-PA dose as they pass through normal vasculature, but when they encounter pathologically high shear stress, they break into nanoparticles that expose the t-PA dose locally. High shear stress ($\geq$100 dyn $\cdot$ cm^{-2}) occurs at the apex of any clinically significant arterial stenosis, so the use of SA-NTs releases t-PA just where it is needed most, along the apex and just downstream of the stenosis, allowing the t-PA to bind to a growing thrombus or ulcerated atheroma (Fig. 1). Another localizing feature exploits the fluid mechanics of particle drag: because of their larger diameter, intact SA-NTs have high drag forces that prevent binding to mural clots, whereas the nanoparticles released by high shear stress are subject to much lower drag forces, allowing them to bind to fibrin. SA-NT concentration should also be enriched near the vessel wall (an effect called "margination") because of erythrocyte motion and deformability under arterial shear stresses.[3] In the study by Korin and colleagues, the experimental control groups included coated but nonaggregated nanoparticles, which were about as effective as soluble t-PA; this shows that shear activation is critical to the success of SA-NTs.

There is plenty of research ahead before the clinical value of SA-NTs can be known, including research on clearance mechanisms and pharmacokinetics and testing in humans. Fortunately, the major constituents, polylactic-co-glycolic acid

*Eng. Faculty

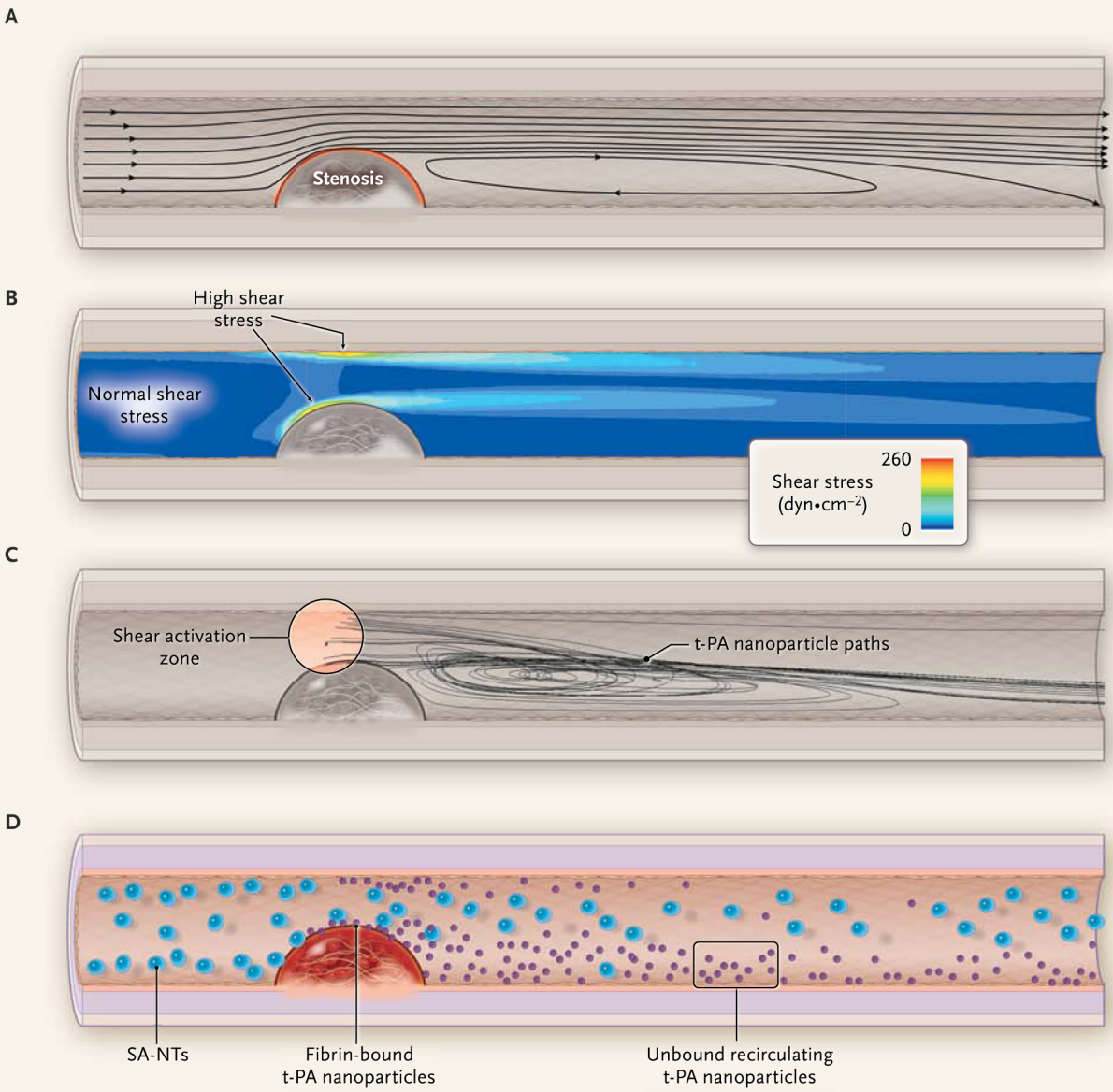

Figure 1. Leveraging Flow Features of Stenosis.

Korin et al.[1] recently described how shear-activated nanotherapeutic (SA-NT)–induced fibrinolysis can be achieved by leveraging the flow features of an arterial stenosis. Panel A shows the stenosis due to a partially occlusive thrombus, atheroma, or both. Flow streamlines are constricted along the stenosis surface, leading to high flow velocity and velocity gradients near the apex of the stenosis and slower recirculating flow behind the stenosis. Panel B shows that fluid shear stress (shown in a cross section of a blood vessel) is normal upstream of the stenosis (10 to 20 dyn•cm^{-2}), increasing to pathologically high stress (>100 dyn•cm^{-2}) near the artery wall at the apex of the stenosis. Panel C shows a three-dimensional view of the region of shear activation and the released nanoparticle flow paths from the high shear-stress zone; unbound nanoparticles are swept into the poststenotic recirculation zone. Panel D shows platelet-sized SA-NTs that stay intact and expose minimal t-PA under normal arterial shear stresses but break down because of high shear stress near the stenosis surface, releasing high concentrations of t-PA–coated nanoparticles that can adhere to fibrin in a thrombus, activate plasminogen to plasmin, and dissolve the thrombus. The recirculation zone (to the right of the stenosis shown in Panel A) also brings unbound t-PA nanoparticles back to the downstream face of the stenosis. In normal arterial flow past a mural nonocclusive clot (not shown), shear stress is less than 100 dyn•cm^{-2} and no shear activation occurs.

and t-PA, are approved with long clinical histories, but the chemicals used for nanoparticle–t-PA conjugation (biotin and streptavidin) could cause an immune response. Data are also lacking on the risk of hemorrhage. It is well accepted that hemodynamics also regulate the rate of hemostasis and the type of clot formed: platelets are activated and aggregate in flowing blood when they encounter locally, even for a few milliseconds, abnormally high shear stresses.[4] This aggregation is independent of fibrinogen and, thus, the t-PA–coated SA-NTs are not expected to have an effect on platelets in this context. Furthermore, the molecular mechanisms of platelet adhesion to the injured vessel wall and aggregation vary depending on the local shear stress; low flow results in the formation of fibrin-rich thrombi, whereas arterial flow generates platelet-rich thrombi.[5] When administered simultaneously with injury to an arterial wall, the SA-NTs significantly delayed the time to occlusion as compared with non–SA-NTs (which are either dispersed prior to injection into the bloodstream or fused with heat and unable to disperse under high flow),[1] probably because, after shear-dependent breakup, the SA-NTs achieved the highest concentration of drug on the developing thrombus. However, arterial (platelet-rich) thrombi become resistant to lysis with time after formation because of platelet-induced clot retraction and plasminogen-activator inhibitor. The efficiency of the t-PA–coated SA-NTs decreased significantly with time after an arterial thrombus was formed[1]; this confirms the critical time window within which fibrinolytic drugs need to be administered to be most effective.

The recent findings on SA-NTs will almost certainly motivate biomedical engineers to develop new SA-NT agents. Two goals are the development of prophylactic antithrombotic or fibrinolytic SA-NTs devised to stay in circulation for days or weeks in patients at high risk for thrombosis, and shear-activated antiproliferative or antiinflammatory SA-NTs to slow or reverse the growth of atherosclerotic lesions.

Disclosure forms provided by the authors are available with the full text of this article at NEJM.org.

From the Department of Mechanical Engineering and the Maurice Kanbar Center for Biomedical Engineering, the Cooper Union for the Advancement of Science and Art, New York (D.M.W.); and the Departments of Biomedical Engineering and Internal Medicine (Cardiovascular Medicine) and the Dorothy M. Davis Heart and Lung Research Institute, Ohio State University, Columbus (B.R.A.).

1. Korin N, Kanapathipillai M, Matthews BD, et al. Shear-activated nanotherapeutics for drug targeting to obstructed blood vessels. Science 2012;337:738-42.
2. Wootton DM, Popel AS, Alevriadou BR. An experimental and theoretical study on the dissolution of mural fibrin clots by tissue-type plasminogen activator. Biotechnol Bioeng 2002;77:405-19.
3. Tilles AW, Eckstein EC. The near-wall excess of platelet-sized particles in blood flow: its dependence on hematocrit and wall shear rate. Microvasc Res 1987;33:211-23.
4. Shankaran H, Alexandridis P, Neelamegham S. Aspects of hydrodynamic shear regulating shear-induced platelet activation and self-association of von Willebrand factor in suspension. Blood 2003;101:2637-45.
5. Ruggeri ZM. Platelet adhesion under flow. Microcirculation 2009;16:58-83.

DOI: 10.1056/NEJMcibr1207994

Your College Application- There's More Than Meets The Eye

If you are about to enter the senior year of high school within the next few months you'll join the millions of other students from across the globe that will be submitting your college applications.

First of all, take a deep breath. Your life will not end if you do not gain admission into your first choice college. There are many paths one can take to find a path in life that is fulfilling.

Second, apply to a manageable number of colleges. For most students that is between seven and ten. There are many costs-financial, time, emotional-required to complete your college applications so think about what number works for you.

On the flip side, the danger in applying to just one or two colleges is that if you aren't offered admission to either your options become much more limited come April of your senior year of high school.

So once you have figured out where you'll be applying you'll probably be wondering next how the college reviews your application.

Typical Parts Of The College Application

-High School Transcript
-Standardized Test Scores
-Essays/Writing Samples
-Extra Curricular Activities
-Supplemental Work/Portfolio/Audition
-Letters of Recommendation
-Special Characteristics: is the applicant an athlete, musician, child of an alumni, do they identify as an underrepresented minority student or come from a geographically appealing area, are they applying to a program that is in need of students, etc.?

Note that most colleges look at several factors before deciding if an applicant will be offered admission. This can be referred to as holistic admissions. Academics (grades, courses taken, SAT/ACT) are typically considered the most important part of the college application with the exception of highly specialized programs, e.g. visual or performing arts. Next, colleges will look at your writing whether it be required supplemental questions and/or personal essays of your choosing along with your involvement in clubs and activities in and out of school. One good rule of thumb is that quality of involvement is viewed more favorably than quantity.

Most colleges like to see what others have to say about you, so 2-3 letters of recommendation are usually required. It's important to get letters from faculty that know you personally and can write something more than what we can gather from reviewing your academic record and resume.

Also important to consider is that every college has its own needs and these can change annually. For example, a small liberal arts college in the Northeast may be very interested in attracting students from the Midwest that show a proclivity towards studying botany. Another may want to increase the number of women studying engineering. A third may need students for a newly created tennis or crew team.

The point is that while many colleges will first look at the academic qualities you provide, there are many factors considered before admissions decisions are made.

And since each school has their own institutional needs and goals, applicants that may have been considered appealing a few years ago may be less desirable depending on the needs of the college.

One last point is make sure to inquire with each college you are interested in to confirm their requirements as they can vary greatly. For example, some will permit more than 3 recommendation letters, others have strict limits on the number and who can author them. Some art schools will have specific portfolio requirements, others may be more liberal in terms of what will be evaluated.

If you take the time to investigate what each college requires from its applicants over the next few months, you will make efficient use of the very busy senior year ahead.

Mitchell Lipton serves as Dean of Admissions and Records and Registrar at Cooper Union where he has worked since 1997. Mitchell actively presents at local and national conferences and consults on a number of educational endeavors. He holds an elected position with the College Board and serves on the Advisory Board of Private Colleges and Universities. Mitchell served as Vice President of the New York State Association for College Admissions Counseling, Steering Committee member for The New York State Legislative Forum, and member of the National Association for College Admissions Counseling New York City College Fair Committee. Mitchell earned a BA in Economics from SUNY Binghamton and an MPA from New York University. He lives in Cortlandt Manor with his wife and two children. Mitchell may be reached at lipton@cooper.edu*

An Emerging Artist by the Financial Numbers

October 3rd, 2012
by Brendan Carroll

Curator Krista Saunders introduced me to artist *Sam Vernon during the opening reception of "Made You Look: Hidden Narratives." Riffing on the traditional ghost story, Sam's C-print montages combine suburban ennui and appalling antebellum imagery. After graduating from The Cooper Union in 2009, Sam has already received critical attention from several institutions. She was a 2010-2011 A.I.R. Emerging Artist Fellow and recipient of the A.I.R. Emma Bee Bernstein Fellowship. In 2011, A.I.R. Gallery organized her first solo exhibition, "Think On It—Then Lay It Down for Good." Currently, eight of her photographs and drawings are on view in a group exhibition curated by Creighton Michael called "PENCIL PUSHED: exploring process and boundaries in drawing" in the Ewing Gallery of Art and Architecture, at The University of Tennessee, Knoxville. Sam, at 25, is the youngest person I have interviewed for this column. In October, Vernon is creating a site-specific installation in a group exhibition called "In the Realm of Folklore" in The Emery Community Art Center, at The University of Maine, Farmington. As an older artist, two years shy of 40, I am interested in how money and earned income informs Sam's aesthetic decisions inside and outside the studio.

BC: What type of work do you create, and why? As you make the work, do you consider the cost involved in the project? How do you strike a balance between the cost of stuff and the work in the studio?

SV: After reading cultural critic Mark Dery's essay "Black to the Future," the type of work I create is a strain of Afrofuturism in that I re-imagine the history of the African Diaspora through the lens of science fiction, complex characters and spiritual realms. I'm invested in re-documenting the life and interpretation of African Americans through my own black and white vernacular that's at once deeply personal and extremely invented. From juxtaposing historical images with family photos, to creating dark, alternative imaginative spaces and figures through my installations and Xerox drawings, my mark-making, patterns and aesthetic is in many ways otherworldly, an alternative universe. I write in my artist statement that the installations are "fear, anxiety and memory translated on flapping sheets. Ghosts congeal and bodies form in dark corners and hang about whispering until the inflection of their voices can be heard among the living."

*A '09
*Exerpt from original article

The New York Times

Museum and Gallery Listings for Oct. 5-11

Published: October 4, 2012

‘Ruptures: Forms of Public Address’

(through Oct. 13)

With presidential elections nearing, and Occupy Wall Street struggling to maintain its punch, a fresh surge of political consciousness-raising has to be a good idea. That’s the premise behind this group show of socially alert art that’s less an attack on specific issues than a call to interruptive action as a political end in itself.

41 Cooper Gallery, Third Avenue
between Sixth and Seventh Streets
(212) 353-4100
cooper.edu.

(Cotter)

A|N CALENDAR
THE BEST LOCAL EVENTS HAND-PICKED BY ARCHITECT'S NEWSPAPER

NEW YORK
TUESDAY
OCTOBER 2, 2012

EXHIBITION OPENING

Massimo Scolari: The Representation of Architecture, 1967-2012

A comprehensive retrospective of the work of visionary architect andartist Massimo Scolari, this exhibition marks the first United States display of Scolari's work since 1986. The show, which originated at the Yale School of Architecture in Spring 2012, was curated and designed by Scolari himself and features over160 original drawings, paintings, watercolors, and other works completed between 1967 and 2012. Scolari was a former Visiting Professor at The Irwin S.Chanin School of Architecture at The Cooper Union in 1977 and 1978.

Additional listings:
American Architects
Architect's Newspaper
Archtober
Art Cards
Art Forum
Core 77
Daily News
Doing NYC
Eventful
Evie Says
Italian Cultural Institute of NY
Museum Publicity
New York Architects
New York Observer – Education supplement
NYC.com
WCBS
World Architects
Yahoo/Upcoming

IT'S A DATE

SEPTEMBER 12 - 21

The Critical Moment: Architecture in the Expanded Field,

March II Advanced Design Studio – Thesis 2012

The Arthur A. Houghton Jr. Gallery
The Critical Moment invites architectural discourse; it prompts us to re-think the object of architecture and to question the very boundaries of architecture itself. The innovative and visionary work produced by the students in the Advanced Design Studio of the Master of Architecture II program addresses critical issues ranging from urban theory to the present condition of globalization and the continual emergence of new scientific developments and technologies.

cooper.edu

*Exerpt from original article

THE EDUCATED OBSERVER
FALL 2012 SPECIAL ADVERTISING SUPPLEMENT TO THE NEW YORK OBSERVER

IT'S A DATE

OCTOBER 2 - NOVEMBER 21

Massimo Scolari: The Representation of Architecture, 1967 – 2012

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cooper.edu

* Massimo Scolari, Visiting Professor, Architecture

*Exerpt from original article

NEW YORK
OCTOBER 1, 2012

Art

"RUPTURES: FORMS OF PUBLIC ADDRESS"

41 Cooper Gallery, the Cooper Union, 41 Cooper Sq., nr. Third Ave. (212-353-4158)

The election's coming up, and the anniversary of the Occupy movement is approaching; Ida Applebroog, Mircea Cantor, Rirkrit Tiravanija, Liu Wei, and Krzysztof Wodiczko, among others, share their thoughts and feelings; through 10/13.

ACTIVITIES FOR THE FERTILE MIND
thoughtgallery.org
NEW YORK CITY

The U.S. Constitution and Its Evolving Interpretation by Today's Supreme Court

Date/Time

10/04/2012 - 6:30 PM

Free, registration required

Location

The Cooper Union - The Great Hall, 7 E. 7th St.

212-353-4100

Official site/reserve tickets

In time for the 2012 election season, The Cooper Union is offering a free series of ten evening lectures that explore the United States Constitution. Taught by nationally renowned civil liberties defender and New York University Professor Burt Neuborne, the lectures will emphasize the "original intentions" of our country's founders and the evolving interpretations by the Supreme Court. The lecture series harkens back to Peter Cooper's vision to provide engaging night programming, open to the community, at no cost.

Neuborne, National Legal Director of the ACLU (1981-86), Special Counsel to the NOW Legal Defense and Education Fund (1990-1996), and a member of the New York City Human Rights Commission (1988-1992), has argued numerous Supreme Court cases. Additionally, he has litigated hundreds of constitutional cases in the state and federal courts. He is the Inez Milholland Professor of Civil Liberties and founding Legal Director of the Brennan Center for Justice at New York University Law School.

"The U.S. Constitution and Its Evolving Interpretation by Today's Supreme Court" is part of the 2012 John Jay Iselin Memorial Lecture Series. It was made possible with the support of the Franklin Fund for The Great Hall and the New York State Archives Partnership Trust.

Thursdays from October 4 – December 13, 2012 at 6:30 PM (10 sessions; no session on Thanksgiving)

Free, registration required at cooperunion.eventbrite.com.

This event has been listed by:

Activists Resource
Asian American Bar Assoc.
City Limits
Daily Bag (Puerto Rican Bar Association)
Daily News
Darien News
Eventful
Evie Says
Fresh 102.7
Gotham Gazette
Greenwich Time
New York Activist calendar
New York Law Journal
NYC Political Calendar
Pace Chronicle (Pace University)
Platform for Pedagogy
Thought Gallery
United for Peace and Justice
WBAI
WCBS local
Zvents

New York Law Journal

Friday, September 28, 2012

Calendar

THURSDAY, OCT. 4

Cooper Union
U.S. Constitution and Its Evolving Interpretation by Supreme Court
10-session evening lectures by NYU professor Burt Neuborne, Thursdays through Dec. 13, 6:30 p.m. Great Hall, 7 E. 7th St. 212-353-4195 / cooper.edu

THE NEW YORKER

August 30, 2012

Goings On About Town: Classical Music

New York Mycological Society John Cage Concert

This year brings not only the centenary of John Cage but the semicentenary of the mushroom-loving organization he founded. So it's tributes all around in an event at Cooper Union, a multimedia "realization" of Cage's "Forty-nine Waltzes for the Five Boroughs" that will feature a visual accompaniment of mushrooms galore. (7 E. 7th St. Sept. 8 at 8. For tickets and full schedule, see newyorkmyc.org.)

Weekly Roundup

August 27th, 2012
by Nettrice Gaskins

Ida Applebroog and Krzysztof Wodiczko have work featured in *Ruptures: Form of Public Address*, a group exhibition at the 41 Cooper Gallery (NYC). Situated within the context of the upcoming U.S. elections and the one-year anniversary of the Occupy movement, the exhibition explores the promise and fragility of fearless speech in the aftermath of the 2011 demonstrations, which have erupted across the world in city streets, university campuses, and urban centers. The show will run September 4 – October 13.

world-architects

The Critical Moment: Architecture in the Expanded Field

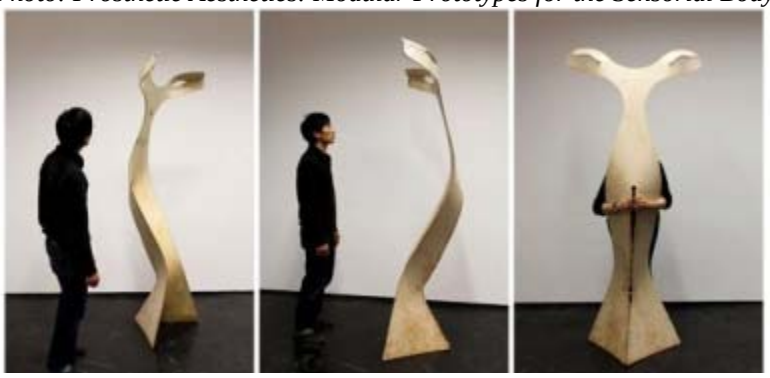
This is a critical moment for the re-thinking of the object of architecture, approaching architectural discourse critically; questioning the very boundaries of Architecture itself.

The innovative and visionary work produced in the Advanced Design Studio, while exploring specific problems, simultaneously addresses the question of the place and relevance of the problem in architectural discourse.

Without prescribed boundaries, the projects address a myriad of critical issues affecting architectural discourse, ranging from urban theory to the present condition of globalization and the continual emergence of new scientific developments and technologies. The exhibition illuminates the graduates' year-long exhaustive research using text, photography, drawing, technology, science and history to develop innovative programs, all of which feature configurations and narratives that bring forth potential solutions that may not be obvious to the viewer.

Professor of the Advanced Design Studio: Diana Agrest

Opening Reception: Wednesday, September 12th at 6:30pm
Photo: Prosthetic Aesthetics: Modular Prototypes for the Sensorial Body



When
09.12.2012
09.21.2012
Where
The Cooper Union
New York, NY
USA
Organizer
The Cooper Union
Links
cooper.edu/events-and-exhibitions/exhibitions/critical-moment-architecture-expanded-field-march-ii-thesis

Featured in:

Allhitecture
American Architects
ArtForum
City Guide NY
City Limits
E-Architect
Eventful
Gotham Gazette
The Lo-Down
New York-Architects
NY1
NY Art Beat
NY Daily News
NYC.com
Upcoming
World-Architects

New York Activist Calendar

Ruptures: Forms of Public Address

Date:
Tuesday, September 4, 2012 - 11:00am - Saturday, October 13, 2012 - 6:00pm
Location:
The Cooper Union - 41 Cooper Gallery, 41 Cooper Square (entrance at 3rd Ave at East 7th Street) Lower Level 1 NY, NY, 10003
Contact:
212.353.4200; artschool@cooper.edu.

Situated within the context of the upcoming US elections and the one-year anniversary of the Occupy movement, The Cooper Union art exhibition Ruptures: Forms of Public Address explores the urgency, promise, and fragility of public and fearless speech within the aftermath of the 2010-11 demonstrations that erupted worldwide in city streets, university campuses, and urban centers. Curated by School of Art Deans Saskia Bos and Steven Lam, the show features a diverse group of artists including Cooper Union Professors Doug Ashford and Sharon Hayes, along with Ida Applebroog, Mircea Cantor, Theo Ellsworth & Caleb Monroe, Ganzeer, Igor Grubic, Iman Issa, Will Kwan, Antoni Muntadas, REPOcommons, REPOhistory, Rirkrit Tiravanija, Lincoln Tobier, Liu Wei, and Krzysztof Wodiczko.

Free and open to the public

Opening reception: Wednesday, September 12, 6-8 pm

Tues, September 4 – Saturday, October 13, 2012
Hours: T – Sat, 11am-6pm, Gallery closed: Sunday and Monday

Follow Cooper Union on Twitter at http://twitter.com/cooperunion
Link:
http://cooper.edu

http://nycal.mayfirst.org/node/6864

This event is listed by the following outlets:

Architect's Newspaper
Art 21
ArtCat
City Guide NY
City Limits
Club Free Time
Culture Mob
Darien News online
Eventful
Fresh 102.7 FM
Hot List
Love My Zip
MetroMix
My Fox NY
New York Activist
North Jersey.com
Norwalk Citizen
NY Daily News
NY Metro Parents
NY-1
Things to Do in NYC
Upcoming/Yahoo
Zvents

DAILY NEWS

Tuesday, October 2, 2012

NEW YORK TODAY

FREE & CHEAP

BUILDING ESTEEM. "Massimi Scolari: 1967-2012" debuts at the Cooper Union. This exhibit, which features more than 150 drawings and watercolors by the visionary artist, is part of Archtober, a monthlong celebration of New York architectural design. 6:30 p.m. Free. 7 E. Seventh St. (212) 353-4100.