

behavioral science

WINNING THE RACE

AS THE FIRST AFRICAN-AMERICAN PRESIDENT RUNS FOR REELECTION, RESEARCHERS EXAMINE THE SUBLIMINAL INFLUENCE OF POLITICAL ADS

by Andrea Crawford

In 1990, longtime North Carolina Senator Jesse Helms was trailing challenger Harvey Gantt, an African-American who supported affirmative action, when the Helms campaign produced the infamous “hands” commercial. As the camera focused on the hands of a white person holding a letter, the narrator said: “You needed that job, and you were the best qualified, but they had to give it to a minority.” Helms went on to win the election.

In another famous appeal, an ad for the 1988 Republican presidential candidate George H.W. Bush featured the menacing mug shot of convicted murderer Willie Horton. The spot explained how the African-American had committed assault while on furlough from a Massachusetts prison—a program supported by Michael Dukakis, the state’s governor and the Democratic presidential candidate. Bush won the presidency in a landslide.

It was into this environment that Charlton McIlwain, associate professor of media, culture, and communication at the Steinhardt School of Culture, Education, and Human Development, came of age. These types of appeals clearly work, he thought, and he set out to determine how and why.

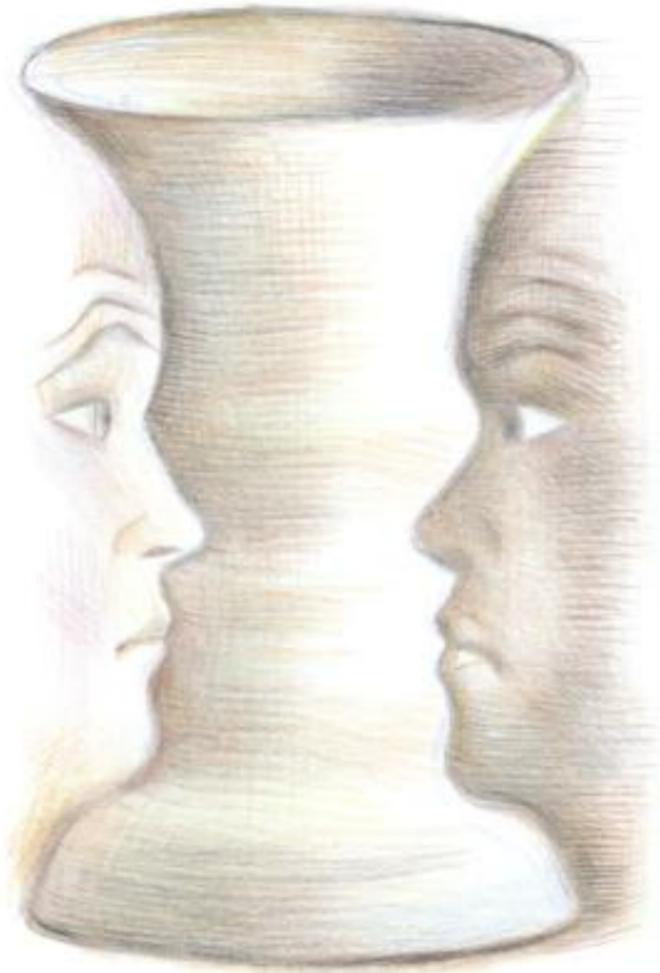


ILLUSTRATION © DAVID SUPPER

Around the same time, David Amodio was first exploring research that showed self-avowed egalitarians actually exhibited un-

conscious biases. Now an NYU associate professor of psychology and neural science, he began his career asking how such automatic

types of prejudice could exist in opposition to one’s beliefs. Until recently, these kinds of questions were complicated by a reliance on often-flawed self-reports—people simply feel uncomfortable admitting bias and are sometimes not even conscious of it. But today, McIlwain and Amodio have come together in a timely pursuit. As

Romney campaigns are smart, they should have teams of people working on this sort of thing already,” Amodio adds. “We just don’t know about it because those people don’t publish in scientific journals.”

McIlwain, the co-author of *Race Appeal: How Candidates Invoke Race in U.S. Political Campaigns* (Temple University Press),

The amygdala, a part of the brain linked to processing fear and threat, activates within milliseconds of seeing a black face.

the first African-American president runs for reelection, they are investigating the power of racial appeals in political ads by turning to neuroscience.

Because regions of the brain process information in different ways, neuroimaging techniques that record psycho-physiological and neurological responses now offer scientists new ways of understanding our response to stimuli. In their study’s initial phase, McIlwain and Amodio have used electroencephalography to measure brain activity as well as electromyography, which records micro-movements in muscles as people view political ads with either overt or subtle racial messages. They next plan to measure skin conductance to reveal small changes in perspiration on the fingertips and palms, which indicate different response channels of the autonomic nervous system, the involuntary and mostly unconscious system that regulates many organs and muscles in the body and triggers the so-called “flight or fight” response. “It could be your explicit thoughts about the ad that matter most,” Amodio says. But he cautions that many people vote their “gut feeling,” which is essentially now a measurable reaction associated with autonomic arousal. “If the Obama and

has seen research over the past decade prove that explicit racial appeals don’t usually work because they violate social norms of equality. But he has observed an uptick in racial rhetoric and depictions in the past few years, especially during the Tea Party and health-care debate protests. These references—which have included President Barack Obama portrayed as a monkey—become considerably easier to make when a candidate, says McIlwain, can “get a third party to do [their] dirty work.”

Amodio notes that psychologists found long ago that after seeing the face of a black person flashed subliminally before them, American subjects, whether black or white, would identify negative words more quickly than positive ones. And recent neuroimaging has shown that the amygdala, a part of the brain linked to processing fear and threat, activates within milliseconds of seeing a black face. His advice: “If you’re a white candidate running against a black one, you could probably be quite successful in running a lot of fear-based ads.”

This is why Jay Van Bavel, assistant professor of social psychology, calls McIlwain and Amodio’s collaboration “extremely important...not only to uncover exactly when these types of ads are

working but also to figure out ways to counteract them.” In his own work, Van Bavel has found that the amygdala responds to emotional significance, and when a relationship changes, the autonomic response to that person changes as well. “The moment you’re part of a mixed race team, suddenly you feel positive toward black and white team members,” he explains. “It really seems to be something like ‘who’s with me’ versus ‘who’s against me.’”

He believes that this provided a huge boost in the 2008 election for Obama, who used far more collective pronouns (we, us, our) than his opponents: “Whether it was conscious or not, he was basically helping people feel like they’re all part of the same group.” If he can do that again, Van Bavel says, it may “help override some of the racial biases that certain political groups are

going to try to cultivate.”

Amodio is less optimistic. He believes that impulses registered in the brain’s amygdala are indelible, but that a candidate may appeal to people to act more in line with their beliefs. “The best strategy for overcoming these automatic responses is likely teaching people to be really effective at controlling [them],” he says. “And the human brain is great at that.” McIlwain says that public vigilance is essential, and sees progress in today’s media compared to 24 years ago, when the discussion over the Willie Horton ad involved some commentators saying it had a racial overtone and others arguing it did not. McIlwain says: “If we’re going to have a debate about whether and when [racism] rears its head in an election, then people need to be educated about how to make that determination.”

global

Year of the Social Worker

CHINA RACES TO TRAIN MILLIONS BY 2020

by Sally Lauckner / GSAS '10

It seems these days that the eyes of the world are perpetually pointed east, toward China. Over the past two decades, the country has rapidly risen to the role of power player in the global economy, scientific research, energy conservation methods, space travel, and even the art world. Now the government is transforming itself into a front-runner in yet another arena: social work.

Last year, China unveiled an ambitious plan to increase the number of its social workers

almost 10-fold over the next eight years. According to the Chinese Ministry of Civil Affairs, there are currently about 200,000 social workers in China, and the government hopes to grow that number to a staggering two million by 2020. One of the most pressing problems they will face is a mammoth aging population. China is the world’s most populous country, with some 1.3 billion people, and life expectancy rates are on the rise. By 2050, experts estimate that 480 million Chinese will be

(CONTINUED ON PAGE 10)

A SOLAR LAMP IN EVERY HOME

Anyone who's ever burned a kerosene lantern knows that the fumes can be noxious and the soot a constant annoyance. And yet millions of Africans rely on these polluting lanterns to cook by, study by, and generally live by. That may soon change.

Last April, a group of NYU Abu Dhabi students won part of a \$1 million grant in the 2012 Hult Global Case Challenge (with partner organizations SolarAid, One Laptop per Child, and Habitat for Humanity) for their plan to replace one million kerosene lanterns with solar lamps starting in Kenya, moving on to Uganda and Tanzania, and eventually some 40 countries across Africa. The solar lamps, designed by SolarAid, have been fitted with a battery that can be easily removed and replaced by owners—a feature that the NYU Abu Dhabi students pushed for. Competing against 4,000 other teams, the multinational team of students—NYUAD juniors Madhav Vaidyanathan, Songyishu Yang, Muhammad Awais Islam, and Gary Chien, and Neil Parmar (GSAS

'05)—aimed to help SolarAid in its mission to eradicate the kerosene lamp from Africa by 2020.

The NYU team wanted to create a model that would also provide for maintenance and involve the local *fundi* (the Swahili version of a handyman). As such, the residents will purchase the lamps through incremental payments and can seek repairs locally. "I really believe that charity is not a solution," Islam says. "The rural people of Africa need to be the architects of their own development. They are the ones who will actually purchase [the lamp], own it, and cherish it."

CHESS CHAMPS

With no coach, no international recruits, and no scholarships, the NYU Chess Team is definitely an underdog in the competitive chess world. However, in December at the Pan-American Intercollegiate Team Chess Championship, NYU was among the final four who qualified to compete for the President's Cup. Rounding out the finalists were: The University of Texas at Dallas, the University of Maryland

Baltimore County, and Texas Tech, who went on to win the April competition. Even if the ultimate prize eluded NYU, team captain Evan Rosenberg (CAS '02, STEINHARDT '11, '12) notes

that they "surprised a lot of people." And he's confident about the team's chances for next year because, he says: "You will never sit down and play the same game of chess twice." —Naomi Howell

A Slam Dunk for Poets



In their first year as an official university club, the NYU Slam Poetry Team, SLAM! at NYU, won the national championship at the College Unions Poetry Slam Invitational last April. (For the uninitiated, slam poetry is a more physical, emphatic version of

a traditional reading, with roots in theater and hip-hop.) During the competition, held at California's University of La Verne, NYU beat out 45 other teams with gripping and candid performances.

This year's SLAM! at NYU members included Kate Guenther (GAL '14), Aziza Barnes (TSOA '14), Safia Elhillo (GAL '13), Joseph Amodiei (TSOA '13), Connor Sampson (TSOA '13), and Eric Silver (CAS '13). Coached by alumna Stephanie Holmbo (TSOA '11) and former Gallatin professor Brian Dillon, the young poets held forth on such varied subjects as small bunnies, overbearing mothers, sandwiches, and issues of race and identity. In one poem, Barnes told how her aunt had passed for white over the years. "Gina," she said, "let's meet at the ocean, where I am no longer brown girl...where you are no longer passing for anything. The salt of the Pacific may burn a bit, but Gina—it's just skin." —N.H.

(CONTINUED FROM PAGE 9)

over age 60. Lynn Videka, dean of the Silver School of Social Work, says this is a key reason, along with the one-child policy, that Chinese authorities are prioritizing social work. "China is a rapidly aging society, and an unintended effect of the one-child policy is that there's a shortage of people to care for the elderly," Videka explains. "There's also a shortage of women for young men to marry, because more male babies are born there than female."

As part of the initiative, universities in China are developing social work education programs in the hopes of attracting young people to

the field. NYU already has a stake in China's future with a third global campus in Shanghai set to welcome its inaugural class in 2013, but the university also plans to open a joint social policy research center between the Silver School and East China Normal University (ECNU). Beginning in 2014, the two schools will offer a degree program that allows students to spend one year in Shanghai and one in New York City, and they will graduate with an internationally focused MSW degree.

These new legions of social workers will tackle, in addition to the challenges of an aging popula-

tion, more universal social problems. "China [is experiencing] what all the industrialized countries have been through," says Wen-Jui Han, professor at the Silver School and co-director of the NYU-ECNU Social Work and Social Policy Research Institute. "Social issues, such as poverty, inequality, and disability due to injuries on the job, may unsettle the societal order."

Dean Videka says that NYU intends to be respectful of the ways that Chinese and American cultures differ, even as the Silver School develops an educational program that bridges some of those gaps. "In America, people are pretty willing

to seek help for mental health needs, for HIV, for major social problems," she says. "But in China, there is a greater reliance on self-sufficiency and privacy within the family." Videka notes that social workers must develop interventions that respect this difference and cites, by way of example, a program for mothers who have experienced the loss of a young child. "In America, we would use psychotherapy for those parents," she explains. "But in China, the focus is not so much on the restoration of mental health but on happiness, so the language is different, even if the needs are the same." ■



music education

CONCERTS ACROSS CONTINENTS

by Eileen Reynolds / GSAS '11

Students at the Steinhardt School of Culture, Education, and Human Development are giving a whole new meaning to the term "world music"—by collaborating with artists in live concerts that span multiple continents. Each semester, graduate students in the Collaborative Projects in the Performing Arts course team up with international partners to develop works incorporating music, video, and movement designed to be performed simultaneously in New York and sites from Florence to Abu Dhabi.

The performances require a bit more than Skype: An advanced

networking platform called Internet2 allows streaming video to be rapidly transmitted across the Earth, and the JackTrip audio conferencing system ensures that performers can hear one another clearly, without feedback or even a half-second delay. John Gilbert, who teaches the course with Tom Beyer (GAL '98, STEINHARDT '06), says: "It's a little bit like putting on a TV production or a rock show." Some students show up on the first day of class not knowing how to set up a tripod but, by the end of the term, Gilbert says that they're comfortable enough with the high-tech audiovisual equipment to switch between camera angles and even

apply visual effects to streaming video in real time.

In April, students in the NYU Abu Dhabi new music ensemble, led by Celina Charlier (STEINHARDT '01, '10), joined Gilbert and Beyer's students in an Internet2-powered concert with additional performers in London and South Korea. And this fall, Charlier and Gilbert are co-teaching a collaborative course from their respective campuses. Charlier has also arranged for students in Abu Dhabi to take classes, workshops, and even weekly private lessons who teach via Internet from a studio at Steinhardt. Guitar instructor

ACROSS THE ETHER, DIRECTED BY JOHN GILBERT AND PERFORMED IN NYU'S FREDERICK LOEWE THEATRE, INCORPORATED MUSIC, VIDEO, AND LOTS OF DANCING.

Bill Rayner (STEINHARDT '97), who taught private lessons to Manuel Nivia (NYUAD '14) in the spring, marveled at how easy it was to demonstrate chords and techniques to a pupil on the other side of the world. "I could see his hand placement, I could hear him very well, and we could even improvise and play jazz together," he says. "I never felt that his not being in the room was a problem."

So, what is the biggest challenge for long-distance music-makers? That would be coordinating rehearsals and performances across multiple time zones, says Julie Song (STEINHARDT '11), a music education graduate student who served as production coordinator for the spring 2012 Collaborative Projects performance. She notes: "For the people in Korea, the concert was at around four in the morning!" ■

NEXT LEVEL

A NEW REVIEW RAISES BROWS HIGH TOWARD VIDEO GAMES

by Eileen Reynolds / GSAS '11

Liel Leibovitz has been hooked on video games since he first played Atari at the age of 7—but now, as a scholar of the medium, he can honestly tell his wife that all that time spent on the couch with a game console in his hands counts as re-

search. A visiting assistant professor of media, culture, and communication at the Steinhardt School of Culture, Education, and Human Development, Leibovitz recently founded *The New York Review of Video Games*, an online magazine dedicated to taking electronic play seriously. The magazine, which

PROFESSOR LIEL LEIBOVITZ HAS DIRECTED HIS PASSION FOR VIDEO GAMES INTO ACADEMIC RESEARCH.

launches this fall, will tackle issues ranging from video game economics to representations of death and violence on-screen. *NYU Alumni Magazine* recently sat down with him to discuss the aims of the new periodical, the *Ulysses* of video games, and his theory about why gamers might make the best clergymen.

WHO IS THE TARGET AUDIENCE FOR THE NEW YORK REVIEW OF VIDEO GAMES? GAMERS? SCHOLARS? BOTH?

Nerds write about video games in a way that's inscrutable even to me, and I have a PhD in this and have played for two hours a day for the past 28 years. They have these metrics that say things like, "re-playability is 9.4 out of 10." This is like reviewing your first kiss and saying the tongue-to-tongue ratio was 7.6. You're missing the point! Our goal is to

provide a wide, curious, intelligent but uninformed readership with a venue for quality, long-form journalism and essays about specific titles, socioeconomic correlations, and all the aspects of video games that scholars think about. The second goal is to provide a completely different paradigm for video game reviews. We want to be the Lester Bangs of video game reviewing, the Greil Marcus of video games—to produce something that has heart and has a brain.

YOU'VE CALLED VIDEO GAMES A THEOLOGICAL MEDIUM. WHAT DO YOU MEAN?

Video games enact, in a perfect way, the key drama of life: We're here in this world, we don't know the rules, and as for the designer? We'll probably never meet him. We don't understand it at all. We've got to figure it out in some way, and even if it's preordained, there's got to be some freedom for us. What does the designer really want from us? These are religious ques-

tions. At NYU's Re:Play conference on the theory, business, and practice of video games in April, I moderated a panel with a Conservative rabbi and a Baptist minister—both really big gamers. They sat onstage and said, "Being gamers has made us far better clergymen, and being clergyman has made us far better gamers."

WHAT GAME WOULD YOU RECOMMEND FOR SOMEONE WHO DOESN'T LIKE RUNNING AROUND SHOOTING PEOPLE?

Portal 2. It's a physics-based puzzle game in which players must figure out how to walk through walls, glide through ceilings, avoid vindictive robots, and escape a deadly maze run by a deranged computer. If video games were literature, this is *Ulysses*. Like Joyce's novel, this game speaks in a language that is radically new, and is as concerned with the limitations of the medium as it is with great questions of morality, civility, and fate. It's among very few games that could easily be called a masterpiece. ■

it's their major, or a novel I teach in class, or just something about the way life is when you're living away from home."

Anticipating what events will click with students isn't always easy, says Moran, who had low expectations when he took them on a uniquely New York outing to the Chelsea Classics cinema series, which screens old movies and is hosted by famed drag queen Hedda Lettuce. The trip not only sparked discussions about film and gender as performance, but was such a hit with the freshmen that it became a recurring tradition with many of them returning as sophomores and juniors. "I would have never predicted that it would be as popular as it was," says Moran, who relishes watching the groups respond to new experiences. "There's just an enthusiasm and an energy about students that is infectious." ■

The Professor Down the Hall

STUDENTS AND FACULTY ENJOY DORM LIFE AND NEW YORK CITY CULTURE TOGETHER

by Renée Alfuso / CAS '06

As a faculty fellow in residence at Hayden Hall, each move-in day John Moran is approached by parents expressing relief that adults will also be living in the freshman dorm. But the associate professor of French notes: "Our role is not to take care of students in the way some parents think—like check to make sure they're going to bed on time." Rather, the professors who live amongst students serve

as babysitters for the brain, ensuring that intellectual stimulation extends beyond the classroom. "It basically creates a community around the life of the mind," says Matthew Santirocco, senior vice provost for undergraduate academic affairs. "Residence halls should not be just places where students hang up their hat between classes."

The 22 faculty fellows serving in 14 residence halls include authors and performers, chemists and psychologists who draw upon their

own academic and personal passions to organize events that encourage students to think critically while having fun. Professors and students meet in their dorm for book clubs, meditation sessions, and creative writing workshops (often over pizza or snacks), but also have the opportunity to get out and explore the city. Beyond just visiting New York's renowned museums, students have learned to sail aboard a schooner at the South Street Seaport and volunteered with

children living in a homeless shelter. And they don't just go see a Broadway show—they read and discuss the play beforehand, then have a talk back with the director and cast after the performance.

It's not just the students who benefit from these excursions. With more than 500 events throughout the year—making it the largest program of its kind in the country—faculty enjoy an unusual opportunity to act as mentors and gain insight into the daily lives of undergrads. Moran says that his six years of making connections with new students in Hayden has aided his role as director of undergraduate studies in the French department. "I love working with young people who are taking their first steps into adult life," he says. "It's very satisfying to be with students and see them make those discoveries—whether

A NEW NEW YORKER

DISSIDENT CHEN GUANGCHENG OFFERS SOME THOUGHTS ON HIS CURRENT HOME

by Eileen Reynolds / GSAS '11

For Chen Guangcheng, the Chinese dissident who famously made a daring escape from the village where he was being held under house arrest, Washington Square is at once a very strange and very comfortable place. Chen, a blind, self-taught civil rights lawyer, fled to the American Embassy in Beijing in April 2012, and remained there as U.S. and Chinese officials came to a diplomatic stalemate over his release. Secretary of State Hillary Clinton and NYU School of Law professor Jerome A. Cohen intervened on his behalf, finally persuading the Chinese government to allow Chen to travel to the United States in May to pursue a law fellowship at NYU.

These days, when not studying constitutional law, Chen is busy adjusting to life in New York. He's learning English with the Declaration of Independence as his guide, enjoying the Washington Square Village apartment he shares with his wife and two children, and trying out all the exotic foods the city has to offer, with Japanese seaweed salad emerging as his favorite so far.

Below Chen offers some first impressions in his own words, translated from Chinese.

On getting recognized on the street: Some people see me and clap their hands, and some people want to take photographs together. "Welcome to America,"



CHEN GUANGCHENG HAS BECOME A POPULAR NEIGHBORHOOD FIXTURE SINCE HE CAME TO GREENWICH VILLAGE IN MAY.

[they say], or "You are Mr. Chen," or "[in English] Are you Mr. Chen?"... Anyway, I think [New Yorkers] are very friendly.

On checks and balances: I think the most interesting thing is how, in the U.S. Constitution, executive power, as represented by the president, is not very strong. Congress holds much of the power.... In the end, even the president is subject to a court's ruling. This is a very good social mechanism.

What Americans should understand about China: When [Americans] discuss the problems of China, it is usually just about the urban conditions, not the rural, village populations, which

occupy about 80 to 90 percent [of the country]. I don't think people understand remotely enough of rural, village society and conditions.

What the Chinese should understand about America: Chinese people have a dire lack of understanding about America, because there is no information.... They might know America was attacked by airplanes on 9/11, but they do not know how people in the World Trade Center helped those with disabilities escape to safety, or how, after the [2003] blackout, New York shop owners provided free food to those stranded in the streets. These are things that [the average Chinese person] might not know. ■

neural science

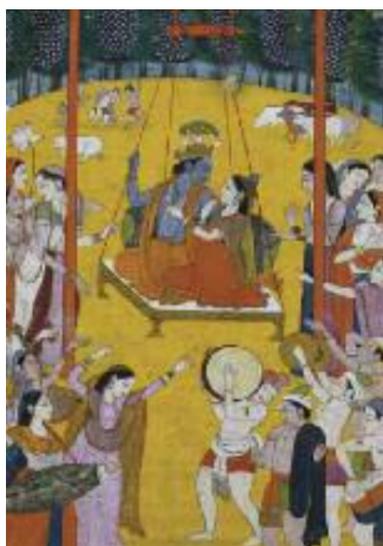
BEAUTY WITHIN THE BRAIN

What happens in your brain when you're moved by a work of art? That depends on the piece and the person. A new study published in the journal *Frontiers in Human Neuroscience* confirms that emotional reactions to art can be highly subjective, and may reflect as much about the viewer as the canvas. "When we are moved, it's because we feel like we are learning something about ourselves in the world," posits Edward Vessel, a neuroscientist at NYU's Center for Brain Imaging, who led the study along with Gabrielle Starr, acting College of Arts and Science dean and a professor of 18th-century literature, and Nava Rubin of the NYU Center for Neural Science.

Using functional magnetic resonance imaging, or fMRI, the team took moment-to-moment snapshots of which parts of the brain

were active as a person reacted to paintings. Subjects were then asked to rate those paintings on a scale of one to four—with four indicating that the work was deeply moving. The paintings were all museum

quality but deliberately unfamiliar, so that notions of an artist or work would not color the participants' ratings. Across the board, the occipitotemporal, or sensory, section of everyone's brain was activated



upon viewing the paintings. However, only when subjects rated a painting a four did a specific network of frontal and subcortical regions—areas of the brain involved with self-referential thoughts, identity, and emotional mind wandering—light up.

The novelty of this research is that it parses out the systems that react visually versus emotionally, and the findings suggest that everyone's brain system allows them to be moved by visual art—and likely music, dance, or literature—even if we respond to different works. "The pieces of art that have the most universal appeal," Vessel says, "are those that have layers of complexity and can resonate with people personally, regardless of who they are."

—Naomi Howell

TWO OF THE IMAGES THE STUDY USED TO GAUGE AESTHETIC EXPERIENCES. LEFT: HINDOLA RAGA, CA. LATE 18TH CENTURY. ARTIST UNKNOWN. RIGHT: HIDDEN FORTRESS, CA. 1961. BY AL HELD.

IMAGES COURTESY THE CATALOG OF ART MUSEUM IMAGES ONLINE DATABASE

dentistry

ARE SOME CAVITIES ROOTED IN VIOLENCE?

A child's dental checkup may reveal more than just the status of his or her pearly whites. A breakthrough study at the College of Dentistry shows that verbal or physical aggression in the home can lead to an increase in childhood caries. The research, which was launched by the Family Translational Research Group within the department of cariology and comprehensive care, joins the work of psychologists Amy Smith Slep and Richard Heyman, with associate dean Mark Wolff, who were awarded \$1 million by the National Institutes of Health in 2009. Heyman says, "There are two hypotheses about how oral health is affected by parental discord." One theory is that negligent parenting, caused by conflict, results in children eating sugary foods and not brushing regularly. The other is that young children

under stress have weaker immune systems.

According to Wolff, "A simple lecture on brushing isn't going to improve things. You have to change parenting behaviors." The team is now focusing on an intervention in the maternity wards of Stony Brook University Hospital and Bellevue Hospital Center, where they seek out newborns at high risk for caries (based on family income and education) and enroll the parents in a program that promotes conflict resolution and oral care. At 15 months, the children will receive a dental exam, which the researchers hope will shed light on the intervention's effects and provide ideas for future prevention. Heyman notes, "[Our aim] is to lower risk factors and get messages out on good preventive health care. Not just oral health, but all health."

—N.H.

mechanical engineering

Swimming With the Robots

Fish are the ultimate synchronized swimmers. But when one fish takes the lead, what convinces the others to follow?

Mechanical engineer Maurizio Porfiri and his team of researchers at NYU-Poly's Dynamical Systems Laboratory are exploring that age-old question in a new way—by building robotic fish that can infiltrate the ranks of living schools. Study of the interactions between live fish and Porfiri's robotic imposters could unlock the mysteries of schooling—a key subject for scientists studying leadership and social behavior in the animal kingdom.

Porfiri and Stefano Marras, a researcher at the Institute for Coastal Marine Environment in Italy, built a robot that mimics the back-and-forth tail movement of a real fish. The white plastic-covered contraption—twice the size of the golden shiner it's meant to imitate—isn't much to look at, but in this case, it's realistic movement that counts. A battery inside the robot sends a current to the flexible back end, causing the tail to bend just like the muscles in a real shiner.

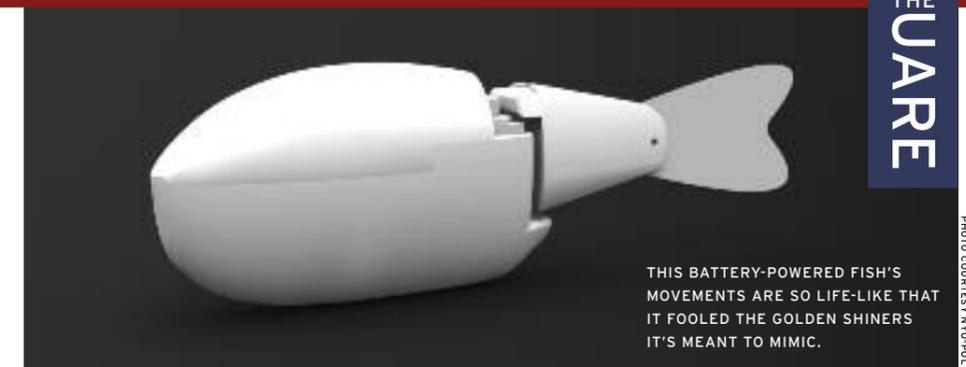
In one experiment, Porfiri's team placed individual golden shiners into a water tunnel and found that when the robot beat its tail at a certain frequency, 60

to 70 percent of the fish fell in line behind it, as though in a school. The results, featured in a cover story last February in the *Journal of the Royal Society Interface*, suggest that one reason fish school is to save energy. Swimming behind a leader offers a hydrodynamic advantage similar to the aerodynamic one that a bicyclist enjoys when drafting closely behind another rider.

In a subsequent study, Porfiri created a colorful robot designed to catch the eye of the visually oriented zebrafish. Shaped like a plump, fertile female and painted with the species' characteristic blue stripes, it attracted followers as long as the lights were on. In the dark, the zebrafish were scared off by the robot's noise. Future studies aim to create a robot fish that flaps its tail silently.

Before the robot fish join schools on the open seas, they'll also need longer-lasting batteries, the ability to dive deep into the water and swim against currents, and artificial intelligence, which will allow them to respond to the movements of living fish. Porfiri hopes his robots will someday act as aquatic "sheepdogs." "If you have pollution or some other major problem," he says, "it would be nice to be able to guide a group of fish away."

—Eileen Reynolds



THIS BATTERY-POWERED FISH'S MOVEMENTS ARE SO LIFE-LIKE THAT IT FOOLED THE GOLDEN SHINERS IT'S MEANT TO MIMIC.

PHOTO COURTESY NYU-POLY

nursing

CLINICAL TRIALS AND TRIBULATIONS

For people living with HIV/AIDS, being selected for a clinical trial can be like scoring a VIP pass. Suddenly one has access to the nation's leading experts on the disease and the latest medical treatment. But participation in clinical trials among HIV-positive African-Americans and Latinos has historically lagged behind that of white patients, which not only means they miss out on care, but also presents a problem for researchers seeking to understand the effects of new medications on diverse groups.

Marya V. Gwadz and Noelle R. Leonard, senior research scientists at the NYU College of Nursing, set out to identify intervention strategies to address that ethnic disparity. Between 2008 and 2010, they recruited 540 HIV-positive New Yorkers for the ACT2 Project, a peer-driven intervention in which the African-American and Latino participants, in a series of interactive small-group sessions,

learned about AIDS clinical trials (ACTs) and discussed possible obstacles to participation among people of color. "A lot of assumptions that have been made—that people of color aren't interested in clinical trials—are not borne out when they're asked," Gwadz says. After the program ended, the participants received support for navigating the clinical trials system and were allowed to recruit up to three peers for ACT2.

ACT2 participants were 30 times more likely than a control group to sign up for screening for clinical trials. Of those who were screened, about half were found eligible for studies, and nine out of 10 of those enrolled. "These are huge effects for behavioral intervention," Gwadz says. She described one skeptical participant who arrived at the first session and declared, "I'd rather die than be a lab rat." By the end of the study, he volunteered to get screened.

—E.R.