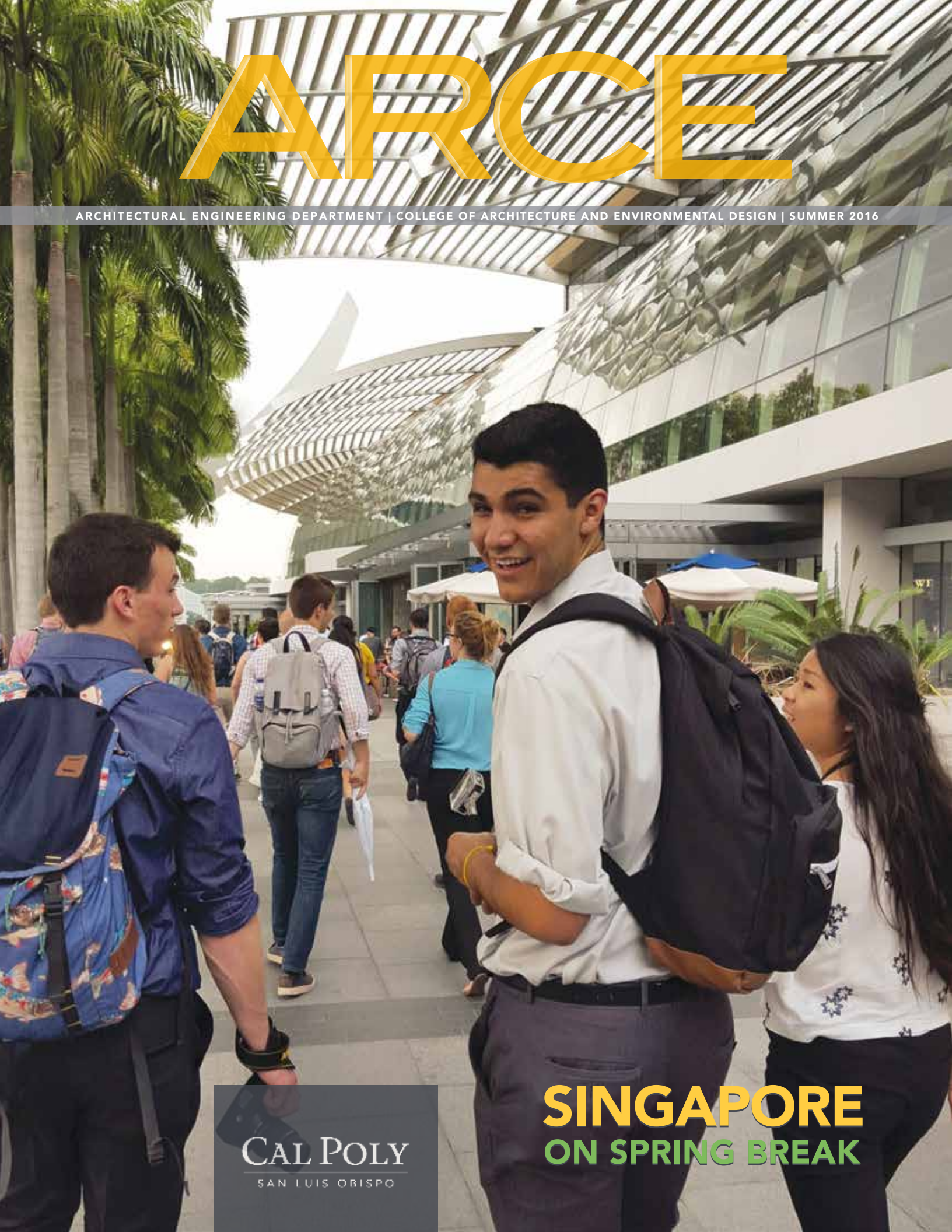


ARCE

ARCHITECTURAL ENGINEERING DEPARTMENT | COLLEGE OF ARCHITECTURE AND ENVIRONMENTAL DESIGN | SUMMER 2016



CAL POLY
SAN LUIS OBISPO

SINGAPORE
ON SPRING BREAK

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On the Cover

Architectural engineering students (from left) Paul Ponciano, Sonny Moraga and Angelica Quach were among the 24 students who joined Associate Professor John Lawson over spring break to explore the structural wonders of Singapore. Read about their experiences on pages 12-13.

DEPARTMENT HEAD'S MESSAGE

Celebrating An Eventful Year

Welcome to our latest edition of the annual architectural engineering (ARCE) magazine. The ARCE program continues to thrive, especially with the support of so many who believe in what we do. This issue is sponsored by Computers and Structures Inc. (CSI) and its founder Ashraf Habibullah, who has been particularly generous to us. He was everywhere this year, expounding a vision for the structural engineering profession that I find compelling.

More importantly, that vision resonates with the ARCE students who will be charged with implementing it. This year Ashraf renewed the sponsorship of the ARCE CSI Computer Lab, spoke at Structural Forum, donated much of our engineering software, included us in his Chihuly Garden celebration at the Structural Engineers Association of California (SEAOC) convention in Seattle, and supported our attendance in record numbers at CSI's annual anniversary party in San Francisco's City Hall. We thank Ashraf and CSI for all they do.

This edition of the ARCE magazine celebrates highlights of our successful year, such as a spring break trip to Singapore, the creation of a Mustang statue, our first Order of the Engineer ceremony, a record-breaking Structural Forum, and the addition of ARCE 106: Introduction to Building Systems to the curriculum — a course dedicated to former student Carson Starkey and designed to make ARCE freshmen feel part of the program.



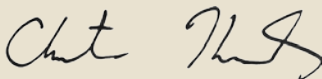
ALLEN C. ESTES | DEPARTMENT HEAD

DEAN'S MESSAGE

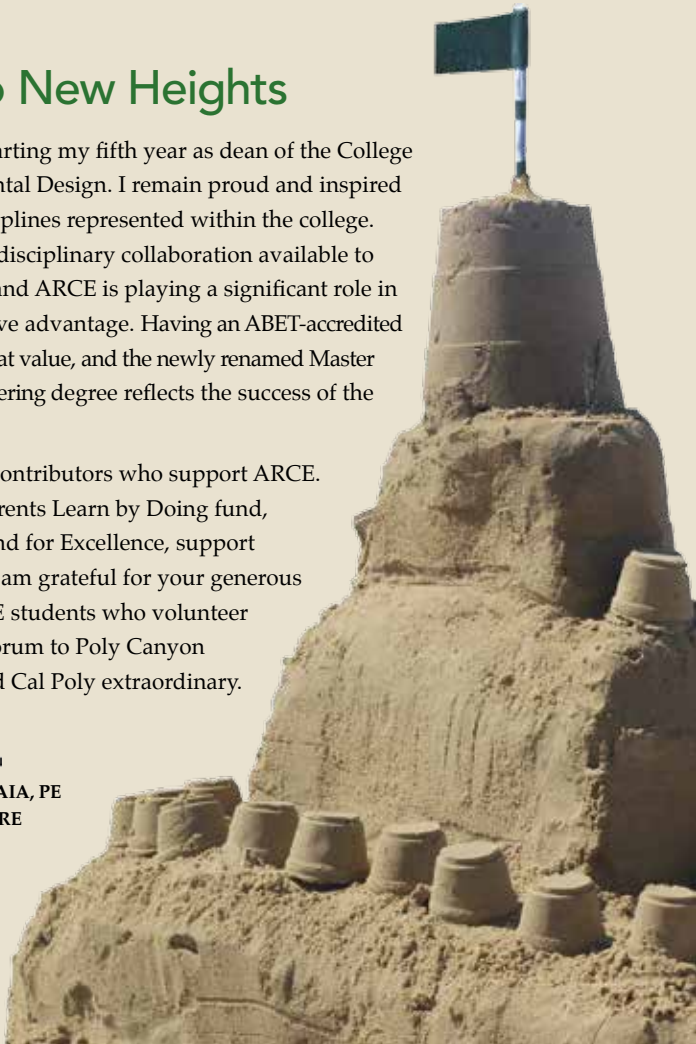
Taking ARCE to New Heights

It is hard to believe that I am starting my fifth year as dean of the College of Architecture and Environmental Design. I remain proud and inspired by the unique collection of disciplines represented within the college. We have opportunities for interdisciplinary collaboration available to no other school in the country, and ARCE is playing a significant role in plans to leverage this competitive advantage. Having an ABET-accredited undergraduate program adds great value, and the newly renamed Master of Science in Architectural Engineering degree reflects the success of the graduate program.

I offer my thanks to the many contributors who support ARCE. Between sponsored labs, the Parents Learn by Doing fund, scholarships, and the ARCE Fund for Excellence, support for the program is strong, and I am grateful for your generous gifts. I am also grateful to ARCE students who volunteer their talents. From Structural Forum to Poly Canyon Days, they make the college and Cal Poly extraordinary.



CHRISTINE THEODOROPOULOS, AIA, PE
DEAN, COLLEGE OF ARCHITECTURE
AND ENVIRONMENTAL DESIGN





Castles in the Sand

FUN BEACH ACTIVITY REINFORCES FIFTH GRADERS' MATH SKILLS

IT MIGHT SEEM UNLIKELY, but the task of building sandcastles may actually lead some youngsters to the world of design.

That was the hope when architectural engineering (ARCE) Associate Professor Pamalee Brady and recently retired Associate Professor Jim Guthrie created the annual Sandcastle Competition four years ago.

The interdisciplinary project links ARCE students with teacher candidates in the university's School of Education.

"ARCE students devise four lessons and review them with the teacher candidates, who then teach those lessons in their classrooms," explained Brady. Designed for fifth graders, the lessons reinforce math concepts the students have learned that year and some they will be introduced to in sixth grade.

"The purpose is to give them some sense of what the design professions — planning, architecture, engineering, construction management — are about," Brady said. "This gives them insight into how their world is built. It also helps teachers get comfortable with STEM (science, technology, engineering and math) topics by supporting them in the classroom and giving them material to teach."

Near the end of the school year, cooperating teachers and their Cal Poly teacher candidates gather with more than 80 children in Pismo Beach to put the concepts they learned into action. ARCE students and professional contractors, engineers and architects turn out to help.

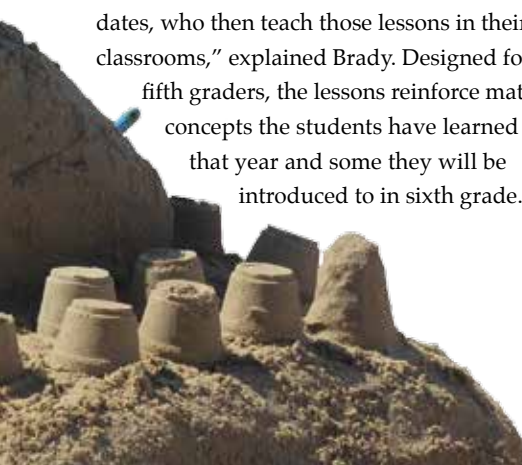
Before the trip to the beach, students build a Play-Doh model to fit on a 10-inch-square grid. They bring the model — based on that year's theme —

A team of fifth graders collaborates on a building project with Cal Poly students Jenn Briggs and Spencer Dille (above, back left).

One of the team's masterpieces (left)

to recreate in the competition. Classrooms compete in four categories, and every team goes home a winner, taking with them a glass trophy. To go with this year's pirates theme, the award categories were Most AAAARRTistic, Best Crew, Best Fantasea and Most Sandtastic.

Although the competition was started by Brady and Guthrie, "ARCE students have taken it on with a passion and have run with it," Brady said. "Thirty students participated this year. Three graduating seniors — Jessica Ellis, Nate Hall and Yue Quan — chaired the event and organized the entire competition." Brady continues to serve as faculty advisor to the project.



2016-17 SCHOLARSHIP RECIPIENTS

Congratulations to these students, listed alphabetically, who were awarded scholarships from the College of Architecture and Environmental Design (CAED), the Architectural Engineering Department (ARCE), and the Structural Engineers Association of Southern California and Northern California (SEAOSC and SEAONC).

CAED SCHOLARSHIPS

Kevin Chiang | Herbert E. Collins Graduate - \$1,200
Kate Cuddington | Herbert E. Collins Undergraduate - \$1,200
Keslyn Huntington | Robin L. Rossi Award - \$3,000
Jon McCall | Herbert E. Collins Undergraduate - \$1,200
Olivia Pepe-Phelps | Herbert E. Collins Undergraduate - \$1,200

CAED RECOGNITION AWARDS

Parbi Boodaghian | CAED Ambassadors Leadership Award
Emily Setoudeh | Outstanding Senior Award for Contributions to Objectives and Public Image of the College

ARCE SCHOLARSHIPS

Elyssa Adams, Dean Becker | Carson Starkey Scholarship - \$5,000 each
Enrico Alvaro | Emanuele Barelli Structural Engineering Scholarship - \$1,200
Kevin Church | Forell/Elsesser Engineers Scholarship - \$1,000
Kevin Church | KNA Consulting Engineers Senior Project Scholarship - \$1,000
Aaron Cook, Sarah Dowthwaite, Paul Ponciano | D'Abreau Family Foundation Scholarship - \$1,000 each
Zach Cooperband, Kate Cuddington, Katie Eberle | John Labib and Associates Scholarship - \$1,500 each
Kate Cuddington | Degenkolb Engineers Scholarship and Internship - \$2,500
Lindsey Kuster | John A. Martin and Associates Scholarship - \$1,500
Kristina Lam | CYS Eugene Cole S.E. Senior Project Award - \$1,800
Jiaming Liu | Hans Mager Scholarship - \$1,200
Jocelyn Lu | Paul F. Fratessa Memorial Scholarship - \$1,000
Amy Poehlitz | Simpson Gumpertz & Heger Inc. Scholarship - \$2,000
Stephen Prendergast | Fluor Foundation Lower-Division Scholarship - \$1,250
Alex Remiticado | Fluor Foundation Upper-Division Scholarship - \$1,250
Carla Simental | KPFF Los Angeles / Pasadena Scholarship - \$1,500

OUTSIDE SCHOLARSHIPS

Kate Cuddington | Design Build Institute of America Scholarship - \$4,000
Kate Cuddington | SEAOSC David and Margaret Narver Memorial Scholarship - \$2,000
Anthony Keshishian | SEAOSC Scholarship - \$1,000
Amy Poehlitz | American Council of Engineering Companies Scholarship - \$3,000
Angelica Quach | SEAONC Scholarship - \$5,000
Carla Simental | Ralph R. Wilmar (Department of Women's and Gender Studies) Scholarship - \$1,250

A New Tradition

FIRST ORDER OF THE ENGINEER CEREMONY HELD FOR 2016 GRADS

THE ARCHITECTURAL ENGINEERING (ARCE) Department began a new tradition with this year's June 11 commencement: the Order of the Engineer ceremony, celebrating the graduates' entrance into the professional engineering world.

About 60 graduates, their families and friends gathered in the courtyard of the Engineering West Building following the university's commencement ceremony. The Order of the Engineer began in Canada in 1926. It was motivated by the collapse of the Quebec Bridge and was initiated in the U.S. in 1970. As part of the ceremony, Department Head Al Estes placed a stainless steel ring on the pinkie finger of each graduate's working hand to signify their commitment to the engineering profession and duty to the safety of the public. Initiates sign an oath and pledge to "uphold the standards and dignity of the engineering profession and to serve humanity by making the best use of Earth's precious wealth."

While the ceremony is traditionally solemn, the ARCE version was livened up with the reading of a 140-character tweet from each graduate following a tradition established in prior post-graduation department ceremonies. Faculty member Ed Saliklis wrote and performed an original song, "The Ordered Engineer." He was accompanied by his band, Professor S and the Stress.

"Barrish Pelham consulting engineers generously sponsored the ARCE Department's ceremony," Estes said. "The department is very grateful to Steve Pelham (ARCE, '76), who pledged \$2,500 a year for five years to support and fund this celebration."

Barrish Pelham, located in Sacramento, has hired substantial numbers of ARCE graduates.

"This ceremony celebrates the transition from college student to professional engineer and emphasizes the responsibilities that accompany this change," Estes said. "We needed an event to replace the department level graduation ceremony, and I thank Barrish Pelham for their financial and moral support."

Al Estes placed a stainless steel ring on the pinkie fingers of all graduates, including Angelica Quach's.





On the Town

CAL POLY GROUP TURNS OUT FOR CSI'S ELEGANT BAY AREA GALA

THE SKY'S THE LIMIT when CSI President and CEO Ashraf Habibullah throws a party. Among the extravagant galas he enjoys hosting is the company's anniversary party, held annually in San Francisco City Hall.

Cal Poly architectural engineering students, faculty and staff were among the 1,500 guests invited to partake in the elegant evening of wining, dining, dancing and entertainment. This year's party featured Bay Area talent who performed hits from the musicals "Cats," "Chicago" and "Jersey Boys," among others. The host also took the stage to welcome his guests and, flanked by dancers, perform "New York, New York." (See more about Habibullah and CSI on pages 21-23.)

Ashraf Habibullah (right) greets architectural engineering students Tia Deharpoort (center) and Lindsey Kuster.

Above: Party-goers from Cal Poly commemorate the celebration with their host in elegant San Francisco City Hall.



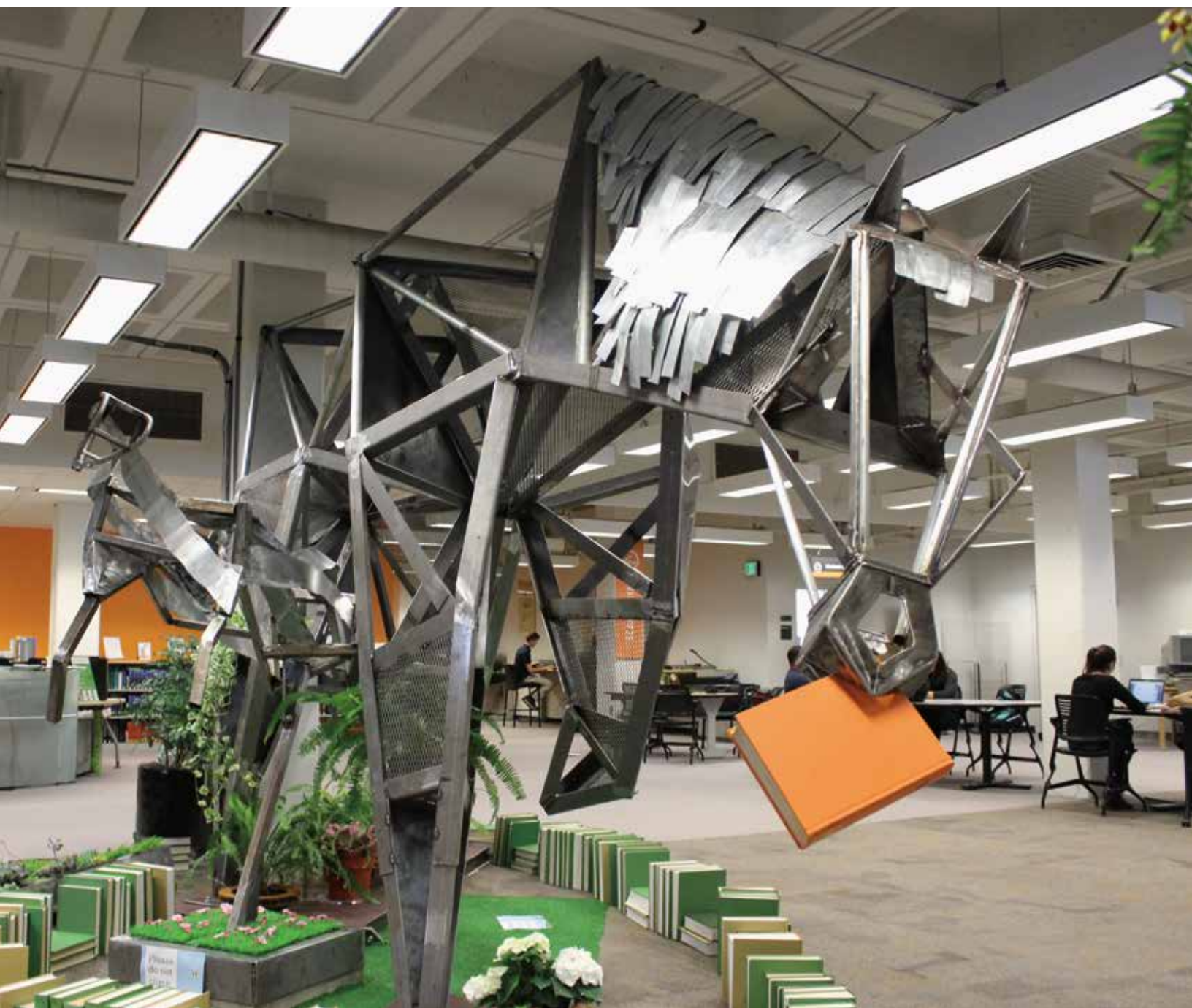
Making a Mustang

AN INTERDISCIPLINARY TEAM
DESIGNS AND BUILDS A
MASSIVE HORSE SCULPTURE

FOR A FEW MONTHS LAST SPRING, visitors to the Kennedy Library were greeted by a visual delight: a larger-than-life sculpture of a mustang, designed and built entirely from recycled material by a cadre of interdisciplinary students with the guidance of architectural engineering Professor Craig Baltimore and Oregon artist and alumnus Ivan McLean (Agribusiness, '83).

The students included architectural engineering, architecture, art and design, and agricultural and environmental plant science majors. Nick Petrarca (ARCE, '16) was involved from the beginning, spending upwards of 150 hours on the project. "And that's just me. The entire team put in many hours," he said.

In 10 weeks, they completed the design, organized recycled metal donations, prepared structural analysis calculations, held discussions with campus Facilities Services, and physically built the mustang.



To fit inside the library, it was built to “just clear the ceiling and fit through the doors,” Baltimore said. It stands approximately 11 feet tall, 16 feet long, and 6 feet wide.

McLean signed on after he learned about an earlier project of Baltimore’s — a 21-foot-tall replica of the Sears Tower made with K’NEX construction toys.

The artist, whose sculptures are installed in front of the Performing Arts Center at Cal Poly, assisted the students online during the design phase. He worked directly with the students for four days during construction and installation. McLean drove from Portland hauling a 20-foot trailer full of scrap metal, adding to the recycled metal the students scavenged from campus sources. Simpson Strong-Tie also sent a half-ton crate of it.

“McLean supported us and taught us so much about his creative method,” Petrarca said. “I learned about design, construction and teamwork.”

In assigning the project, Baltimore wanted to give students real-life experience in project development with time constraints.

“Real-world projects often come with constraints — space constraints, budget constraints,” he said. “This teaches them how constraints impact other aspects of the project. Students know that my only expectation is that they commit to the project. Success can be found even when things don’t go exactly to plan. This project allowed them freedom to apply the sum total of their education.

“And it’s gorgeous.”

A COLLABORATIVE EFFORT

The mustang sculpture celebrated Earth Day, and it was showcased at An Evening of Green & Gold, an annual event honoring philanthropy and volunteerism at Cal Poly.

As of press time, the future of the sculpture is unknown. Funding is needed to find a permanent home on campus. For more information or to make a donation, contact the ARCE office at 805-756-1314.

The project involved staff members Catherine Trujillo, Kennedy Library; David Kempken, College of Architecture and Environmental Design; Kevin Piper, College of Agriculture, Food and Environmental Sciences; Ladd Caine, Industrial and Manufacturing Engineering Department; Ray Ward, Architectural Engineering Department; Richard Wagner aka “Recycle Rich,” Facilities Services; and Kevin Shaw, Facilities Operations.

Students included architectural engineering students Aaron Boucher, Emmanuel Castaño, Kevin Church, Nathaniel Hall, Brianna Kufa, Alejandro Lopez, Nicholas Petrarca, Nicholas Reindel, Emily Setoudeh, Sean Westphal and Lacy Williams; architecture student Leesa Choy; art and design students Kate Baird and Habib Placencia; and agricultural and environmental plant science majors Kristen Cotter, Sara Do and Jackie J. Wang.



Alumnus and Oregon artist Ivan McLean assists student Lacy Williams (top) and student Alejandro Lopez (middle).

Under Professor Craig Baltimore’s watchful eye (above, left), and with library staff member Catherine Trujillo’s help (center), team members begin the daunting task of moving the piece to the library.

Opposite page: The completed library installation

The Fresh

COURSE INTRODUCES FIRST

IN FALL 2015, the Architectural Engineering Department premiered its newest course, ARCE 106: Introduction to Building Systems, created to give ARCE first-year students a sense of what to expect as sophomores, juniors and seniors.

"We wanted to get the freshmen involved in the department earlier," said Professor John Lawson, who co-created and co-taught the course with Department Head Al Estes "Until now, freshmen were immersed in architecture studios, calculus and physics courses. They didn't see any architectural engineering courses until their second year."

The course honors Carson Starkey, a former ARCE student who tragically died in 2008 during his freshman year. "Carson's death was a significant motivating factor in creating this course," Lawson said. "Our faculty members pride themselves on knowing nearly every one of our ARCE students; however, as a freshman, Carson was not known to us."

"Al Estes and I were motivated to create a course that would allow us to learn something about each new student their first year and allow them to learn something about us," Lawson continued. "The first year of ARCE 106 was dedicated to Carson's memory, and his parents, Scott and Julia Starkey, spoke to the class about their son."

During the hands-on course, students build timber connections, weld steel plates, drill in concrete anchors, and experiment with arches and cables. They are introduced

Sarah Sanders and Adam Mourad learn how to handle a pneumatic palm nailer to connect timber framing during an exercise hosted by Simpson Strong-Tie (left).



man Experience

-YEAR STUDENTS TO ARCHITECTURAL ENGINEERING



to structural systems of wood, steel, concrete and masonry, as well as to architectural enclosure systems, civil earth and foundation systems and mechanical, electrical and plumbing systems. The course culminates with the K'nexercise, a bridge-design and building exercise using K'NEX building toys that reflect the design-bid-build process.

When Lawson and Estes created the course, their objectives were straightforward: to create an exciting and engaging course that would kindle students' enthusiasm for their academic and professional futures, as well as to make them feel a part of the ARCE

Collaborating on a project using K'NEX building materials are (above, from left) Shannon Wheeler, Jenna Williams, Leah George and Mark Wright.

Samantha Solow gets tips from Jason White, a Hilti field engineer, on installing concrete anchors (above, right).

Another project involves building trusses from laser-cut materials (right).

program. The class received rave reviews.

While both instructors are pleased with the results, they have identified some improvements for the next iteration.

See students in action at <https://www.youtube.com/watch?v=ac4ZC6HQP2c>.





SIGNS OF

STUDENT GROUP APPLIES CONSIDERA

POLY CANYON IS many things to many people — a space where former students built and showcased full-scale structures, an outdoor oasis for recreation enthusiasts, a special spot with fond memories for many. It is also a place in dire need of cleaning up.

Until 2010, the College of Architecture and Environmental Design (CAED) allowed students to live in one of the canyon homes while monitoring canyon use and maintaining the grounds and structures. Funding for the program stopped, and the passage of time and the work of vandals are visible in the structures' shattered windows and ubiquitous graffiti.

In 2014, a group of architectural engineering (ARCE) students decided to take action and formed Canyon Days Committee to "preserve Cal Poly history by maintaining Poly Canyon." ARCE student Spencer Dilley is serving as committee chair and leads the group of about 15 students.

With CAED faculty adviser and Associate Dean Kevin Dong, they are making progress restoring the area through Canyon Days, twice yearly volunteer cleanup and building repair events.

The efforts are paying off. "We've cleaned up the broken glass, rebuilt the Shell House, repainted Fratessa Tower and replaced its broken cables," Dilley said. "Since we've been repainting, the amount of graffiti has dropped off."





BLE ELBOW GREASE TO POLY CANYON'S 'ARCHITECTURAL GRAVEYARD'

ADDITIONAL CANYON DAYS DETAILS

Get more information about Canyon Days events, held in spring and fall, at www.polycanyon.calpoly.edu/about and at www.facebook.com/CaliforniaPolytechnic.

Student committee members include ARCE graduate student Elvis Hernandez; fourth-year ARCE students Jennifer Briggs, Spencer Dilley, Nathaniel Hall, Briana Kufa, Alejandro Lopez, Kevin Marx, Angelica Quach, Yue Quan, Emily Setoudeh, Paul Truong, and Sheela Vedula; third-year ARCE students Michael Blanchard, Sarah Dowthwaite, Teddy Khieu and Tyler Pizarro; and second-year ARCE student Tia Deharpport.

Canyon Days is making Poly Canyon more appealing to visitors and bringing together like-minded individuals. More than 200 volunteers — many of them alumni who had built the original structures — showed up at the last event.

“One alumnus left his home in San Diego at 2 a.m. to arrive in time to help,” said ARCE student Angelica Quach. “Getting to

Workers tackle graffiti in the Underground House, one of many Poly Canyon structures in need of painting and repairs (above).

Opposite page, top: Canyon Days Committee members (from left): Tia Deharpport, Nate Hall, Jennifer Briggs, Spencer Dilley, Elvis Hernandez Garcia and Jamie Hahn take a break.

Opposite page, left: The Fratessa Tower's rusty frame gets some much-needed attention.

know the alumni was the best part for me. They have such pride in the canyon. My goal is to fix up the structures and spread awareness. I want people to know it's an amazing place."

The committee's plans include installing plaques by each structure detailing its history. "Getting to know the history behind the structures gives people a better appreciation for it," said ARCE student Jennifer Briggs.

Canyon Days will continue as long as students are interested in maintaining the site. Briggs wants people to know that anyone can help. “You don’t have to be a CAED student. All students, faculty, staff and community members are welcome — anyone with free time,” she said.

Donations are also welcome. Go online to www.polycanyon.calpoly.edu/about and click on the link at the bottom of the page.

EXPERIENCES ABROAD



Vibrant Singapore

STUDENTS SPEND SPRING BREAK
IN THE ICONIC SOUTHEAST ASIA CITY





IT WAS A QUICK TRIP with two full days of travel time each way, but if you ask architectural engineering Associate Professor John Lawson and the 24 students who accompanied him to Singapore over spring break, it was an experience of a lifetime.

“On the surface, Singapore may seem a bit unusual for a destination for our students, but not when you realize all that it has to offer,” Lawson said. “It’s home to so many extremes — some of the world’s highest, largest, longest structures — and the people and government of Singapore expect their buildings to push the limits architecturally and structurally.”

Which is part of the reason Emily Setoudeh, vice president of the student chapter of the Structural Engineers Association of California (SEAOC), chose the Southeast Asian destination. “I wanted to create a different experience. We’ve gone to New York and Chicago, focusing on the traditional architecture and history of those cities,” she said. “I wanted to see a more modern city with intriguing structures.”

One example was the Singapore Flyer, the world’s second tallest observation wheel — similar to a Ferris wheel. “We had an observation car to ourselves at sunset,” Setoudeh said. “We saw all the iconic structures in Marina Bay light up during the evening’s light show.”

Students visited the offices of AECOM, learning about construction of the Marina Bay Cruise Terminal, designed to accommodate the world’s largest cruise ship. They also toured Singapore’s National Stadium complex, a 55,000-seat stadium and the largest free-spanning dome structure in the world.

The group toured the Gardens by the Bay Conservatory Complex, consisting of a Flower Dome — the world’s largest columnless greenhouse — and Cloud Forest Dome, which contains a 115-foot indoor waterfall.

WSP/Parsons Brinkerhoff welcomed the students and spoke about Singapore’s Star Vista Performing Arts Center, a 5,000-seat elevated venue with more columns that lean than are vertical — an extreme engineering challenge, Lawson noted.

The students toured the Marina Bay Sands Resort, a 55-story hotel and the world’s most expensive stand-alone resort property



Above: Paul Truong, Angelica Quach, Kristina Lam and Kylin Vail visit Arup’s curved double helix bridge.

Top, left: Kristy Sanchez (left) and Angelica Quach at a Sentosa Island theme park

Top, middle: Emily Setoudeh and Cory Ihnotic capture the skyline from the Chairman’s Suite of the Marina Bay Sands Hotel.

Top, right: The group visits National Stadium.

Opposite: Buildings on Marina Bay illuminate the night sky.

boasting the highest and longest infinity pool atop its three towers — one of the most challenging construction projects ever, Lawson said. Arup gave the students a tour of its offices and spoke about the engineering and construction challenges behind the resort.

Aurecon led a tour of the Buddha Tooth Relic Temple in Chinatown. Built in 2005, the mostly wooden structure is based on the architecture of the Tang Dynasty, which reigned from 618 to 907.

The trip went off without a hitch. “No one got sick; no one got hurt,” Lawson said.

And the students experienced “one of the most amazing weeks ever,” Setoudeh said.



2016 STRUCTURAL FORUM'S THEME LIVES UP TO ITS NAME

FOURTH-YEAR ARCHITECTURAL ENGINEERING (ARCE) student Natalie Gibbons organized the biggest Structural Forum event of its 26-year history.

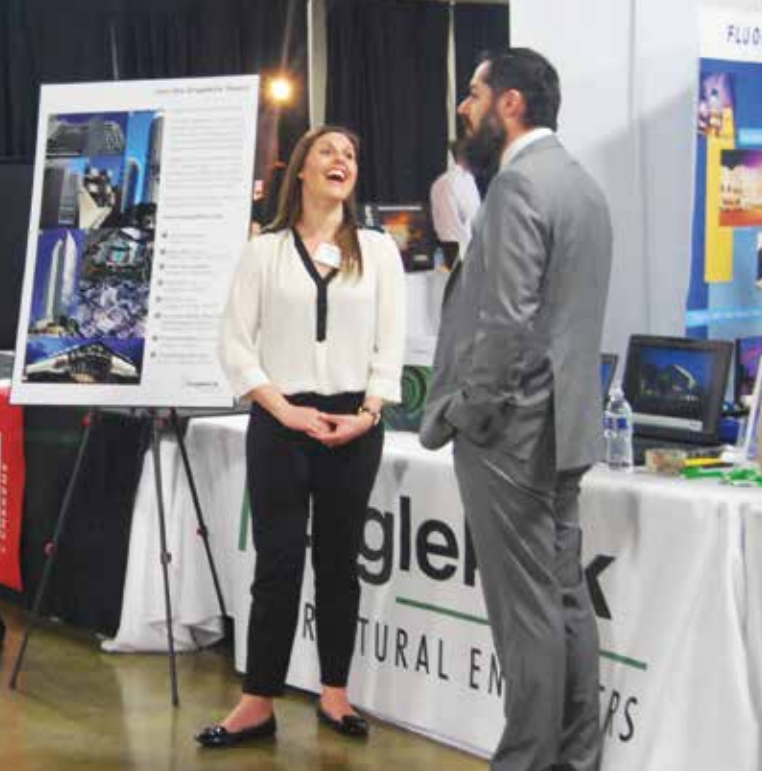
Gibbons, Structural Forum chair of Cal Poly's student chapter of the Structural Engineers Association of California (SEAOC), selected "Pushing the Limits" as the event's 2016 theme. "With the record number of companies, representatives and students who attended, we did indeed 'push the limits,'" she said.

The numbers don't lie. About 200 students and 100 representatives from 42 companies attended one or more of the events, including presentations, a career fair and banquet.

Jason Krolicki, an associate principal at Arup's San Francisco office, spoke about the High Roller, the world's biggest observation wheel — or Ferris wheel — located in Las Vegas.

Ashraf Habibullah, president and CEO of Computers and Structures Inc. (CSI) spoke on performance-based design and the structural engineering profession. He entertained the crowd with giveaways when students performed Katie Perry songs. After his talk, the students and faculty were invited to a ribbon-cutting and re-dedication of the CSI Lab in recognition of Habibullah's generous gesture to continue his sponsorship of that facility. (*See article, page 21.*)

The banquet's keynote speaker, Jon Magnusson, CEO and principal of Magnusson Klemencic Associates in Seattle, explored "how engineering innovation and technology can handle the challenges of the intriguing architectural concepts that are taking the built environment to new and exotic places," Gibbons said.



PARTICIPATING COMPANIES: THANK YOU!

Ashley & Vance Engineering	Miyamoto
Barrish Pelham & Associates	MKM & Associates
Brooks Ransom Associates	MHP Inc. Structural Engineers
Buehler & Buehler SE Inc.	Nous Engineering
CYS Structural Engineers	NUCOR Corp.
DCI Engineers	PCS Structural Solutions
DES Architects & Engineers	Peoples Associates Structural Engineers
Degenkolb Engineers	Rinne & Peterson
DeSimone Consulting Engineers	Rutherford & Chekene
Englekirk Structural Engineers	Sideplate Systems Inc.
Fluor Corp.	Simpson Strong-Tie
Gessner Engineering LLC	Strandberg Engineering
Harris & Sloan	Structural Engineers Inc.
Hilti	Summit Engineering
Holmes Culley	Taylor & Syfan Consulting Engineers
Hope Amundson	Watry Design Inc.
JCE Structural Engineering Group Inc.	Wiss Janney Elstner Associates
John A. Martin & Associates	ZFA Structural Engineers
John Labib + Associates	
KNA Consulting Engineers	
KPFF Consulting Engineers	
Lionakis	
LPA Inc.	
Magnusson Klemencic Associates	



The annual job fair gets underway (top).

Forum organizer Natalie Gibbons and banquet keynote speaker Jon Magnusson (above)

Opposite: Forum-goers watch a presentation by Arup associate principal Jason Krolicki.

Structural Forum, which is held every February, is a great recruiting and networking opportunity for ARCE students. "I heard that many students landed internships and full-time jobs," Gibbons said. "Many of these companies repeatedly return to the event because they are successful in hiring and are satisfied with the work our students produce."

Department Head Al Estes was also satisfied with the successful event. "I remain impressed year after year that this event is totally run by the students. Natalie did a terrific job and was able to attract world-class speakers to this year's forum. We are grateful to the firms that continually support this event."

The Structural Forum table centerpiece given to the attending companies



Jim Guthrie

PROMOTION, TENURE AND RETIREMENT!

CAPPING AN IMPRESSIVE four-decade career that bridged the divide between industry and academia, James Guthrie retired from teaching at the end of spring quarter 2016, just one year after attaining tenure and promotion to associate professor.

He had just completed his seventh year as a teacher and role model for architectural engineering, architecture and construction management students at Cal Poly.

Guthrie has had a major influence on the Architectural Engineering Department (ARCE) and the College of Architecture and Environmental Design (CAED). His teaching focused mainly on architectural engineering design courses and senior design laboratories as well as support courses for architecture and construction management students.

"I will miss Jim," said Department Head Al Estes. "He is collaborative, friendly and extremely meticulous. He has made some tremendous contributions, including championing our architecture and construction management support courses. He was key to developing ARCE 316, in which ARCE faculty teach structures to students in third-year architecture studios. I don't know anybody else who does that."

Guthrie was co-advisor to a team of CAED students who swept the top two categories of the 2014-15 Association of Collegiate Schools of Architecture/American Institute of Steel Construction Steel Design Student Competition. He also coached winning teams in the Architectural Engineering Institute National Design Competition in 2010 and 2011.

An expert in earthquake engineering and the seismic upgrade of existing structures, Guthrie and Associate Professor Jill Nelson collaborated on three research projects funded by the Federal Emergency Management Agency. They



were awarded the largest ARCE grants in the last two decades.

"My research focused on the seismic performance and resiliency of buildings as it relates to post-earthquake response and recovery," Guthrie said. "We developed methodologies for the evaluation and prioritization of state-owned buildings critical to statewide post-earthquake recovery."

Before coming to Cal Poly, Guthrie was a principal at Forell/Elsesser Engineers, a prominent San Francisco-based structural engineering firm. He brought his extensive professional experience into the classroom.

"While at Forell/Elsesser, I had admired the ARCE program for years," Guthrie said.

Associate Professor Jim Guthrie tests the strength of a student-built structure in ARCE 106 (above).

"I had worked with many outstanding alumni, and I was excited and honored to be given the opportunity to teach here.

"I've loved my time at Cal Poly and can't imagine a better group of students and faculty. After retirement I'm looking forward traveling, sailing and spending time with my grandchildren."

Guthrie earned his bachelor's degree in civil engineering at UC Davis and a master's in structural engineering at UC Berkeley.



The ARCE Team

Department faculty members in 2015-16 (pictured above, from left) are: Craig Baltimore, Kevin Dong, John Lawson, Erling Smith, Erika Clements (staff), Department Head Al Estes, Pamalee Brady, Cole McDaniel, Jim Guthrie, Brent Nuttall, James Mwangi, Ed Saliklis, Peter Laursen, Jill Nelson, Michael Salmon (staff), Adriana Sousa (staff) and Ray Ward (staff).



Adriana Sousa

WELCOME ABOARD, ADRIANA SOUSA

ADRIANA SOUSA JOINED the Architectural Engineering (ARCE) Department as an administrative coordinator in June 2015.

Sousa is responsible for course scheduling, which includes determining what classes to offer, running the data analytics to figure out how many sections to offer, ensuring that required courses do not conflict, scheduling labs and classroom spaces, and maintaining faculty teaching schedules.

"It's a puzzle to ensure everything fits for students and faculty," Sousa said. "The puzzle pieces are always in flux, but I enjoy the challenge and love the moments

when a solution allows the students to get the courses they need." She also helps the students and faculty at the front office, assists with student scholarships, and handles some event planning.

Sousa holds a bachelor's degree in English from San Francisco State University.

"Adriana was working in Virginia and planning to return to the Central Coast. We hired her based on a Skype interview and got her before anyone else could," said Department Head Al Estes.

ARCE also welcomed student marketing interns Kate Cuddington and Lindsey Kuster in 2015.

ALUMNI AND FRIENDS



CATCHING UP WITH ARCE ALUMNI AND FRIENDS

Architectural Engineering alumni and friends in the Bay Area reunited in April at the Thirsty Bear in San Francisco. Among those attending were:

Top left (from left): Retired professor Abe Lynn with Jennifer Alviso, Jen Ton, Reese Delatores, Dago DelaRosa and David Martin.

Top right: College of Architecture and Environmental Design Dean Christine Theodoropoulos and Jorge Lee.

Above (from left): Georgine Mooney, Elena Good, Gina Kope and Amy Burruss.

Above, right: Consuelo Crosby, Geoffrey Neumayr and Jim Curry.

Right (from left): Eileen Dennis, Nick Watry, Department Head Al Estes, and ARCE Advisory Board member Sarah Storelli.



In Memoriam

MARK HASELTON, 75

Mark Haselton (ARCE, '63), founder and owner of Continental Concrete Structures in Alpharetta, Ga., passed away April 17. Haselton was best known to the Architectural Engineering (ARCE) Department for his concrete blade structures in Poly Canyon and his sponsorship of the Haselton Design Laboratory. In 2007 he was named the College of Architecture and Environmental Design's (CAED) Honored Alumnus. Haselton was born in Cleveland, Ohio, in 1940 and grew up in California. At Cal Poly, he was the Top Cadet in his ROTC class. Upon graduation, he served in the U.S. Army in Germany from 1963-66 and in Vietnam from 1966-67. He was awarded the Silver Star for gallantry in action during the Vietnam War. His



Mark Haselton

Continental Concrete Co. grew into well-respected and successful firm that built such buildings as Atlanta's 62-story SunTrust Plaza and 46-story Southern Bell Building and New Orleans' 52-story Place St. Charles.

BENITO A. SINCLAIR, 84

Benito A. Sinclair (ARCE, '57), the first black licensed structural engineer in the state of California, died on March 4 in Los Angeles. Born in the Republic of Panama in 1931, Sinclair moved to California as a college freshman. In 1969 he co-founded the Los Angeles Council of Black Professional Engineers. He founded and served as president and CEO of Benito A. Sinclair & Associates Inc., which provided engineering design services for such projects as the Tom Bradley Terminal and Terminal One at Los Angeles International Airport and Compton City Hall. He too received the Honored Alumnus Award from Cal Poly's CAED. He was also honored by the American Institute of Architects/Los Angeles Chapter, the Los Angeles Section of the American Society of Civil Engineers, and the Los Angeles Council of Black Professional Engineers.



Advisors Aplenty

The Architectural Engineering (ARCE) Department is grateful to the ARCE Advisory Board for giving generously of its time and industry expertise. 2016-17 members are (from left) Paul Kovach (WJE), Consuelo Crosby (Edifice Complex), Jan Douglas (KPFF), Department Head Al Estes, Bryan Seamer (LPA), Sarah Storelli (IBM), Dirk Bondy (Seneca Structural), Michelle Jones (RIM Architects), Colin Blaney (ZFA), Bill Rader (Buehler & Buehler), Michelle Kam-Biron (American Wood Council), Shawna Peterson (Arup), Donna Clandening (AC Martin) and Robert Newsome (AC Martin).



The Spirit of Giving

2016-17 MARKS SECOND PHASE FOR PARENTS LEARN BY DOING FUND

FOLLOWING THE SUCCESS of the Architectural Engineering (ARCE) Department's first phase of the Parents Learn by Doing Fund, the department has embarked on a second iteration of this valuable fund.

In the first campaign, Florian and Lori Barth, parents of Ian Barth (ARCE, '14) donated \$50,000 to the department as a challenge to other parents to match their contribution, dollar for dollar.

The department met that \$100,000 goal last year and is using a slightly different strategy to raise another \$100,000.

Department Head Al Estes is seeking five parents to each donate \$10,000, with the remaining \$50,000 coming from parents and supporters contributing in whatever increments they can.

"The only purpose of the fund is to enhance the student experience at Cal Poly," Estes said. "So far, we have sent students to present research at conferences, to compete in national competitions, and to attend conferences, including the annual meeting of the Structural Engineers Association of California."

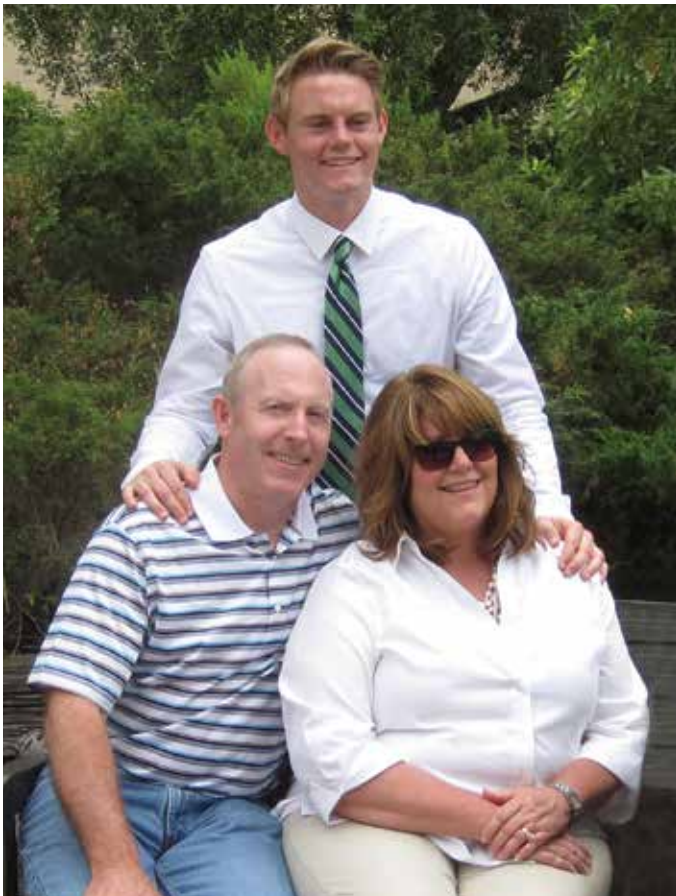
The fund has also supported senior projects and master's theses and faculty creativity in the classroom. It has funded awards, the Week of Welcome luncheon, and the ARCE new freshmen T-shirts.

The first couple to contribute \$10,000 is Samir and Madlyn Rustagi, parents of recent graduate Dani Rustagi (ARCE, '16).

Estes recognized the Rustagis in remarks during the ARCE Department's post-commencement ceremony and urged other parents to contribute toward the \$100,000 goal, which Estes hopes to reach by next year's graduation. In response, ARCE parents Dan and Debra Hall, whose son Nate Hall (ARCE, '16) also graduated in spring, pledged the second \$10,000.

"Nobody has a more vested interest in the program than those who have entrusted us with their sons and daughters," Estes said.

Anyone interested in making a secure donation online can visit www.arce.calpoly.edu/. For more information or to discuss options, please contact the department at arce@calpoly.edu or 805-756-1314.



Samir and Madlyn Rustagi visit with their daughter, recent graduate Dani Rustagi (top), at a statue of the late George Hasslein, founding dean of the College of Architecture and Environmental Design. They answered the call of the Parents Learn by Doing Fund, as did Dan and Debra Hall, parents of 2016 graduate Nate Hall (left).



That's (Re-)Dedication

CSI PRESIDENT/CEO SPONSORS COMPUTER LAB FOR ANOTHER FIVE YEARS

ASHRAF HABIBULLAH, PRESIDENT AND CEO of Computers and Structures Inc. returned to campus Feb. 20 to celebrate the rededication of the Architectural Engineering (ARCE) Department's CSI Computer Lab, named for the company he founded. The ceremony took place during the department's annual Structural Forum, at which Habibullah presented two talks, "Performance-based Design" and "The Future of the Structural Engineering Profession."

Cal Poly President Jeffrey D. Armstrong, College of Architecture and Environmental Design Dean Christine Theodoropoulos, and ARCE Department Head Al Estes were all on hand for the rededication ceremony, which included the unveiling of a supplementary plaque celebrating the sponsorship renewal, a check presentation, remarks by distinguished guests, and a ceremonial cake-cutting.

Approximately 100 students and other guests enjoyed a catered lunch. In 2010 Habibullah and CSI Inc. sponsored the lab for five years by providing the necessary funds for a complete renovation. The renewal of the sponsorship will support the lab with \$10,000 a year for another five years.

"I could not be more grateful to Ashraf and CSI for this lab sponsorship," Estes said. "The students love it and have taken great care of it. CSI was the first to sponsor an ARCE lab, which made it easy for others to follow. It is only fitting that CSI is also the first to renew."



CSI President and CEO Ashraf Habibullah (above, center) with Christine Theodoropoulos, dean of the College of Architecture and Environmental Design, and Department Head Al Estes

Students, faculty and staff celebrate Habibullah's generous gift at the CSI Lab rededication (top).



PUTTING PEOPLE FIRST

SIMPLY PUT, ASHRAF HABIBULLAH, president and CEO of Computers & Structures Inc. (CSI), revolutionized the structural engineering industry.

As a young UC Berkeley graduate in the early 1970s, he knew universities were developing software capable of transforming the way structural engineers work.

But no one was using it.

In a bold move, the 24-year-old designed a UC Extension course to bridge the gap between what was being taught and what the industry was actually using — slide rules and calculators.

A week before his first class, Habibullah learned that 187 people had registered. “The usual number was 30,” he said. “When I entered the room, I saw a sea of people. It scared the living daylights out of me. I stalled; I cleaned the blackboard for five minutes even though it was already clean.” With no choice, he pulled himself together and “did a great job.”

Over the years he connected with every structural engineer in the Bay Area, from presidents of companies to newcomers. “So many people had given me so many opportunities that in 1975, I quit my full-time job to open CSI,” he recalled. “I was a one-man company working on projects during the day and developing software at night.”

The timing was perfect; the personal computer revolution was exploding. Today his products are used in more than 180 countries. Virtually every major high-rise around the world was built using CSI software, including New York’s Freedom Tower and the world’s tallest building, the Burj Khalifa in Dubai.

CRUSADING FOR THE CAUSE

Habibullah is a champion of the structural engineering profession and is passionate about promoting its artistic elements and fostering a deeper sense of appreciation of engineering in popular culture.

“People need to consider the work structural engineers do and the importance it has on humanity,” he said. “If it weren’t for them, the high-rises would topple. After an earthquake, the media post pictures of all the collapsed buildings, but no one shows all the structures still standing. That is testimony to the grandeur of our work.”

ARCE Department Head Al Estes agrees that structural engineers need to respect and market the profession more effectively. “Ashraf demonstrates how that can be done,” Estes said. “With his financial wherewithal and Cal Poly’s ARCE Department producing the next generation of California’s structural engineers, that change will come.”



Having fun with Ashraf Habibullah (clockwise, from top left) are: student Rebecca Winning; Department Head Al Estes (left) and SEAOC President Nick Petrarca; student Max Snook; and students (from left) Sophia Liu, Yue Quan and Simon Ng.

Opposite: Habibullah shows his support for the women studying engineering at Cal Poly.

ASHRAF HABIBULLAH, COMPUTERS & STRUCTURES INC. PRESIDENT AND CEO, FINDS THAT IT'S A PLEASANT AND SUCCESSFUL WAY TO CONDUCT BUSINESS

THE POWER OF THE PARTY

Habibullah throws a lavish party every year at San Francisco's City Hall, where 1,500 colleagues, friends and acquaintances — including a large contingent of Cal Poly ARCE faculty and students — gather to eat, drink, dance and be entertained.

Someone once calculated that the party creates 10,500 hours of smiles — with 1,500 people attending and smiling the entire seven hours.

"I mentioned that statistic in a talk once," Habibullah said. "A few days later, I received a framed letter from a woman informing me that the calculations were wrong. She said she had attended my party, and five days later, she was still smiling."

Habibullah also hosts get-togethers at industry conferences, holds educational seminars around the globe, and sponsors events geared toward supporting young professionals and connecting them with seasoned engineers.

MR. NICE GUY

Habibullah's success can be partly attributed to how he treats people. "When you are nice to people, they are nice to you," he said. "At CSI we treat everyone like human beings. Some people have worked for me for 35 years, which is unusual for a software company. Software developers have frequent options and offers. But they stay because we take care of them."

That same philosophy extends to his customers, including university students across the country who benefit from Habibullah's software, which he provides to them for free.

"Cal Poly has been one of CSI's best customers, using our software for decades," he said. "Incredible structural engineers come out of Cal Poly. And the people there treat me like royalty."

That royal treatment is warranted. "Ashraf is a huge supporter of the ARCE program," Estes said. "He was the first to participate in our lab sponsorship program. He provides us with free copies of CSI software. He hosts a major event at every SEAOC convention, ensuring that students can attend. He has spoken twice at Structural Forum. The students love him."

CSI FACTS CSI RECENTLY CELEBRATED 41 years of business. From its humble beginnings in 1975, the company has grown into a global leader providing software tools for structural and earthquake engineering. It employs 35 people in the U.S. and utilizes a network of nearly 40 companies that sell CSI software — including SAP2000, CSiBridge, ETABS, SAFE, and PERFORM-3D — in more than 160 countries.

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*I have a Dream...
That in the not so distant future...*

Structural Engineers are broadly recognized and admired by the public for saving lives, protecting property, preserving the past, and building the future.

Structural Engineers are sought out as policy leaders and problem solvers in all matters of the community.

Structural Engineers initiate and lead the development of emerging and exponential technologies.

Structural Engineers celebrate their profession with high-profile events where they cultivate passion and enthusiasm for what they do.

Structural Engineering education includes public speaking, marketing, human psychology, and the arts.

Structural Engineering attracts the most talented and brightest students from leading institutions.

Structural Engineering fees and compensation reflect the profession's immeasurable contributions to humanity.

Structural Engineers appear as inspiring characters in popular culture.


Ashraf Habibullah



Appreciating Structural Engineers

Ashraf Habibullah (above), CEO and president of Computers & Structures Inc. (CSI), shares his dream for future structural engineers (left). Read about Habibullah and his company on pages 22-23 and about the Architectural Engineering Department's rededication of its CSI Lab on page 21.