Tour de Force
Division of Dance Helps Students Follow Their Dreams

BioEngineering Finds a Home
Research in a Virtual World
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This visionary gift, the largest in the history of our campus, launches the next phase of our $1 billion Campaign for The University of California, Santa Barbara.
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Rankings Place UCSB Among Best in the World

From U.S. News & World Report to Kiplinger’s, UC Santa Barbara continues to rank among the top universities in the world. UCSB’s highest ranking ever came from the Centre for Science and Technologies Studies at Leiden University in the Netherlands, which placed UCSB number 7 on its annual list of the top 500 major universities in the world. The Leiden Ranking is based on publications in Thomson Reuters’ Web of Science database from 2005-2009. Only MIT, Princeton, Harvard, Rice, Stanford, and Caltech ranked higher.

In March, in its annual ranking of leading graduate programs at American universities, U.S. News & World Report magazine rated two of UCSB’s programs among the top 10 in the nation. Materials was ranked number 2 in the 2013 U.S. News list of American universities, and was number 1 among public universities. The chemical engineering program was ranked number 8, and was number 5 among public universities. In addition, the College of Engineering was ranked number 21 overall, and number 11 among public universities. Also listed among the top graduate schools is the Gevirtz Graduate School of Education, which was ranked number 11 among public universities is the Gevirtz Graduate School of Education.

‘An Extraordinarily Talented Freshman Class’
The campus has offered a place in its fall 2012 entering class to 23,875 high school seniors. The prospective freshmen were selected from a total of 54,831 applicants — the largest pool in UCSB history. The campus expects its fall 2012 entering class to number about 4,400.

Both the academic qualifications and the diversity of the applicant class accepted continue to be at very high levels. The average high school grade point average of admitted applicants is 4.07, equal to last year, and the average total score on the required SATR Test is 1923 out of a possible 2400, up from 1916. Of all admitted applicants, 23.6 percent identify themselves as members of a racial or ethnic minority group.

Admission to UCSB continues to be extremely competitive. This year, 44 percent were offered a place in next fall’s entering class, down from 46 percent last year. “UCSB has admitted an extraordinarily talented freshman class,” said Christine Van Gieson, director of admissions. “In addition to strong academic credentials, students present a wide range of accomplishments outside the classroom.”

Film by Sociology Professor Premieres at SB Film Festival
In her film “Nothing Like Chocolate,” Kum-Kum Bhavnani, a professor of sociology, tackles the issue of slave labor to produce cocoa beans in Ghana and the Ivory Coast. Rather than focusing on the slave trade practice, however, she highlights a chocolate manufacturer that she says “is doing it right.” Bhavnani’s film premiered at the Santa Barbara International Film Festival in February.

“A few years ago, I read that children were being trafficked or enslaved to harvest cocoa beans in the Ivory Coast, which produces over a third of the world’s cocoa beans,” said Bhavnani, who is also chair of the Women, Culture, and Development minor within the Global and International Studies Program. “I first thought I could make a film that exposes the issue, but decided instead to make a film about someone who’s manufacturing chocolate ethically.”

That someone turned out to be Mott Green, an entrepreneur who relocated from Oregon to Grenada in 1998, leased 100 acres of land from a neighboring estate, and established the Grenada Chocolate Company, an organic chocolate-making cooperative. The film focuses on Green’s activism and tenacity, and how they combine with solar power and appropriate technology to create a business founded on principles of fairness, community, sustainability, and high quality.

Fix Is In for Those Who Ride Bikes On Campus
If you’ve spent much time on campus, you already know that bicycles are the way to get around. Now, thanks to funding provided by the Department of Housing & Residential Services, with support from Associated Students, four bicycle repair stations have been installed at various spots on campus, and two more will be added soon.

The stands are part of a pilot project that may be expanded to include even more locations on campus. The stations are located adjacent to the De La Guerra Dining Commons, Santa Catalina Residence Hall, San Rafael Residence Hall, and San Clemente Villages graduate student housing complex.

The stations, called Fix It Repair Stands, feature a metal base with a slot, or saddle, designed to suspend a bicycle for repairs. They include an air pump and tools — a variety of wrenches, screwdrivers, and other implements — attached to the stands with cables.

“We decided to purchase the four repair stations after receiving favorable reviews from other universities, including Stanford,” said Wilfred Brown, executive director of the Department of Housing. “We have had numerous compliments from the students who have used them.”
A giant rubber duck was spotted around the campus as part of the Moby-Duck UCSB Reads project.

Moby-Duck: A Popular Choice for UCSB Reads
When Donovan Hohn, the former senior editor at Harper’s Magazine, heard about the mysterious loss of thousands of bath toys at sea, he began to ask questions. His search for answers is recounted in his book, Moby-Duck: The True Story of 28,800 Bath Toys Lost at Sea and of the Beachcombers, Oceanographers, Environmentalists and Fools, Including the Author, Who Went in Search of Them.

The UC Santa Barbara Library chose the book as this year’s selection for UCSB Reads. An annual winter quarter event, UCSB Reads engages the campus and the Santa Barbara community in conversations about a key topic while reading the same book. The theme for 2012 was “Making an Impact. What’s Yours?”

This year’s selection was especially popular, and prompted the appearance of a large rubber duck that popped up all over campus throughout the winter quarter. The outreach for UCSB Reads included appearances by faculty members who participated in a series of Community Conversations at public libraries from Solvang to Carpinteria.

Pinpoints
- This year’s All-Gaucho Reunion in April drew more than 6,000 people to campus for the sixth annual event. The theme of this year’s reunion was “Better Together.” The reunion offered alums the opportunity to reconnect with classmates and friends at one of the many group reunions, to relive college days with a walk through Isla Vista, to explore today’s campus with special tours and open houses, and to take part in many special events such as the Gauchos Gallop benefit race and the Taste of UCSB.

- All four dining commons on campus recently received certification from the Green Business Program of Santa Barbara County. The dining commons serve a student population of more than 5,000 during the academic year, as well as visitors, conference, and guests during the summer months. With more than 2 million meals served annually, and an average of 10,000 meals per day, the Department of Residential Dining has a substantial impact on the economy and environment. Among the sustainability initiatives implemented by the dining commons are energy-efficient appliances, reusable dishware, composting all food waste, serving organic seasonal produce, and greatly reducing water, energy, and food waste by eliminating trays.

- Steven P. DenBaars, the Mitsubishi Chemical Professor in Solid State Lighting and Displays, and the co-director of the UCSB Solid State Lighting & Energy Center, was among 66 new members elected this year to the National Academy of Engineering. Election to the Academy is among the highest professional distinctions accorded to an engineer.

- Eight faculty members, including Nobel laureate Alan J. Heeger, have been awarded the distinction of Fellow by the American Association for the Advancement of Science (AAAS). Election as a Fellow is an honor bestowed upon AAAS members by their peers. This is the second consecutive year that eight UCSB faculty members have been named AAAS Fellows. In addition to Heeger, professor of physics and of materials, the other Fellows are Lars Bildsten, professor in the Kavli Institute for Theoretical Physics; Kevin W. Plaxco, professor of chemistry and biochemistry; Frederick Dahlquist, professor and chair of chemistry and biochemistry; W. Patrick McCray, professor of history; Subhash Suri, professor and chair of computer science; Philip A. Pincus, professor of materials and of physics; and Robert L. Sugar, professor of physics.

- Kaustav Banerjee, professor of electrical and computer engineering, and director of the campus’s Nano-electronics Research Lab, has won a coveted Friedrich Wilhelm Bessel Research Award from the Alexander von Humboldt Foundation of Germany. He is the first engineering faculty member from UCSB to receive the award. Banerjee is one of 18 people, and just five engineers, to be honored for 2011. The prize recognizes exemplary records of research by world-class scientists and scholars.

- David Marshall, executive dean of the College of Letters & Science, dean of the Division of Humanities and Fine Arts, and professor of English and comparative literature, has been elected to a two-year term as vice president of the National Humanities Alliance (NHA). Founded in 1981, the NHA is a nonprofit, non-partisan organization based in Washington, D.C., that seeks to advance national humanities policy in the areas of research, education, preservation, and public programs.
Quantum Hardware Among Top 10 Breakthroughs for 2011

For the second year in a row, an experiment by a team of researchers under the direction of UC Santa Barbara physicists Andrew N. Cleland and John M. Martinis has been named one of the Top 10 Physics Breakthroughs of the Year.

The Physics World Top 10 Breakthroughs of 2011 included a study on quantum hardware developed by UCSB physicists who were led by Matteo Mariantoni, postdoctoral fellow in the Cleland-Martinis lab. Physics World is the news organization of the Institute of Physics.

In September, the physicists reported in the journal Science that they had demonstrated a quantum integrated circuit that implements the quantum von Neumann architecture. In this architecture, a long-lived quantum random access memory can be programmed using a quantum random-access unit, all constructed on a single chip, providing the key components for a quantum version of a classical computer.

The UCSB hardware is based on superconducting quantum circuits, and must be cooled to very low temperatures to display quantum behavior. The architecture represents a new paradigm in quantum information processing, and shows that quantum large-scale-integration, based on qubit-resonator arrays, is within reach.

In 2010, another Cleland-Martinis quantum device — a tiny, vibrating metal semiconductor — was named the 2010 Breakthrough of the Year by the journal Science.

A $2.5 Million Grant Aids Research at KITP

The Kavli Institute for Theoretical Physics (KITP) at UC Santa Barbara has been awarded $2.5 million by the Simons Foundation to support the work of leading scientists on extended visits at the world-renowned research center. Every year, the KITP hosts hundreds of leading theoretical physicists who come to Santa Barbara to explore some of the most challenging scientific questions of our time. They meet with other experts in similar and overlapping fields to explore new ideas and form pioneering collaborations.

Nobel Prize-winner David Gross, director of the Kavli Institute, expressed his sincere appreciation for the grant from the Simons Foundation. “We are enormously grateful to the Simons Foundation for their generous award that will enable us to support extended leaves of distinguished scientists at the KITP,” Gross said.

The Simons Distinguished Visiting Scientist program will provide financial assistance to supplement sabbatical leaves provided by the researchers’ home institutions.

Findings

- UC Santa Barbara is becoming a hotbed of solar system (and beyond) discoveries. In March, physics professor emeritus Stanton Peale was among the scientists who had key roles in the success of the MESSENGER spacecraft as it zipped past the planet Mercury. Peale devised the procedure used for detecting whether or not Mercury had a liquid core. In February, astrophysicists affiliated with UCSB and the Las Cumbres Observatory Global Telescope Network announced that they had observed an instant replay of a spectacular outburst from the double-star system Eta Carinae, which was initially seen on Earth nearly 170 years ago. Dubbed the “Great Eruption,” the outburst lasted from 1837 to 1858 and temporarily made Eta Carinae the second brightest star in the sky. Amazingly, some of the light from the eruption took an indirect path to Earth and became visible again. Andy Howell, adjunct faculty member, and Federica Bianco, a postdoctoral researcher, were UCSB’s representatives in the study. And in January, it was announced that the Hubble Space Telescope had uncovered a cluster of galaxies in the initial stages of construction — the most distant such grouping ever observed in the early universe. Tommaso Treu, a professor of physics, was a member of the team that made the discovery.

- Researchers at UC Santa Barbara have discovered a molecular pathway that may explain how a particularly deadly form of cancer develops. The discovery may lead to new cancer therapies that reprogram cells instead of killing them. The research team described how a certain mutation in DNA disrupts cellular function in patients with acute myeloid leukemia. The research was conducted in the laboratory of Norbert Reich, professor in the Department of Chemistry and Biochemistry.

- If the poet William Wordsworth belonged to LinkedIn, his network might include colleagues Samuel Taylor Coleridge and Robert Southey. It might also include Alan Liu, professor of English at UC Santa Barbara, who is listed on Wordsworth’s profile page in the Research-oriented Social Environment (RoSE). RoSE brings together social and bibliographical paradigms and allows for novel interactive research practices and sense of social engagement with the past. With a $50,000 grant from the National Endowment for the Humanities, RoSE is moving from prototype to working model.

- Anthropologists at UC Santa Barbara and the University of Washington have found that Tsimane men have a baseline testosterone level that is 33 percent lower than that
of men living in the United States. The Tsimane are an isolated indigenous group of foragers-farmers in central Bolivia. Also, in contrast to men in the U.S., Tsimane men do not show declines in testosterone as they age, noted Michael Gurven, professor of anthropology. Despite lower levels of circulating testosterone under normal conditions, the Tsimane do have something in common with U.S. men—short-term spikes of testosterone during competition. Gurven is also director of the Tsimane Health and Life History Project, a collaboration between UCSB and the University of New Mexico.

Prospects

■ Thanks to a $6 million award from the U.S. Department of Education’s Science Technology Engineering Mathematics grant program for Hispanic Serving Institutions (HIS-STEM), UC Santa Barbara and Oxnard College are partnering to create additional education opportunities in mathematics, science, and technology for students in the Oxnard Elementary and Oxnard Union High School districts. The goal of the partnership, which is supported by the grant for a period of five years, is to prepare and motivate students to pursue bachelor’s degree programs in STEM fields. The partners will implement innovative STEM programs for Hispanic and other underrepresented students in Oxnard schools and at Oxnard College.

NCEAS: A POWERFUL ENGINE FOR RESEARCH

You won’t find one of UC Santa Barbara’s most prolific research generators on the Goleta campus. The National Center for Ecological Analysis and Synthesis, or NCEAS, is based in downtown Santa Barbara, on the third floor of a building overlooking the Paseo Nuevo shopping center.

There, scientists from all over the world gather several times a year to crunch existing data and do cross-disciplinary analyses, addressing fundamental issues in ecology and other environmental fields. By almost every measure, NCEAS, which is funded by the National Science Foundation (NSF), has been a huge success—especially when it comes to the number of groundbreaking studies produced by the center. Here’s a look at a few of the findings from NCEAS studies published in the past six months:

Marine Spatial Planning: Incorporating multiple stakeholder interests in a comprehensive approach to ocean planning reduces conflict and enhances cultural, conservation, and economic benefits.

African Great Apes: Disease has joined poaching and habitat loss as a major threat to the survival of apes as they have become restricted to ever-smaller populations. In addition, disease threatens the long-term survival of wild gorillas and chimpanzees.

Jellyfish: Claims that jellyfish are increasing worldwide are not supported with any hard evidence or data.

Amazon Basin: Human land-use activity has begun to change the regional water and energy cycles — the interplay of air coming in from the Atlantic Ocean, water transpiration by the forest, and solar radiation — of parts of the Amazon basin.

Invasive Species: Climate change predicted for the United States will boost demand for imported drought- and heat-tolerant landscaping plants from Africa and the Middle East, which will greatly increase the risk that a new wave of invasive species will overrun native ecosystems.

Despite its success, the center is facing a new challenge. NSF funding is shifting to a new synthesis center in the next cycle, after backing NCEAS for 15 years. As a result, NCEAS is seeking independent funding to support its programs.

“The mission is still strong and still relevant,” said Frank Davis, director of NCEAS. “When you ask our user groups, they say: ‘More than ever, NCEAS is a place we look to, to get synthetic research done. It’s something we really value.’”

Tsimane men play soccer in central Bolivia.

Cattle-pasture fire burning in the Amazon basin.

Ebobo, an adult male silverback western gorilla in the Congo.

Fisherman selling to the public at the Santa Barbara Harbor.
Engineering With an Rx

NEW CENTER FOR BIOENGINEERING OFFERS PROMISE OF MEDICAL BREAKTHROUGHS

By Shelly Leachman

Consider the small miracle that is mail delivery, whose behind-the-scenes intricacies seem pretty simple when all we have to do is drag a package inside. Drug delivery is much the same. A successful drug is formulated precisely for its patient. It is packaged protectively, ensuring that it reaches its target intact. It needs directions, an address. And once it arrives — say, at your heart — it must be able to provide the therapy it promised.

Efforts to improve that process are among the advancements being pursued at UC Santa Barbara under the interdisciplinary umbrella known as bioengineering. The three-pronged pursuit applies engineering techniques to biological problems, uses knowledge of biology to address engineering challenges, and puts both to work on medical innovations. It’s a field that has long been thriving here, just never in any official capacity.

Enter the Center for BioEngineering (CBE). Launched in late 2011, it serves as a tangible, “cerebral link” that connects these ongoing endeavors, according to founding director Samir Mitragotri, a professor of chemical engineering. It will also allow the university to grow its reputation for groundbreaking research by raising money and recruiting top faculty and students.

“We had a presence in bioengineering, but we felt that unless we have a formal unit we won’t be able to capitalize on that,” Mitragotri said. “You need an entity that you can go to, apply to, give money to, give grants to. And that was the genesis for the center. Now that we are formally in existence, we are exploring ways to advance bioengineering education on campus.”

If its achievements as an informal entity are any indication, the newly minted center will have a lasting impact. Among the more high-profile innovations is the artificial pancreas being developed by UCSB scientists in collaboration with the Santa Barbara-based Sansum Diabetes Research Institute, which will soon start outpatient trials.

CBE is also engaged in joint research with Santa Barbara Cottage Hospital, La Jolla-based Sanford-Burnham Medical Research Institute and the Morgridge Institute for Research of Wisconsin. Faculty member Frank Doyle — a professor of chemical engineering, associate dean of research for the College of Engineering, director of UCSB’s Institute for Collaborative Biotechnologies (ICB), and the Mellichamp Chair in Process Control — is advancing these associations and cultivating others, describing them as essential to the center.

“We want to build a constellation of medical partnerships,” Doyle said. “By marrying our world-class science and engineering researchers here on campus with the best in practice in the medical field, we can change the field. We can push and advance the state of knowledge.”
innovation possible. Doyle noted, are only the cornerstones of our engineering spotlight with their potential life-changing implications. Yet such applications, Doyle noted, are only the point on a pyramid that rests upon the fundamentals of biology and the translational engineering tools that make medical innovation possible.

BE associate director Kevin Plaxco, a professor of chemistry and biochemistry, as well as biomolecular science and engineering, pointed to Marine Science Institute professor J. Herbert Waite’s extensive work with green mussels — whose adhesion proteins may one day be replicated in man-made adhesives — as an example of bioengineering advancements not exclusive to medicine.

“Waite’s work fits nicely with the first pillar of bioengineering, which is to use biologically inspired ideas to solve engineering problems,” Plaxco said. “Biology has solved enormous sets of physical and chemical challenges, and it does it all with a very simple tool kit. Learning how nature solves its problems is our inspiration for solving our own engineering challenges.”

A more immediate challenge for the center is construction of its planned building, a three-story, 48,000-square-foot, state-of-the-art, energy-efficient structure to be located adjacent to Davidson Library. Architectural drawings are complete and fundraising is ongoing for what will be a multiyear construction project, said Doyle.

The bricks-and-mortar center will feature open lab space on every floor, a 100-seat auditorium, and offices for faculty, grad students, and administrative staff. It will also serve as home to Doyle’s ICB, and house a new venture — the Translational Medical Research Laboratory (TMRL) — that is a product of the partnership with Cottage Hospital.

Described as a “bridge to the future of medical innovation,” the lab will see scientists and physicians cooperating in a clinical setting to “translate biomedical research into real-world solutions.” TMRL puts yet another name to the much-lauded face of UC Santa Barbara’s reputation for collaboration — a point of pride so ingrained in the ethos it’s become a pillar of the campus culture. In fact, so does the center.

“At UCSB we excel in those endeavors that defy boundaries,” Doyle said. “And we see the Center for BioEngineering as another opportunity and case study in interdisciplinary success.”

Are there issues you consider essential for the future of engineering?
Education, education, education. The ability to leverage the technology that comes out of engineering for education more broadly, and around the world, I think is important. But also it’s important for us, as a university, to reach out to the K-12 population, to help them get a better understanding not just of the “gee whiz” technology, but the impact on society and how engineering has changed and improved the lives of people. We need to make sure they’re prepared — and we want to make sure we have the best and brightest coming through engineering going forward.

What lessons do you bring from your experience in private industry?
What I felt part of at Bell Labs — seeing the optical networks that underpinned the internet literally connect the world, enabling opportunities not just for knowledge, but economic opportunities in countries where it otherwise would not have been possible — brought multiple levels of satisfaction. The reward that comes from discovery, taking discovery to implementation, making a difference for society — it’s important for our engineers to understand that’s the opportunity that they have, and the obligation, quite frankly.

What goals do you have for the College of Engineering?
One of my priorities is to ensure that we continue to build strong relationships with companies to better understand what industry is looking for in our students, and in our research. Not that we are driven by that, but we are informed by it. Our engineers really will be working in a global environment. They need to understand how to work in diverse environments that cross global boundaries and cultural boundaries. And I believe it’s important that they have a breadth of understanding of the basic principles of business.

Our Technology Management Program is one way of doing that. Our goal for students is not just “get the first job,” but to have long-term careers in engineering.
A Wireless Bridge for Zambia

Two Professors Use $1.2 Million Grant to Bring Internet Connectivity to Rural Africa

By Andrea Estrada

Situated in the southern province of Zambia, in sub-Saharan Africa, the village of Macha is a rural community, where the roughly 130,000 residents live in small homesteads and support themselves through subsistence farming. Corn is their main crop.

Despite its remote location, Macha does have Internet connectivity, but only for a small group of users — perhaps 300 in all. With a $1.2 million grant from the National Science Foundation, UC Santa Barbara scholars Elizabeth Belding and Lisa Parks have embarked on a project to bring the information superhighway to the homes and businesses of everyone in the local community.

“The idea of the work is to build wireless network solutions to help bridge the digital divide and bring more people online,” said Belding, a professor of computer science. “Our goal is to improve performance, get connectivity to everyone — not just a limited subset of the population — and improve the user experience.”

To accomplish this, Belding's research group has been working at the frontiers of wireless networking, developing technology that, up to this point, didn't exist.

“In terms of wireless links and how data is sent from computer to computer within the community, we are in the process of developing wireless network technology to utilize new spectrum,” Belding continued. “With radio, for example, each channel is on a different frequency. Radio utilizes different spectrum from TV, which uses different spectrum from Wi-Fi. New spectrum is becoming available that hasn't been leveraged yet, but has really good properties for what we want to do.”

The grant, which continues over four years, requires an interdisciplinary collaboration within the project, and that's where Parks comes in. A professor of film and media studies at UCSB, she has a special interest in the role of information technologies in developing societies. “I’m thinking about what it means to develop a socially informed network design,” she explained.

Belding, Parks, and the graduate students involved in the project will make their first group trip to Africa in June.

“When we get there, we’re going to be videotaping people in the village, and we’re also going to be training a cohort of local people to conduct videotaped interviews,” Parks said. “So we’re calling this a radial ethnography. We conduct the ethnography ourselves, but we also develop partnerships with local people in the village. We show them how to use these cameras, and how to share the video data with us. It’s a collaborative project, and they’re also stakeholders in the ethnographic research.”

According to Belding, this aspect of the project — asking the people in the village about their specific Internet needs and usage — is extremely important because it enables her team to develop solutions that actually meet the needs of the community. “One of the reasons efforts like this in developing regions fail is because people aren’t working in partnership with the community,” she said. “They aren’t asking the community what they want. Instead, they design something that is technically great, but won’t ever be used because it doesn’t serve the community’s needs.”

The overall project is called VillageNet, and consists of three key technical components. They include VillageLink, the wireless networking mechanism for connecting devices; VillageShare, a network architecture for facilitating the sharing
testing it, and incorporating all the features available. "We're finalizing the design and access in places where it currently isn't. During this trip, she said, but now hopes expecting to have technology ready to deploy a bit ahead of schedule. She wasn't ex-
on the technical side, and have made prog-

One of our solutions is to provide cellular coverage across the entire community so people can make free local calls. If they have to call someone outside the community, they'll hop on that person's cellular provider's network. But they can do that through our local networks."

Belding and her team have been busy on the technical side, and have made progress a bit ahead of schedule. She wasn't ex-

The researchers anticipate that the new technology will branch out beyond Africa to other rural areas. "One of the things we're hoping will come out of our fieldwork is a template and a set of research protocols for the implementation of technologies in remote rural communities," said Parks. "Our research would generate and yield a set of findings that would allow us to make recommendations to other researchers who are trying to implement new communication technologies or new networks in different parts of the world."

"Ultimately," Belding added, "we don't want our work to be specific to this one community. We're hoping to broaden what we do into a set of guidelines or research methodology for how to approach this problem in general."

For the graduate students working on the Macha wireless project, the experience is a win-win. In exchange for their expertise and enthusiasm, they have the chance to conduct interdisciplinary and collaborative international research in a developing country.

According to Lisa Parks, professor of film and media studies, through their involvement with the project and interaction with people in Zambia, the students will gain valuable international research experience. They'll also benefit from professional relationships and friendships on campus and in other parts of the world, and will learn to communicate across disciplinary divides of the humanities and the sciences.

Elizabeth Belding, professor of computer science, noted that this kind of work has attracted students who are passionate, not only about computer science, but about humanitarian causes. "The students who have joined my research group in the last few years have found that, through projects like this, they can apply their computer science skills to directly impact a variety of people in profound and positive ways."

The inherent nature of this particular project brings engineering and technology together with social science in a very meaningful way. Visits to Macha have two components — technical and anthropological — and, according to Belding, the students who have already made initial trips came back to Santa Barbara with renewed invigoration for their research agenda. "They have seen firsthand the communities that can be helped by their work, and they are informed about the non-technical factors that should influence their technical solutions," she said.

Not all students get the opportunity to travel, Belding noted, but those who remain stateside "still have the satisfaction of knowing their research will have a positive impact on the lives of people in disadvantaged communi-
ties."
In a large room in the basement of the Psychology East building, a participant in a psychology experiment dons a futuristic headset that looks like something from the Star Trek wardrobe department. Tethered to a computer on the far side of the room, he takes a careful step forward. Like a tightrope walker, he places one foot directly in front of the other, extending his arms out to the side for balance.

In the real world, he’s doing nothing more dangerous than walking from one part of the room to another. In this particular virtual world, however — one created at UC Santa Barbara’s Research Center for Virtual Environments and Behaviors (ReCVEB) — he is traversing a narrow wooden plank that bridges a deep chasm. Every visual cue his brain receives tells him that one false step will send him plummeting to depths he cannot even see. It’s the ultimate mind game.

“About half of adults won’t do it,” James Blascovich, professor of psychological and brain sciences at UCSB, says of the plank exercise created by the center’s immersive virtual environment technology. “They can’t control their fear response. And when you put down a physical board so they can feel the edge, it’s worse.” Blascovich is also co-director and co-founder of the ReCVEB, and co-author of Infinite Reality — Avatars, Eternal Life, New Worlds, and the Dawn of the Virtual Revolution (HarperCollins, 2011).

Virtual reality may seem a phenomenon of 21st-century technology, but in fact, it has existed for thousands of years — since human beings first developed the ability to imagine. The difference between then and now is that today’s technology allows us to create virtual environments and human representations that are functionally indistinguishable from physical reality.

Immersion is a state of mind that has been around since storytelling, Blascovich continues. “Virtual reality is a concept that isn’t necessarily tied to any particular technology,” he says. “But every once in a while, there’s a media technology development that creates a paradigm shift.” The printing press was one, he noted, as were radio and television.

“And now there’s digital media,” he says. “It allows transmission of perceptual cues via visual, auditory, touch, and other sensory information that influence us even though we often aren’t even conscious of them.”

Blascovich explains that immersive virtual environment technology is of enormous value in studying social influence and social interaction, and in conducting research in other areas of social psychology. The technology gives researchers a means of testing their theories and hypotheses while maintaining complete control over a variety of factors in a social situation, from the physical appearance of the virtual world to the behavior and appearance of virtual others who inhabit it.
Small in Number but Large in Reputation, UCSB’s Division of Dance Grooms Students for the World Stage

By Andrea Estrada

Santa Barbara Dance Theatre company member Christina Sanchez performs in a preview of Christopher Pilafian’s Leap of Faith.

PHOTO BY: ERIC ISAACS/PHOTOGRAPHY
DANCING BY DESIGN

When Christopher Pilafian was in the eighth grade at the Roeper School in Michigan, he had what some might call a spiritual awakening. “We were doing our first dance show,” recalled the vice chair of theater and dance at UCSB. “It was December, and we were dancing to beautiful music by Benjamin Britten. There was one moment in that performance, which was semi-improvisational, when I came around in this spiral move, and I was gesturing to one of my fellow dancers. And in that moment, something clicked in me. I thought, I am not pretending to be a character. I am not trying to represent something that somebody else made up. I am actually just being in my own life, and living it in this moment.”

From that point on, dance became the primary force in his life.

Pilafian, who is also director of dance at UCSB and artistic director of Santa Barbara Dance Theatre, eventually studied at The Juilliard School, and went on to perform on stage and television and in film with choreographers such as Alvin Ailey, Judith Jamison, Charles Moulton, Louis Falco, Elizabeth Keene, and Kathryn Posin, among others.

As a choreographer, he has created over 40 dance works, and his works have premiered in New York City, Indianapolis, San Francisco, Los Angeles, and Villeneuve-les-Avignon, France.

After graduating from Juilliard, Pilafian became a founding member, principal dancer, and associate artistic director for New York-based Jennifer Muller/The Works. He toured with the company for 15 years.

“It was one of the most satisfying aspects of my career,” Pilafian said of his years with Jennifer Muller/The Works. He left in 1989 to go on to the “next thing,” although he wasn’t sure what that would be.

Then the call came from UCSB, inviting him to join the dance faculty as a visiting lecturer. That was 22 years ago, and, since then, Pilafian has continued to help aspiring dancers develop their talents, hone their skills, and follow their dreams. “We do that motivated by a sense of honor,” he said, speaking on behalf of his fellow faculty members in the dance department. “We’re honoring the impulse we see in our students that we also have felt in ourselves. It is an impulse toward this deep stream of kinesthetic awareness and a desire to express human life, and to explore human nature through this channel of movement.” — Andrea Estrada

ready to meet the world and ready to say something in the world that is authentic and truly their own, with the necessary skills and knowledge, then we’ve done our job,” said Pilafian.

A unique learning opportunity for undergraduate students comes to them through Santa Barbara Dance Theatre (SBDT), the university’s professional dance company in residence. “We are remarkable at UCSB for having this company,” noted Pilafian, who last fall was named SBDT’s artistic director. “There are very few programs in the country that have such a thing as a professional dance company in residence.”

Currently, SBDT features Tracy Kofford, Christina Sanchez, Monica Ford, and Kyle Castillo. All are highly trained, and highly experienced, and three of them — Kofford, Ford, and Castillo — are graduates of UCSB.

According to Pilafian, SBTD plays a tremendous role in bringing out the potential in each undergraduate student. “Having a resident company shows students that there is another level beyond what they’re going to achieve after their four years here,” he said. “It serves a pedagogical function that is really potent, and gives them a sense in real terms of a possible future for themselves.”

The company was originally founded as Repertory-West Dance Company in 1978 by Professor Emerita Alice Condonina. It provides a forum for faculty choreographers and dancers, as well as guest artists. The name was changed to SBDT in 1991 when Jerry Pearson, Pilafian’s predecessor, became artistic director.

SBDT performs at UCSB and at the
The UCSB Dance Company, under the direction of Delila Mosely, features a select group of undergraduate students in the dance department.

Lobero Theater in Santa Barbara, and the company is currently preparing for its next public performance — the January 2013 premiere of "Leap of Faith," a work choreographed by Pilafian.

“I see it as my leap of faith,” Pilafian explained. “I’m creating a new reality, I’m asking the dancers to create a new reality, and I have lighting and costume designers creating a new reality.”

Before undergraduate students move on to SBDT — or wherever else their dreams take them — other performance opportunities are available to them, not the least of which is the UCSB Dance Company, which Pilafian describes as the "the capstone of the students’ performing experience."

The company is made up primarily of seniors who are selected based on the excellence of their work. Under the direction of Delila Mosely, a lecturer in the dance department, the dancers learn a varied repertory, which they perform in Santa Barbara, and then take on the road. The company has toured throughout California, as well as to Washington, D.C., Mexico, China, and Italy.

“Delila is remarkable in her ability to steward pieces by a variety of choreographers in a variety of styles and aesthetics, and keep them in performance shape,” Pilafian noted.

The capstone for students on the creative side is the opportunity to produce a piece for the main dance stage in supervised collaboration with student — or faculty — designers. “They get an experience of what it is to choreograph something for a public performance,” said Pilafian. “They work under supervision, but it’s very much their own vision, their freedom of choice as creative artists. They learn what it is to direct a group, be the artist, be the collaborator, and see it all the way through the finished product.”

Graduates of UCSB’s dance program have gone on to perform with major companies such as Momix, the David Parsons Dance Company, Jennifer Muller/The Works, the San Diego Ballet, and Rioult, among others. Some have even formed their own companies. Others have chosen to pursue dance-related fields, including medicine and academia.

“We have a very good sense of our alumni doing well in whatever avenues they pursue,” Pilafian said. “They’ve had an intense and extremely positive experience while they’ve been here. They’ve transformed, they’ve grown, they’ve learned discipline, they’ve learned about manifesting joy through discipline, and they’ve experienced the joy of working together in the remarkable way dancers do. And they carry all of that with them into whatever they do after their time here.”

In true conservatory style, students in Valery Huston’s ballet class explore the theoretical, technical, and expressive elements of dance.
In 1961, UCSB Chancellor Samuel Gould issued a simple assignment to William Allaway, the newly hired director of the study abroad program: “I want University of California students studying in Europe in 1962.”

The UC Regents had just given the Santa Barbara campus responsibility for developing and administering a study abroad program on behalf of the entire UC system. By 1962, as planned, 80 UC students set off for a year of study in Bordeaux, France. That modest beginning was the genesis of the UC Education Abroad Program (UCEAP), the systemwide “global campus” that annually serves nearly 5,000 UC students, and some 1,700 international exchange students.

Since its founding, UCEAP’s charge has been to equip UC students for success in an increasingly interdependent and culturally diverse world. In the past 50 years, according to UCEAP Associate Vice Provost and Executive Director Jean-Xavier Guinard, global events have amplified this mission. “Students today are living in a world altered almost beyond recognition compared to the world of 1962,” he said. “International education, perhaps once considered a luxury, has now attained a new urgency as students face the challenges brought about by globalization, shifting economies, and the interconnectedness of the digital age.”

Immersed in another country, UCEAP students gain access to “living labs” as they explore the local culture, language, habitats, and politics. At the same time, they refine their educational and career objectives with a global perspective and learn to adapt to rapidly changing circumstances.

Just how quickly situations can change was brought home last year to UCSB student and Middle East Studies major Vivian Chui. Preparing for her second UCEAP semester studying at American University in Cairo, Chui was pursuing a research project exploring urban street art in the region. “Street art has gained momentum within the international art scene,” Chui noted, “but it is still nearly untapped by academia. I wanted to expand the discussion by introducing political and historical context.” Yet she suddenly found herself a witness to history as the revolution that toppled Egypt’s government unfolded around her.

As demonstrations intensified, arrangements were made to bring Chui back to California. Juan Campo, UCSB’s EAP director, helped Chui adapt her research focus to the art emerging from the revolution. She was able to complete her project, supported by firsthand insights into world events unattainable in a classroom setting.

Campo, who studied abroad and later served as UCEAP study center director in Egypt and India, talked about the influence of international education on his own career. “I knew that getting involved with UCEAP would be a great experience, and a nice way to integrate my research with my teaching,” he said.

UCEAP offers an incredibly diverse range of programs carefully integrated with UC academics. Many feature research and experiential learning opportunities unique to the host country. While traditional destinations in Western Europe remain popular, UCEAP is set to accommodate a growing trend toward nontypical locations including China, other Asian countries, Russia, Latin America, and Africa.

Administrative oversight for UCEAP has recently been transferred back to UCSB, a pivotal homecoming and reminder of the program’s history.

Allaway summed up the founding values that continue to drive UCEAP to be a leader in international education: “The quality of the academic experience and the quality of the cross-cultural experience were basic to the success of the EAP.” These key principles will continue to set the tone for the next 50 years.
Historic Gift Launches Campaign’s Next Phase

Alumnus Jeff Henley (’66) and his wife Judy (H’09), an honorary alum, have committed an unprecedented $50 million to UC Santa Barbara — the largest gift in the campus’s history. Their transformative investment marks a new era of philanthropy for UCSB, and provides a major boost to the $1-billion goal of the Campaign for UC Santa Barbara. Now entering its next phase, the multiyear fund-raising effort aims to uphold the university’s promise of excellence, opportunity, and innovation, and to elevate UCSB to its highest potential.

Jeff and Judy Henley ’66/H’09

Jeff Henley is the campaign’s co-chair, with Lady Leslie Ridley-Tree and honorary chair Michael Douglas.

“The philanthropic leadership of Jeff and Judy Henley is deeply inspiring; we are thrilled by their vision and generosity, and excited about the momentum their gift provides as we launch the next phase of our billion-dollar Campaign for UC Santa Barbara,” said Chancellor Henry T. Yang. “Jeff and Judy have contributed to our university in countless ways over the years, including the Henley Chair in Economics and the beautiful Henley Gate that stands as the iconic entrance to our campus. We are tremendously honored that this transformative $50 million gift for our Institute for Energy Efficiency and our College of Engineering — the largest gift in the history of our campus — will become part of the Henleys’ living legacy at UC Santa Barbara.”

More than half of the couple’s remarkable pledge, $30 million, will help to build a new home for the Institute for Energy Efficiency and our College of Engineering — a building to be named Henley Hall in honor of this generous gift. It will also be invested in faculty recruitment for the Institute for Energy Efficiency (IEE) and the College of Engineering. An additional $20 million, in the form of an estate commitment, will support the priorities of the College of Engineering.

“With this leadership commitment, Judy and I are extremely pleased to play an important role in supporting the priorities of the University, the College of Engineering, and of the sciences at large, and to significantly advance the Institute for Energy Efficiency,” Jeff Henley said. “We hope to create new opportunities for research and discovery, and to support UC Santa Barbara’s already strong commitment to preparing the next generation of scientists and engineers.”

In the face of ongoing state budget cuts, donations for buildings are critical to recruiting and retaining leading researchers, and providing them cutting-edge lab space.

Henley Hall will see the world’s brightest minds in materials, computing, optoelectronics, control systems, photovoltaics, and solid state lighting collaborate to innovate and advance the discoveries that will one day reduce, even reverse, the global growth in energy consumption.

With the Henleys’ historic donation, UCSB hopes to inspire additional philanthropy to complete the funding required for Henley Hall, plus support faculty recruitment and IEE operations.

Longtime benefactors of the campus, the Henleys’ myriad investments have provided significant support for the College of Engineering and many other areas across campus, including intercollegiate athletics. Judy Henley contributed to the design of Henley Gate as a consultant. Jeff Henley chairs the IEE’s Directors Council and Global Advisory Board, and is a member of the College of Engineering Dean’s Cabinet.

Henley is chairman of the board of Oracle Corporation, the global supplier of integrated hardware and software systems, based in Redwood Shores, Calif. He was Oracle’s chief financial officer from 1991 to 2004.

Benefactions

• Academy Award-winning actor and producer UC Santa Barbara alumnus Michael Douglas (’68) has contributed $500,000 to establish an endowed chair for the Dean of Humanities and Fine Arts in the College of Letters and Science. A matching amount from UC Presidential Funds completes a $1-million commitment to support the Michael Douglas Dean of Humanities and Fine Arts.

• The Walton Family Foundation has contributed $725,000 to UCSB to continue its support of LAFF. This follows their previous gift of $1 million. The program provides full fellowship support (tuition and expenses) for a two-year Master of Environmental Science and Management degree, with a concentration in Coastal Marine Resources Management.

“We named the chair for Alec to honor his major contributions as chair of the economics department in a very different time, as well as for his services to the university as dean of the College of Letters & Science, and as vice chancellor,” Mead said.

The Meads previously established the Walter J. Mead Chair in Economics in 2008.
A New Black Cultural Identity
As an undergraduate at Princeton University, Stephanie Batiste saw a photograph of seven African American performers dressed in leaf costumes for a 1930’s production of “Macbeth.” She wondered how it could be that “these black men were dressed up like savages in a black show.” That image became the genesis of her doctoral dissertation, and now serves as the cover art for her new book, Darkening Mirrors — Imperial Representation in Depression-Era African American Performance (Duke University Press, 2011).

In her book, Batiste, an associate professor of English and of Black Studies, examines ways in which African Americans imagined themselves as empowered, modern United States citizens and transnational actors in Depression-era plays, operas, ballets, and films. “That image had me asking in a lot of different ways how these people who were treated as second-class citizens could participate in what are essentially racist, nationalist, global imperialist cultural formations,” she explained.

As Batiste describes it, the book is about the promises and failures of American national identity, and the cultural gestures through which that identity is sustained. “Imperialism is about nationhood and power, not only about race,” she said. “I don’t cast African Americans as perpetrators as racism, it is just one way of framing the question. Instead, they emerge as people who operate fully as Americans in their use of U.S. symbols meaning.”

In studying early 20th-century African American film and theater, Batiste takes historical as well as cultural perspectives. Focusing on the period between World War I and World War II — and, more specifically, on the Depression — she studies film and theater productions as manifestations of ideologies, desires, and beliefs African Americans held during that period.

The Art of Leo Limón
The life and work of the prolific and socially conscious Chicano artist Leo Limón is chronicled in an oral history published by UCSB’s Chicano Studies Institute (CEMA) and the California Ethnic Multicultural Archives (CEMA) located in the campus’s Davidson Library.

The Art of Leo Limón: Giving Voice to the Chicano Experience contains a series of interviews with the highly popular artist, who is one of the most prominent in the Chicano arts movement.

“We definitely want to call attention to the beautiful visual legacy of the Chicano Movement,” said CEMA director Salvador Güereña. “We want people to come to an appreciation and have a more enriched under

standing of its history and aesthetics, but also its multidimensional value.”

The book is also the final work of former UCSB oral historian David Russell, who conducted interviews with Limón in Los Angeles over several years. Russell retired from UCSB in 2010.

A culmination of the multi-year “ImaginArte: Interpreting and Re-imagining Chican@ Art,” an interdisciplinary collaboration between CSM Faculty Research Working Group on Chicana/o Visual Art and CEMA, the book and its companion documentary video were produced on a shoestring budget with the support of faculty and the work of graduate students, undergraduates, and even high school students. The set is being distributed by the Chicano Studies Institute at UCSB.

An Historic First
With a new book that formalizes and interprets a collection of indigenous African art owned by an African collector, Sylvester Okwunodu Ogbechie, a professor of history of art and architecture, is changing the way African Art is regarded and valued.


“There is a sense in which the idea of African art seems restricted to those African artworks that were taken out of the continent during the colonial period,” Ogbechie explained. “When people talk about authentic African art, that’s what they’re referring to — artworks that are held by Western collectors and museums. Anything that’s owned or held by Africans themselves is considered to be a fake.”

According to Ogbechie, the protocols of authenticating artworks as original have less to do with the history of the works in their indigenous contexts than with their provenance — the documentation of the works after they have become part of a collection. Publishing a book like Making History is the first step in elevating African artworks held by African collectors from generic objects to works of art that have measurable economic value, he said.

The book is important in terms of the fact that it redirects the way African art is perceived, Ogbechie noted. “Everything about it has been done to defeat the idea that Africans are not interested in their own cultural heritage, and that an African artwork doesn’t have value until it is exported or held in a Western collection or in a Western museum,” he said.

Footnotes
A young girl adopts two monarch caterpillars in her family garden, and lets her imagination fly as she follows them through metamorphosis.

Airplanes in the Garden: Monarch Butterflies Take Flight (Patio Publishing) by Joan Calder, UCSB greenhouse manager, tells the story of Sergio and Stanley (named for Calder’s lab assistants) as they transform from caterpillars into colorful butterflies.

The book, for children — and adults — of all ages, includes an educational section with fall and spring-summer migration maps, tips for planting a monarch-friendly garden, and monarch facts. (Did you know butterflies occasionally sip from mud puddles, which are rich in minerals and salts?)
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A new brand of art

After an 18-month hiatus, the Art, Design & Architecture Museum recently reopened with a new name, renovated gallery and office space, and two major exhibitions, “Carefree California: Cliff May and the Romance of the Ranch House” and “Catherine Opie Photographs Cliff May.” Both are part of Pacific Standard Time (PST), the regionwide collaboration of more than 60 museums initiated by the Getty.

The museum’s closure, for seismic retrofitting, was an opportunity to evaluate its mission, according to Bruce Robertson, a professor of art history and the museum’s acting director. The former University Art Museum now has a name — Art, Design & Architecture Museum at UC Santa Barbara — that reflects its strengths. These include the Architecture and Design Collection, the largest architectural archive in North America, and an active exhibition program that focuses on contemporary artists and also utilizes the museum’s permanent collection.

The museum has also established an offsite location at the Jane Deering Gallery in downtown Santa Barbara, where it will mount smaller exhibitions for seven months each year. The inaugural show of paintings by Phil Argent, a lecturer in the Art Department, opened last spring to critical acclaim.

Part of the College of Letters and Science, the museum has an educational mission. “The museum engages students from departments all over campus,” said David Marshall, executive dean of the College and Dean of Humanities and Fine Arts. “It allows them to experience first-hand engaging contemporary art and to learn about other cultures, traditions, and the built environment through our collections and great visiting exhibitions.”

Student interns from the History of Art and Architecture Department are serving as docents, curating small exhibitions, and working in the downtown space. The renovated museum houses a small gallery that is dedicated to exhibitions curated by students or featuring student work. Since last fall, students from the Department of Art have been designing installations inspired by the work of Cliff May that will complement “Carefree California.”

“The Cliff May and Catherine Opie shows have generated a lot of excitement, especially because they are part of PST,” says Robertson. “We will build on this momentum with an exciting program of exhibitions and outreach over the next few years, and show that the museum can be a real force in the local and national art world.”

For more information, visit www.museum.ucsb.edu.

— Deirdre O’Shea