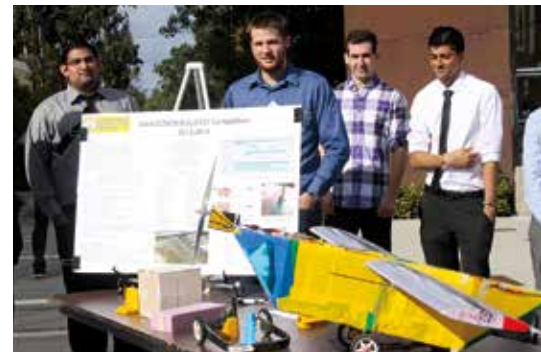
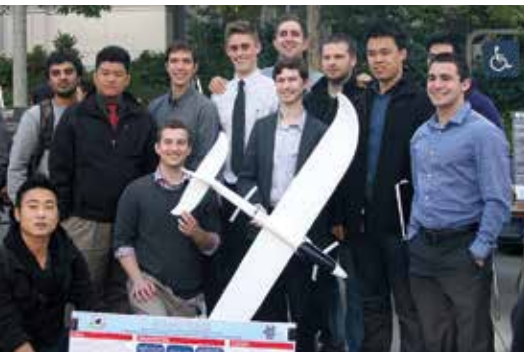


SAMUELI SCHOOL
OF ENGINEERING
UNIVERSITY of CALIFORNIA • IRVINE PRESENTS

2014

winter design review

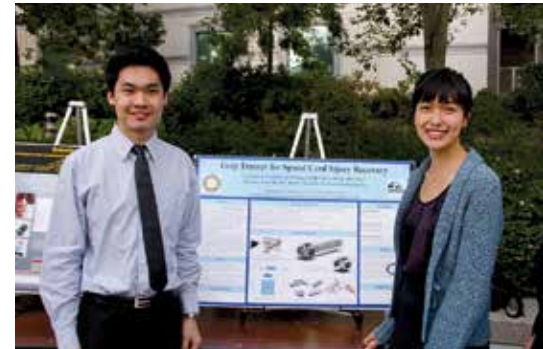
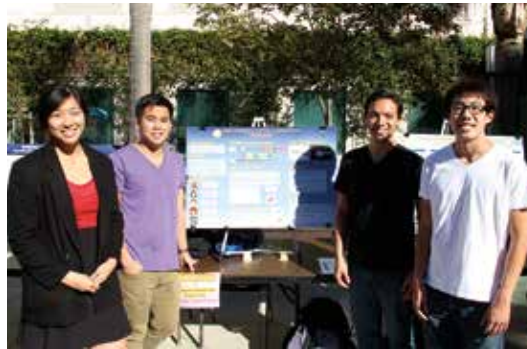
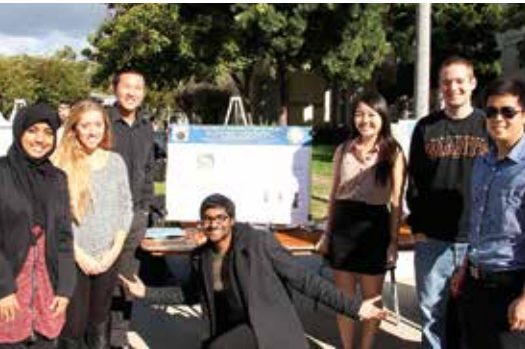
PRESENTATIONS,
POSTER DISPLAYS
AND DEMONSTRATIONS
OF SENIOR DESIGN PROJECTS



Friday, March 14, 2014

Pacific Ballroom, Student Center, UCI

winter design review



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- 4** Biomedical Engineering and Materials Science
- 6** Civil and Environmental Engineering
- 10** Electrical Engineering and Computer Science
- 14** Mechanical and Aerospace Engineering

The Winter Design Review is not possible without the assistance of a large team. I am pleased to acknowledge the support of the following individuals, as well as the staff of UCI's Student Center.

—J. Michael McCarthy
Henry Samuelli Chair and Director, Center for Engineering Science In Design

Department Student Coordinators

Cristina Surpless, Biomedical Engineering
Grace Chau, Chemical Engineering and Materials Science
April Heath, Civil and Environmental Engineering
Pauline Eatherly, Electrical Engineering and Computer Science
Tanya Eberhard, Mechanical and Aerospace Engineering

Dean's Office

Lily Wu
Jan Strudwick

Development & External Relations

Ed Hand
Marilyn Huynh
Catherine Rupp

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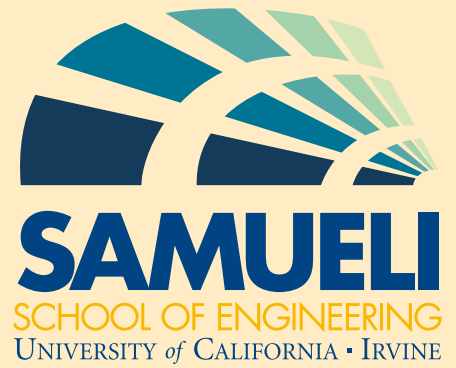
Shellie Nazarenus
Lori Brandt
Erik Wirtanen
Michael Marcheschi

Technical Assistance

Dave Hartwig
Steve Heck
Ed Lau
Louise Yeager

UCI Student Center

Angela Lew
Diana Wong Schombert
April Noland
Johnny Parrato



welcome to the Samueli School of Engineering's 2014 Winter Design Review, featuring the presentations of our senior students' design projects. This year, we present 96 projects, including poster displays and demonstrations, involving more than 500 students.

At the Samueli School, all of our engineering programs combine science, engineering fundamentals, design principles and application, culminating in a senior design project. Our graduating seniors are among the most competitive in the country and are workforce ready. They've received not only a rigorous academic education, but many have also received "hands-on" engineering design and research experience.

The school's signature fields – biomedical research, communications technology, environmental technology and sustainable energy – complement the corporate strengths of Orange County, affording abundant opportunities for partnerships and internships in and around the region. With rapidly expanding programs and a growing number of faculty and students, the Samueli School is fast becoming a powerhouse for innovative engineering education and the development of tomorrow's advanced technologies.

I encourage you to visit every room to see the range of ability, creativity and ingenuity on display by our hard-working senior engineering students. Watch for those with a blue ribbon, as they have earned the Dean's Choice Award. And don't miss the Hovercraft Display and Competition at 11:30 a.m., outside the Pacific Ballroom. It is the result of our freshman experiential learning course, giving students their first real engineering project experience — to design, build and race an autonomous hovercraft.

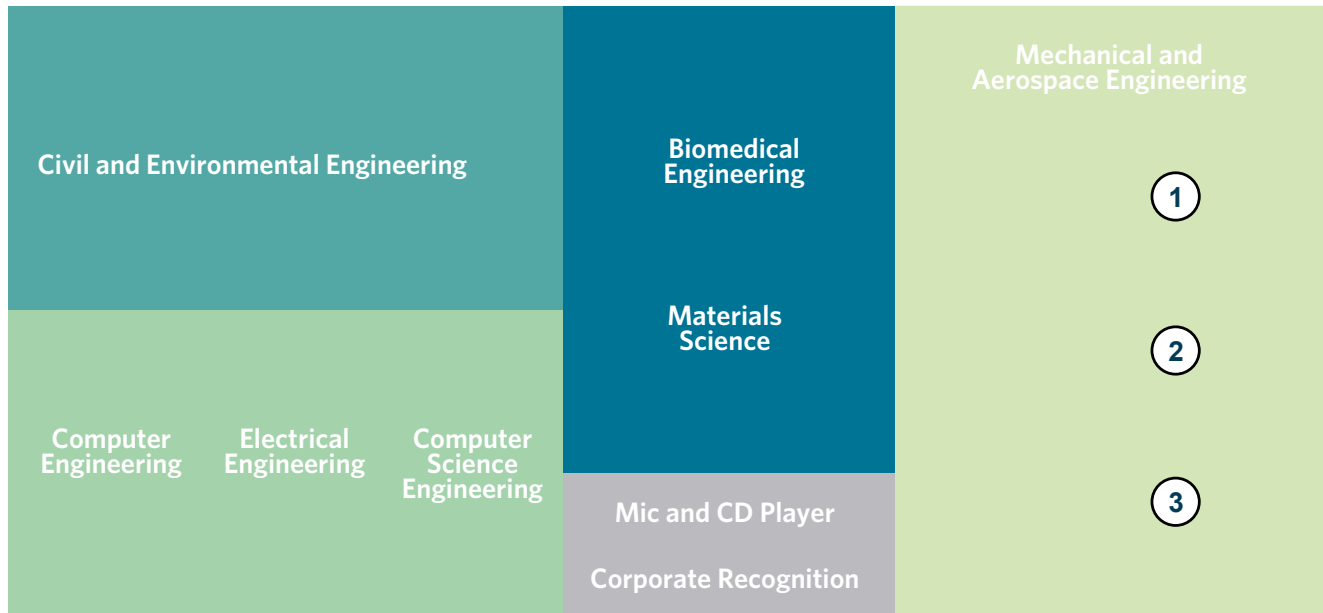
We appreciate your time and interest in our students and their work, and hope you enjoy this year's full range of exciting projects.

—Gregory Washington, Dean
Samueli School of Engineering

Founded in 1965, the Samueli School of Engineering educates more than 4,000 engineers each year (3,119 undergraduates and 898 graduates) with an integrative approach that blends fundamentals, research and hands-on experience. The school's mission is to unleash ingenuity, create opportunities and inspire ingenuity.

The Samueli School's faculty members are leaders in their disciplines who have achieved worldwide recognition for their research and dedicated teaching. The school includes five academic departments: biomedical engineering; chemical engineering and materials science; civil and environmental engineering; electrical engineering and computer science; and mechanical and aerospace engineering.

Under the leadership of Dean Gregory Washington, the school pursues research that is timely, socially responsible and cutting edge, and works in partnership with industry and state and federal agencies to promote the transfer of research to applications that benefit society. Current research thrusts include communications and information technology; engineering for human health; energy and sustainability; advanced manufacturing and materials.

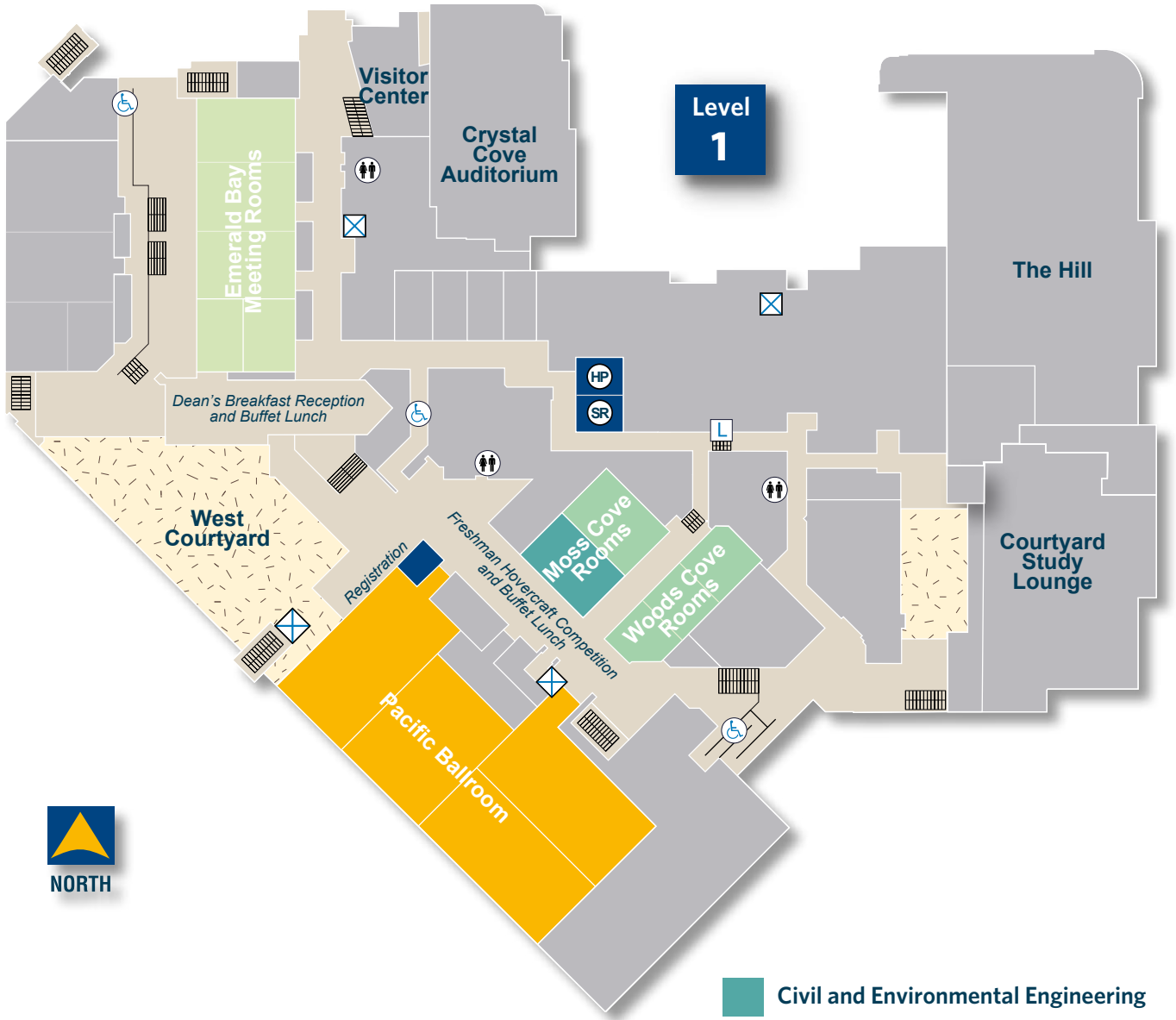








BALLROOM ENTRANCE

-  Biomedical Engineering and Materials Science
-  Civil and Environmental Engineering
-  Electrical Engineering and Computer Science
-  Mechanical and Aerospace Engineering

-  Racecar Engineering and Electric Racecar Projects
-  Aircraft, Satellite and Rocket Projects
-  Steel Bridge and Concrete Canoe Projects

PRESENTATIONS: UCI Student Center 10 a.m. - 3 p.m.



-  Civil and Environmental Engineering
-  Electrical Engineering and Computer Science
-  Mechanical and Aerospace Engineering
-  Poster Displays
-  Student Rehearsal Room
-  Hovercraft Preparation Room



POSTER DISPLAYS AND DEMONSTRATIONS: PACIFIC BALLROOM, 10 A.M. - 3 P.M.

ANDROID APPLICATION AND LEG DROP MECHANISM FOR MONITORING MUSCLE SPASTICITY

This project is an Android application complemented with an adjustable, reproducible foot drop mechanism to monitor muscle spasticity.

Students: Frank Criger, Jessica Nguyen, Virginia Orozco, Kevin Santiago, James Sieng, Peter Tran

Advisor: David Reinkensmeyer

AUTOMATION AND FEEDBACK CONTROL OF A DIGITAL MICROFLUIDIC DEVICE

This project aims to use optical feedback and image analysis to design an automated control system for a digital microfluidic device, alongside developing a reagent-delivery system for the device.

Students: Zachary Campagna, Ting-Yi Chu, Jessica Motherwell, Maka Pennell, Neto Sosa

Advisors: Dr. Kamlesh Patel (Sandia National Laboratories), Dr. Zoran Nenadic, Michelle Khine

AUTOMATED DNA EXTRACTION PLATFORM TECHNOLOGY

Team Magnetos' project is an automated DNA extraction platform technology — a new and sustainable handheld point-of-care device used to simplify the extraction of DNA from saliva.

Students: Melissa Ali-Santosa, Juan Contreras, Brian Huynh, Joey Pazzi, Chun Wu, Diana Wu

Advisors: Michelle Khine, Kyle Bulloch, Mike Lafferty

CELLULAR GENE EXPRESSION IN RESPONSE TO VARYING NOISE INPUTS

Team Biocircuits is interested in characterizing the noise-filtering abilities of biological systems in order to better understand the cellular development process.

Students: Mohamad Abedi, Michael Corrado, Matthew Dunlevie, Yen-Chi Fang, Hyung Phouasalit

Advisors: Elliot Hui, Chang Liu

CLOSED-LOOP FUNCTIONAL ELECTRICAL STIMULATION SYSTEM

The Free To Walk team's project aims to design a functional electrical stimulation device, incorporating feedback in order to stimulate a selected muscle while reducing fatigue.

Students: Michael Ghebrial Fam, Michelle Hwang, Shilpa Jagannath, Aaron Lai, Kishan Patel, Aswini Ponnaluri, Richard Resseguie, Kevin Wang

Advisor: Dr. An Do

CORNEAL PHANTOM BLUE GROUP

This team is attempting to make an optical phantom that can replace the cadaver eye for OCT calibration.

Students: Jae Hee Cho, Jed Lin, James Moon, Michael Schutt, Andrew Sharp

Advisors: Tibor Juhasz, Jeremy Dong (Alcon LenSx, Inc)

CORNEAL PHANTOM FOR OCT CALIBRATION

The Phantom Technologies team aims to produce a cheap, reproducible, calibration tool for OCT systems that mimics the optical properties of the human cornea.

Students: Emil Karshalev, Arely Haynes, Gwendolen Chu, Regina Flora, Andreina Coronel, and Cindy Martinez

Advisors: Jeremy Dong (Alcon LenSx, Inc), Tibor Juhasz, Albert Yee

DESIGNING AND DEVELOPING A DEVICE TO ELIMINATE HUMAN ERROR IN TROCAR INSERTION

The Trocar Assist team is designing a device that aims to eliminate surgeon error in trocar insertion for laparoscopic surgery.

Students: Trudy Pham, Alexander Chu, Cameron Kennedy, Matt Morinishi, Patrick Lo

Advisor: Samir Shreim

DESIGN OF A LOW-COST, PORTABLE DIFFUSE OPTICAL SPECTROSCOPIC IMAGING SYSTEM FOR HELICOBACTER PYLORI DETECTION

The Helico Optics Team is designing a point-of-care tool that provides a rapid, low-cost diagnosis of *Helicobacter pylori* bacterial infections for physicians in developing countries that cannot afford standard diagnostic equipment.

Students: Chris Campbell, Kunal Dave, Elliott Kwan, Alex Matlock, Leanne Young

Advisors: Bruce Tromberg, Albert Cerussi

DEVELOPING A BETTER GUIDE WIRE FOR BREAST BIOPSY

The BioGuide team addresses the limitations of typical guide wires used in breast biopsy procedures, particularly with regard to accuracy and stability, by proposing a novel design for localization with superior component materials and improved overall functionality.

Students: Sharon Kuruvilla, Joycelin Luc, Aleksandar Metulev, Nazneen Pashutanizadeh, Hana Yamate-Morgan, Xiaoxuan Zhang

Advisors: Dr. David Hsiang, Richard Henson (Source Scientific)

DIELECTROPHORESIS-BASED CELL SORTING

Team Cell Sorters are designing a low-cost, label-free, dielectrophoresis-based stem cell sorting device through the use of vertical sidewall electrodes.

Students: Alan Jiang, Arun Alagappan, Bobby Khalessi, and Soo Song

Advisors: Abraham Lee, Lisa Flanagan

DROPLET DIGITAL PCR

The DD Dynamics team aims to develop a device utilizing an optical imaging system and microfluidic platform in order to perform droplet digital PCR for DNA analysis of medical conditions.

Students: Kim Bui, Raymond Cabrera, Nana Colgate, Trevor Gartner, Uyen Nguyen, Brandon Wang

Advisors: Abraham Lee, David Yang (Beckman Coulter)

EYEGASSES FOR KIDS

Team Sapphire's project focuses on finding a way to more effectively manufacture or distribute inexpensive eyeglasses to children in developing countries.

Students: Thompson Taing, Renee Cheung, Wilson Lui, Diana Fang, Maneka Badrinath, Walter Cisneros

Advisor: Adam Hickenbotham

EYEGASSES FOR THE DEVELOPING WORLD

The Gold Team's goal is to design inexpensive and aesthetically pleasing eyeglasses that can be used in humanitarian efforts to provide for the lack of vision correction in the developing world.

Students: Colin Kincaid, Corin Oliver, Jonathan Le, and Timothy Vu

Advisor: Adam Hickenbotham

LOW-COST CELL PHONE MICROSCOPE

The MobileScope Optics team is designing a low-cost cell phone microscope platform capable of providing 200 times magnification to diagnose malaria and other infectious diseases in the developing world.

Students: Nolan Case, Sarah Elise Ramos, Derek Yano, Mark Zafico, Jason San Jose, Ikeoluwa Adesina

Advisor: Dr. Brad Sargent

NEEDLE LOCALIZATION BREAST BIOPSY GUIDE WIRE

The goal of the OmniGrip team project is to develop a stable, non-conductive breast biopsy guide wire to localize non-palpable lesions found in the breast.

Students: Monica Young, Jonathan Perez-Bernal, Dean Orellana, Indrani Mikkilineni

Advisor: Dr. David Hsiang

NO TOOLS LEFT BEHIND

The SEAMS team is developing a novel low-cost magnetic-based tracking system that will serve as a final check to verify the body is clear of retained surgical instruments prior to patient closure.

Students: Ariel Beroukhim, Everardo Camacho, Maunika Gosike, Sonia Kaushal, Shalom Stevenson

Advisors: Michael Klopfer, Raj Khalsa

PREVENTING THE OVER-INSERTION AND POTENTIAL INJURIES OF PRIMARY TROCARS IN LAPAROSCOPIC SURGERY

In order to prevent primary trocar over-insertion and the associated potential injuries, the LaPrecision team proposes a dual-cannula trocar device that will gauge the thickness of the abdominal tissue and retract the trocar immediately after passing through the abdominal tissue via an automated spring-loaded retraction mechanism.

Students: Ruben Alanis-Luu, Lijie Chen, Reynz Delina, Jesse Lam, Patrick Manalo, Yijiao Wang

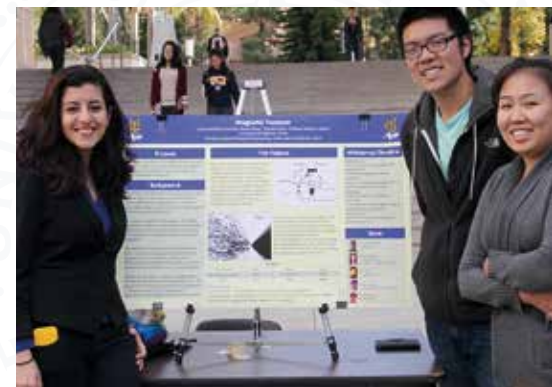
Advisors: Samir Shreim, Michelle Khine, Albert Yee

PROJECT WIGGLES

This project provides an adjustable, easy-to-use prosthetic leg for Wiggle's non-functional leg.

Students: Patricia Chen, Monika Faruque, Kaleigh Halford, Eric Poon, Charith Samarasena, Andrew Towstopiat, Jason Tsang

Advisor: Jared Olivo





PRESENTATIONS: MOSS COVE A

Time	Project Title	Mentor
10:00	Traffic Signal Design	Wenlong Jin
10:12	PA6 Roadway Design	Jay Jayakrishnan
10:24	Traffic Impact Analysis and Signal Design	Michael McNally
10:36	Bicycle Detection System	Stephen Ritchie
10:48	Freeway Interchange Design	Jean-Daniel Saphores
11:00	Bus Rapid Transit	Michael McNally
11:12	Well Design & Water Treatment	Russell Detwiler
11:24	Water Treatment from Shale Gas Development	Diego Rosso
11:36	UCI Redwood Grove Bioswale	Kristen Davis
1:00	Neighborhood 4B Residential Site Development	Jasper Vrugt
1:12	Hydrology Study and Storm Drain Design	Amir AghaKouchak
1:24	Pump Station	Brett Sanders
1:36	Temescal Wash Bridge Widening Project	Ayman Mosallam
1:48	Atmospheric and Geomorphic Research Center	Steve Bucknam
2:00	Earth Retaining Structures	Anne Lemnitzer
2:12	Three-Story Higher Education Building	Ayman Mosallam
2:24	Multistory Building with Rooftop Patio	Farzin Zareian
2:36	High-Rise Communication Tower	Farzin Zareian

TRAFFIC SIGNAL DESIGN

Intersection analysis and traffic signal design of Jamboree Road from Barranca Parkway to Bayview Way, passing through the cities of Irvine and Newport Beach. The objective is to determine the optimal lane configuration and traffic control in order to provide a high level of service, while simultaneously in synchronization with the surrounding network.

Students: Meiling Cai, Travis Jarn-Hay Kwok, Alison Stacy Rodriguez, Dina Zimba Saleh, Karen Mayuko Sujata, Andrew Kimble Timothy

Mentor: Wenlong Jin

Consultants: Ramin Massoumi, PE, Alicia Yang, and Paul Frislie, PE (Iteris)

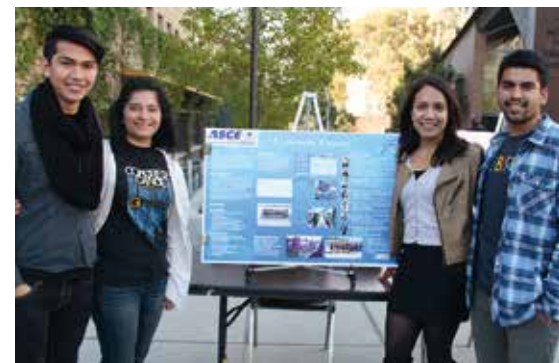
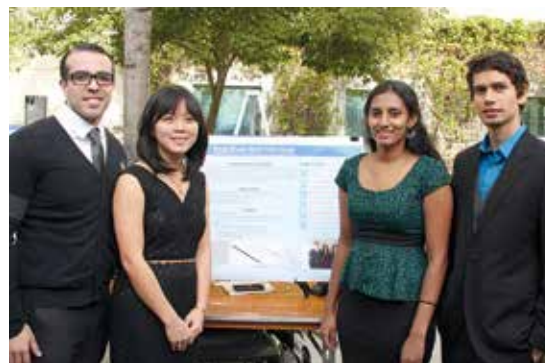
PA6 ROADWAY DESIGN

This project involves designing the optimum roadway network and roadway geometric, drainage and pavement design for the forecasted traffic loading and pattern.

Students: Jeffrey Orlando Chinchilla, Jacob Eddington Gray, Thu Anh Luu, Evan James Morrill, Harrison Satoru Saito, Bradley Warren Terpening

Mentor: Jay Jayakrishnan

Consultants: Kash Hadipour, PhD, PE (Kleinfelder Inc.), Chris Bretall, PE (CH2M Hill)



TRAFFIC IMPACT ANALYSIS AND SIGNAL DESIGN

This project identifies existing and future traffic impacts of a planned mixed use project near the intersection of Aliso Viejo Parkway and Enterprise in Aliso Viejo.

Students: Maverick Buhain Chengcuenca, Joan Tingwei Hsu, Megan Ann Lam, Gabriel Jose Munoz-Morris, Andrea Cameron Tempelis, Justin James Tucker

Mentor: Michael McNally

Consultant: Robert Kahn, PE (RK Engineering Group)

BICYCLE DETECTION SYSTEM

The project objective is to utilize Econolite Control Products' Autoscope Encore video detection solution to design and validate a methodology that is able to detect and differentiate bicycles from vehicles.

Students: Secundio Arellano III, Alma Carrillo, Melinda Rose Cruz, Dmitriy Kunitskiy, Marlo Loresco Maynigo, Monica Lauren Sell, James J. Yu

Mentor: Stephen Ritchie

Consultants: Gurtej Gill and Michael Dang (Econolite, Inc.)

FREEWAY INTERCHANGE DESIGN

Analysis and design of alternatives for freeway interchange improvements of the SR-241 and Antonio Pkwy junction in Rancho Santa Margarita.

Students: Lucas Raphael Boucher, Arthur Chanprakrit, Michael Luis Dosal, Andrew Vinh Nguyen, Samantha Nguyen, Kenneth Tan

Mentor: Jean-Daniel Saphores

Consultant: S.M. Alam, PE, TE, PTOE (URS Corporation)

BUS RAPID TRANSIT

The objective of this project is to provide the residents of Sacramento with a safe and efficient transportation alternative, at a fair cost to consumers, by means of a bus rapid transit system along Stockton Boulevard.

Students: Ernest Hoi Ming Choi, Toan Viet Do, Yu Brian Kamei, Kevin Hieu Nguyen, Jennica Maria Smith, Akifumi Alan Yasuda, Marina Marco

Mentor: Michael McNally

Consultants: Ramin Massoumi, PE, Alicia Yang, and Paul Frislie, PE (Iteris)

WELL DESIGN & WATER TREATMENT

The design of two wells in the Inland Empire to reduce the dependence on the Colorado River supply, including a treatment system that involves filtration with disposable cartridges to reduce turbidity, and ion exchange to treat for perchlorates and nitrates.

Students: Darrik Matthew Baker, Norma Galaviz, Amanda Martha Jimenez, Marta Eloiza Mendoza, Wade William Monsen, Derek Scott Plaza, Michael Wang, Shiv Gandhi

Mentor: Russell Detwiler

Consultant: Zeki Kayiran, PE (AKM)

WATER TREATMENT FROM SHALE GAS DEVELOPMENT

This project is the design of treatment systems for reuse of produced water from unconventional shale gas development.

Students: Genel Legaspi Abordo, Cody John Duncan, James Andrew Libby, Caitlin Jane Mcalpine, Cameron Patel, Kishor Patel, Kerrick Noel Ryan, Trevor Thomas

Mentor: Diego Rosso

Consultant: Joon Min, PhD (BKT United)

UCI REDWOOD GROVE BIOSWALE

UC Irvine is planning to incorporate a water treatment feature on campus to improve the water quality of runoff directed into San Diego Creek. The project objective is to design a low-flow bioswale to treat runoff from Campus Village and a portion of Biological Sciences. This runoff flows into an underutilized area behind the Science Library, which is also the site of UCI's cloned redwood trees.

Students: Azaria M. Habtemariam, Eva Hsiung, Shahan Haig Krakirian, Tarun Ajay Patel, Kevin Raymond Tran, Yinleng Vang, Binjue Wu

Mentor: Kristen Davis

Consultant: David Jaffe, PhD, PE (AECOM)

NEIGHBORHOOD 4B RESIDENTIAL SITE DEVELOPMENT

Design the grading and backbone infrastructure for a specific neighborhood in Portola Springs, Irvine. The project addresses the design and required plans for different civil improvements needed to support a future building site, such as rough grading, street and drainage improvements, water and sewer facilities, and general site design considerations.

Students: Jessica Ann Begley, Alejandro Gonzalez, Benjamin Joseph Halbach, Thomas James Hall Jr., Nicholas Brandon Lo, Orlando Louis Lopes, Gyssela Jahzarine Guillermo Quinabo, Matthew James Wagstaff

Mentor: Jasper Vrugt

Consultant: Doug Johnson, PE (Stantec Inc.)

HYDROLOGY STUDY AND STORM DRAIN DESIGN

This project is a design for a storm drain system, within the city of Irvine's PA 6, that collects runoff from the proposed residential development in addition to off-site flows entering the site.

Students: Mansoor A. Alhassen, Roland Tzi Yang Jen, Jason Koo, Spencer Gabriel Sanchez, Kevin A. Shue, Candace April Tong, Tyler Glicerio Yniguez

Mentor: Amir AghaKouchak

Consultant: Steve Baine, PE (Psomas)

PUMP STATION

This project is to design a pump station, or lift station, for wastewater in a residential area in Hesperia.

Students: Gurleen Kaur Bhatia, Tatsiana Bondar, Tyler Ian Cruickshank, Vanessa Eileen Paneto, Karl W. Reichmuth, Chad Carson Wittington, Heidi Nicole Wilson, Juan Moral

Mentor: Brett Sanders

Consultants: Stephanie Shamblin Gray and Chandrikaa Balendhran, PE (HDR)



TEMESCAL WASH BRIDGE WIDENING PROJECT

The Temescal Wash Bridge Widening Project is a median widening to accommodate two additional lanes in each direction. While this is a widening, it will be designed as independent structures.

Students: Adalberto Cuellar Franco, Isamar Escobar, Jose Gabriel Jimenez, Raul Lozada JR., Melissa Cristina Quinonez, Elizabeth Ruedas, Keane Sisouk

Mentor: Ayman Mosallam

Consultants: Melad M. Hanna, PhD, PE and Umer Ahmed, PE (URS Corp)

ATMOSPHERIC AND GEOMORPHIC RESEARCH CENTER

Design of large wind tunnels and turbines integrated with a community center/recreational space. The project focus is the structural design of a load-bearing system for the wind tunnel structures and the center that acts as the base for the tunnels.

Students: PJ Caguioa, Angelica Martinez, Edvard Mehrabian-Adekan, Joseph William James Sabolboro, Kenneth Edward Teeter

Mentor: Steve Bucknam, PE

Consultants: James Bucknam, LEED-AP (PJHM Architects), Brett Kaufman, PE, SE and David Kirschenbaum, PE, SE, LEED (Thornton Tomasetti)

EARTH RETAINING STRUCTURES

This project involves design of various kinds of earth retaining structures consisting of cantilever concrete and masonry walls; ground anchor walls (tie-back walls); mechanically stabilized embankments; soil nail walls; crib walls; and/or proprietary walls.

Students: Diego Bautista, Miguel Garibay Jr., Gavin Michael Grimes, Yale Joo Kim, Andrew Lee Kin, Hasmik Korkis

Mentor: Anne Lemnitzer

Consultants: Salahuddin Sheikh, PE, Christopher M. Cho, PE, and Ciprian Stelea, PE (RBF)

THREE-STORY HIGHER EDUCATION BUILDING

This three-story with partial basement higher education building will utilize steel columns and composite steel beams with concrete and metal deck floors for the primary gravity floor framing.

Students: Ramin Ayromloo, Brenden Aaron Brown, Merielisa Hecht, Vincent Clarete Malong, Chun Yim Wong

Mentor: Ayman Mosallam

Consultants: Ryan Bishoff, PE, LEED AP and Howard Lam, SE (Brandow & Johnston, Inc.)

MULTISTORY BUILDING WITH ROOFTOP PATIO

This project is a four-story steel structure with an accessible roof patio for the public.

Students: James Franklyn Cummings, Izzad Jaihui Loh, Alan Randolph Eyo Mendoza, Andy Viet Nguyen, Alexander George Six, Ricardo Manaloto Supan

Mentor: Farzin Zareian

Consultants: Daniel Wang, SE and Danniell Kang, PE (LPA)

HIGH-RISE COMMUNICATION TOWER

Design of a high-rise communication tower with commercial/retail space at the base of the tower. The focus of the project is the structural design of a load-bearing system for the tower structure and the retail that acts as the podium for tower.

Students: Sina Khosravi, Ivan Michael Luminto, Minh Anh Luong, Rymbeau Pasana Rosell, Ethan Ryan Lawrence Standen

Mentor: Farzin Zareian

Consultants: Arash Altoontash, PhD, SE and M.W. Johnson, PE (ABS Consulting)

AMERICAN SOCIETY OF CIVIL ENGINEERS CONCRETE CANOE*

This intercollegiate competition challenges students to design, fabricate and construct a 20-foot long canoe made of light-weight concrete, which will be raced in five events and judged on various criteria. The canoe must comply with annually updated rules that are modeled from realistic challenges faced in canoe design and construction.

Students: Nicholas Lowe, Isamar Escobar, Wade Monsen, Norma Galaviz, Andy Nguyen, Paul James Caguioa, Megan lam

Mentor: Ayman Mosallam

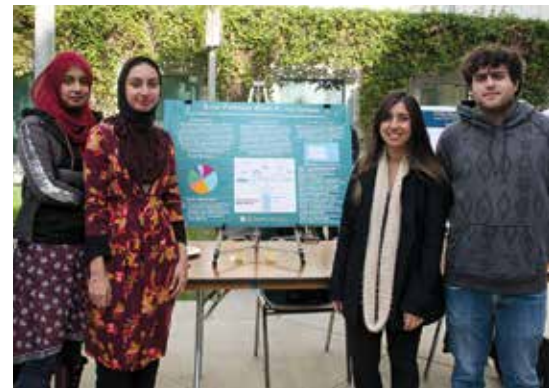


AMERICAN SOCIETY OF CIVIL ENGINEERS STEEL BRIDGE*

Steel Bridge is a year-long project that allows students to design, manufacture and assemble a bridge, according to strict guidelines and dimensions. Students work in a hands-on environment, learning to weld, bolt and and fabricate different steel joints. The project is then displayed and tested at the annual ASCE-PSWC conference, where team members participate in a timed assembly and judging round.

Students: Matt Wagstaff, Nicholas Lo, Andrea Echerverria, Giselle Harkous

Mentors: Ayman Mosallam, Nicole Idiart

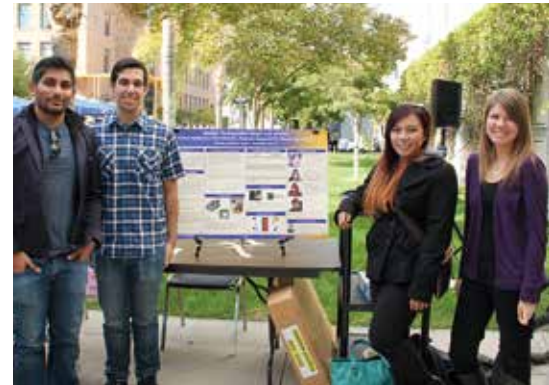


UCI WATER-PIRE*

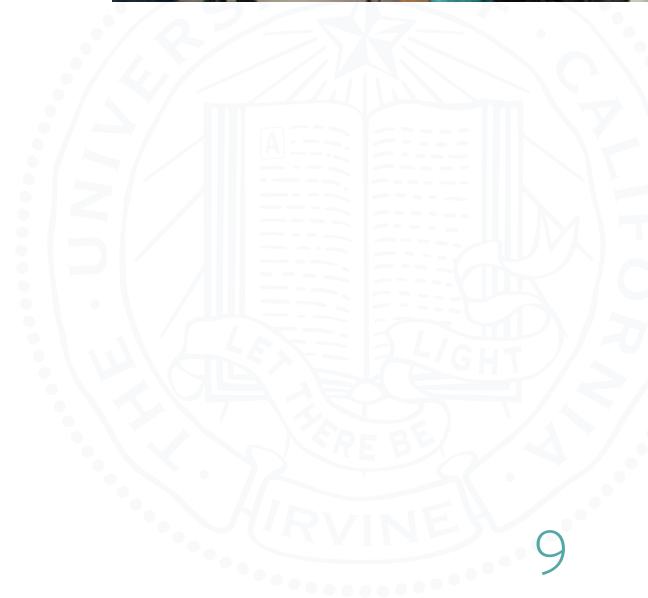
This project is an NSF-funded collaboration between Australian and a trio of Southern California universities to study the technologies and policies implemented during the Millennium Drought and its aftermath. The goal is to find low-energy methods of turning wastewater into drinking water.

Students: Maria Castillo, Kimberly Duong, Edgar Napoles Gomez, Norma Galaviz, Emily Parker, Cameron Patel, Ava Moussavi, Jessica Satterlee, Garfield Tsz Kwan, Amanda Jimenez, Kevin Tran, Sam Zabb-Parmley

Mentor: Stan Grant



**Poster and demonstrations only, in Pacific Ballroom*





GROUP 1: WOODS COVE C

Time	Project Title	Mentor
10:00	Computer Interfaced Gauss-Meter	Henry Lee
10:15	Android Television Remote	Rainer Doemer
10:30	Wireless Energy Transfer for Vehicular Applications	Michael Green
10:45	Knobby: An Innovative Smart Lock System	Fadi Kurdahi
11:00	Compact Interactive Display System	Fadi Kurdahi
11:15	Self-organizing Parking Space Management for Autonomous Vehicle	Mohammad A. Al Faruque
11:30	Automatic Pet Feeder with Portion Control	Mark Bachman
11:45	Smartphone Operated Lighting System	Mark Bachman

GROUP 2: WOODS COVE B

Time	Project Title	Mentor
10:00	FPGA-Based Software Defined Radio	Ahmed Eltawil
10:15	ANTPark	Simon Penny
10:30	Smart Irrigation System	Fadi Kurdahi
10:45	Smart Pill Dispenser	Kumar Wickramasinghe
11:00	Magnetic Tweezer	Gultekin Gulsen
11:15	Radio Frequency Identification Shopping Cart System	Syed Jafar
11:30	Wireless Lock	Rainer Doemer
11:45	Tremor Stabilization in Parkinson's Disease Patients	Fadi Kurdahi

GROUP 3: WOODS COVE A

Time	Project Title	Mentor
10:00	Solar Powered Water Pump System	Michael Green
10:15	Smart Weather Balloon Control System	Franco De Flaviis
10:30	Autonomous Path-finding Robot	Mohammad A. Al Faruque
10:45	Electric Vehicle Energy and Power Meter	J. Michael McCarthy
11:00	EzLock	Chin Lee
11:15	Vehicle Collision Detection System	Chin Lee
11:30	Intelli-Home Electronics Interpreter	Arthur Zhang, G.P. Li

GROUP 4: MOSS COVE B

Time	Project Title	Mentor
10:00	Scoliosis Assessment System	Mark Bachman
10:15	Transceiver Application Phone Interface Communication	Lee Swindlehurst
10:30	UC EyeSpy	Ian Harris
10:45	Ulock	Hamid Jafarkhani
11:00	Naturally Mapped Movement for VR Systems	Fadi Kurdahi
11:15	Project MADSKY Microphone Array	Ozdal Boyraz
11:30	Imove	Glenn Healey

GROUP 1: WOODS COVE C

COMPUTER INTERFACED GAUSS-METER

This project is a hand-held device to measure and characterize magnetic fields on a graphical computer interface.

Students: Steven Lo, Christine Dao, Hung Vu, Alan Lai

Mentor: Henry Lee

ANDROID TELEVISION REMOTE

This team has designed a universal remote-control system that allows consumers to use an Android device to control their television set.

Students: Chantal Fry, Anastasia Shuba, Emily Denice Petrossian

Mentor: Rainer Doemer

WIRELESS ENERGY TRANSFER FOR VEHICULAR APPLICATIONS

This project aims to achieve in-ground wireless charging of an electrical vehicle.

Students: Eric Mannarino, Matthew Hoover, John Louie, Clarence Le

Mentor: Michael Green

KNOBBY: AN INNOVATIVE SMART LOCK SYSTEM

This project is a wireless, electronic security lock that uses an Android app to unlock a door.

Students: Roanne Apides, Meelad Vahdat, Alison Etter, Rashaad Hussein

Mentor: Fadi Kurdahi

COMPACT INTERACTIVE DISPLAY SYSTEM

This team designed a small portable device that projects a touch screen functional image.

Students: Daniel So, Steven Chau, Steven Rutherford, Guojun Zhang

Mentor: Fadi Kurdahi

SELF-ORGANIZING PARKING SPACE MANAGEMENT FOR AUTONOMOUS VEHICLE

This project is a public garage management system that automatically detects open parking spaces and manages the parking of arriving vehicles.

Students: Donjon Baclig, Michael Blank, Yoheita Yoshimura, Evan Seigler

Mentor: Mohammad A. Al Faruque

AUTOMATIC PET FEEDER WITH PORTION CONTROL

This automated pet food feeder can be configured and controlled via a preconfigured web server.

Students: Andy Phan, David Zhang, Kenny Fung, Joshua Ji

Mentor: Mark Bachman

SMARTPHONE OPERATED LIGHTING SYSTEM

This project is a system to operate a set of lights through a smartphone.

Students: Christian Saw, Evgueni Pynko, Chris Ling

Mentor: Mark Bachman

GROUP 2: WOODS COVE B

FPGA-BASED SOFTWARE DEFINED RADIO

This team designed a radio capable of receiving signals and rapidly switching between frequencies using software.

Students: Edwin Cordon, Beatrix Luk, Jessica Ju, Andrew Trentacoste

Mentor: Ahmed Eltawil

ANTPARK

This project is an automated system that intuitively guides drivers to an optimum parking spot in a crowded parking structure.

Students: Bradley Gambetta, Sergio Gutierrez, Eleazar Munoz, Zenas Dan

Mentor: Simon Penny



SMART IRRIGATION SYSTEM

This project is a smart and remote-controlled irrigation system to water plants according to type and environment variables.

Students: Abdulla Kaid, Basil Masri

Mentor: Fadi Kurdahi

SMART PILL DISPENSER

This project is a smart pill dispenser that dispenses medication at prescribed frequency and sends phone alerts to the user.

Students: Brian Kamrany, Christopher Pham, Aria Askari, Jay Dave

Mentor: Kumar Wickramasinghe

MAGNETIC TWEEZER

This project is a computer-controlled magnetic tip with the functionality of relative magnetic field and force measurements and visual feedbacks for control.

Students: Darya Moshrefi, Linyi Xia, Danny Chang, Timothy Chen

Mentor: Gultekin Gulsen

RADIO FREQUENCY IDENTIFICATION SHOPPING CART SYSTEM

This project is a smart shopping cart that reads RFID tags and communicates with a cash register.

Students: Nadeem Aibani, Anthony Aguilar, SeungYeol Yang, Shaun Panjabi

Mentor: Syed Jafar



WIRELESS LOCK

This project is a smart lock to control entry doors with mobile devices and monitor incoming guests.

Students: Lyheng Lov, Jia-Yu Chang, Chou Gech Lov, Tzu-Fei Yu

Mentor: Rainer Doemer

TREMOR STABILIZATION IN PARKINSON'S DISEASE PATIENTS

This is a device that will re-establish convenience for everyday tasks by stabilizing Parkinson's tremors.

Students: Hanchel Cheng, Christopher Fong, Dan Ho, Daniel Rojas

Mentor: Fadi Kurdahi

GROUP 3: WOODS COVE A

SOLAR POWERED WATER PUMP SYSTEM

This project design aims to supply water to remote areas by means of solar energy.

Students: Aumna Kowsar, Divya Bajaj, Khadija Kalsoom, Basil Masri

Mentor: Michael Green

SMART WEATHER BALLOON CONTROL SYSTEM

This project is a smart valve system that controls the elevation of weather balloons by releasing gas from the balloon.

Students: Walter Galich, Corey Connolly, Kelvin Perdomo

Mentor: Franco De Flaviis

AUTONOMOUS PATH-FINDING ROBOT

This is a robot that moves in a maze-like environment (a warehouse) in the shortest possible path.

Students: Kevin Jonaitis, Matthew Lorenzo, Faiz-ur Rahman, Andy Wu

Mentor: Mohammad A. Al Faruque

ELECTRIC VEHICLE ENERGY AND POWER METER

This team designed a highly accurate, affordable power and energy meter and data logger for the FSAE electric racecar.

Students: Joy Mina, James Soukup, David Kim, Leonard Brzezinski

Mentor: J. Michael McCarthy

EZLOCK

This team designed an integrated lock system that allows the user to unlock the door from anywhere in the world using an IOS or Android device.

Students: Mohammad Fidaali, Minhnhut Vo, Benny Kwong, Danny Yeap

Mentor: Chin Lee

VEHICLE COLLISION DETECTION SYSTEM

This project is a vehicle collision detection system that warns drivers of an impending collision.

Students: Carolyn Ngo, Raj Vora, Reimill Hinahon, Kyle Szeto

Mentor: Chin Lee

INTELLI-HOME ELECTRONICS INTERPRETER

This team designed an energy management system that will minimize energy consumption of plug load devices.

Students: Faraz Milani, Young Min Kim, Matthew Cai, Kelvin Liang

Mentors: Arthur Zhang, G.P. Li

GROUP 4: MOSS COVE B

SCOLIOSIS ASSESSMENT SYSTEM

The goal is to design an alternative, accurate, non-radiographic, and economically feasible tool by which scoliosis can be assessed.

Students: Nicholas Bennett, Michael Gardner, Jared Leung

Mentor: Mark Bachman

TRANSCEIVER APPLICATION PHONE INTERFACE COMMUNICATION

This team designed a novel method of communication between cellular phones, independent of cellular or wireless networks, in disaster scenarios.

Students: Joshua Ferguson, Pranay Rungta, Jake Swartz, Randy Harper

Mentor: Lee Swindlehurst

UC EYESPY

This project is a surveillance system that autonomously tracks and records individuals.

Students: Hiten Ram Bhakta, Michael Picardal, Richard Fang, Steven Wong

Mentor: Ian Harris

ULOCK

This project is a keyless smart lock system for commercial or residential use.

Students: Jason Chen, Chi Wu, Kevin Chien, Jose Gallegos

Mentor: Hamid Jafarkhani

NATURALLY MAPPED MOVEMENT FOR VR SYSTEMS

This team is mapping human foot movement, using shoes equipped with accelerometers and gyroscopes.

Students: Patrick Do, Jonathan Lin, Chynna Velasco, Tanuja Undevalli

Mentor: Fadi Kurdahi

PROJECT MADSKY MICROPHONE ARRAY

This project is a smart microphone array for conventions or lecture halls.

Students: Mannchuoy Yam, Shailin Shah, Kevin Lu, Donghee Yun

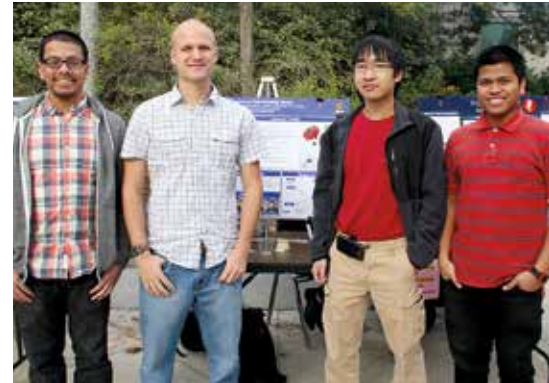
Mentor: Ozdal Boyraz

IMOVE

This project is a mobility control system using image analysis.

Students: Eric Wilde, Brian Chew, Gentry Dy, Devir Poringier

Mentor: Glenn Healey





PRESENTATIONS: EMERALD BAY A

Time	Project Title	Mentor
10:00	Cargo Plane	John LaRue
10:15	AIAA Design Build Fly	Robert Liebeck
10:30	AIAA Human Powered Airplane	Robert Liebeck, Kenneth Mease
10:45	UCI Satellite	Manuel Gamero Castano, Khalid Rafique, John LaRue
11:15	UAV Forge	Robert Liebeck
11:30	UCI Rocket Project	Kenneth Mease, Dave McCue
11:45	Portable Supercharger Strip Measurement and Refurbishing Tool	Vincent McDonnell, Farzad Ahmadvanlou

PRESENTATIONS: EMERALD BAY B

Time	Project Title	Mentor
10:00	Project DoOR (Door Opening Reacher)	David Reinkensmeyer
	Wheelchair-mounted Mechanical Arm for Opening Doors	David Reinkensmeyer
10:15	Grip Trainer for Spinal Cord Injury Recovery	David Reinkensmeyer
	The Jammer Crutch	David Reinkensmeyer
10:30	Inertial Measurement Unit (IMU) for Tennis Feedback Application	David Reinkensmeyer
10:45	Robotic Hand	Ian Harris
11:15	Racecar Engineering: Zeta Electrical	J. Michael McCarthy
	Racecar Engineering: Zeta Mechanical	J. Michael McCarthy
11:30	Racecar Engineering: Savage Blue	J. Michael McCarthy
	Racecar Engineering: Savage Red	J. Michael McCarthy
11:45	iOS Mobile App for a Test Apparatus	Vincent McDonnell, Farzad Ahmadvanlou

PRESENTATIONS: EMERALD BAY C

Time	Project Title	Mentor
10:00	Solar Stove	Derek Dunn-Rankin
10:15	Advanced Combustion Tech: Development of a Small Engine Testbed	Derek Dunn-Rankin
	Advanced Combustion Tech: Production Chamber for Uniform Ice Pellets	Derek Dunn-Rankin
10:30	Fuel Cell Battery	Yun Wang
10:45	Wind Energy	Yun Wang
11:15	Motorcycle Engineering and Design	David Reinkensmeyer, Robert "Smitty" Smith
11:30	Modeling and Simulation of Hybrid Vehicles	Gregory Washington
11:45	Gas Turbine/Chiller Integration	Vincent McDonnell

EMERALD BAY A

CARGO PLANE

This research will primarily focus on developing and optimizing a blended body, joined-wing aircraft, with Gurney flaps.

Students: Sze Hon, Fung, Chi Ho Eric Hau, Jared Luke Hatland, Timothy Mai-Zhi Kelley, Robinne Edward Ponty, Christopher Randy Pratti, Phillip Richard Pratti, Abigail Mari Sarafian, Greg Yuta Tamashiro

Advisor: John LaRue

AIAA DESIGN BUILD FLY

The Design Build Fly project team is participating in the AIAA competition in which engineering students showcase their cooperative efforts in building a real-world aircraft, while allowing them to compete in designing, fabricating and demonstrating their aircraft.

Students: George Alexander Ahumada, Hugo Banh, Xuan Lam Dang, Kunal Ujwal Deshpande, Andrew Nicholas Dieterich, Omar Franco, Alex Taylor Gaugh, Theo Gonzalez Alamilla, Scott Daniel Grant, An Hoang Huynh, Violeta Ismailyan, William Seung Min Jang, Timothy Kheng, Kevin Young Kim, Drew Alan Lafferty, Michael R. Lau, Karla Janette Marron, Lawrence Sui Lun Ng, John Paul Parcel, Ravi Balavant Patel, Jocelyn Pedroza, Tony Hoang Pham, Charles Henry Poblete, Kathryn Marina Popkow, Sepehr Raja, Jesus Abraham Ramos, Robert Michael Ratcliff, Javier Esteban Ruiz, Kevin Guzman Sadang, Andrew Andranik Simjian, Andrew Dillon Snyder, Bruno Vu

Advisor: Robert Liebeck

AIAA HUMAN POWERED AIRPLANE

The project objective is to design, build and fly a human powered airplane, and demonstrate the benefits of innovative manufacturing processes and proven, repeatable computer modeling.

Students: Keith Latham Branson, Matthew Cole Carrico, Lawrence Paul Cavanaugh, John Nicholas Huleis, Cassandra Lee Margitan-Thomas, David nares, Jimmy Huy Nguyen, Rochelle Haeleigh Parker, Viral Bharatbhai Patel, Kevin Matthew Shotts, Jacqueline Leah Thomas, John Patrick Wortham, Steven Wu

Advisors: Robert Liebeck, Kenneth Mease

UCI SATELLITE

The mission objective of UCI Satellite is to advance the understanding of the use of solar radiation to purify contaminated water for extended space exploration.

Students: Keegan Bernard Carroll, Geoffrey Hsiao-Wei Chen, Amy Dunford, Cristhian Fimbres, Kevin Lasquette, Leann Kempley, Zaw Mai, Akash Patel, Abdullah Tarif, Navin Timilsina, Scott Walter

Advisors: Manuel Gamero Castano, Khalid Rafique, John LaRue

UAV FORGE

This project will create infrastructure that will enable UAV innovation for students, with the long-term goal of providing UCI with a base of data, knowledge and expertise to accelerate future exploration into UAV autonomy and systems engineering.

Students: Oleg N. Bannikov, Abhishek Bhan, Natalie Bao Chau, Khai Duy Dao, Matthew Masaki Evanston, Thomas Keith Hamilton, Payam Hariri Moghaddam, Justin Raymond Hoogenstryd, Eric Tailon Huang, Sean Gregory Larson, Timothy Phil Lin, Jin Mok, Roham Naderi, John Oum, Diego Alejandro Solorzano, Ryan David Wilson, Dane Charles Wright

Advisor: Robert Liebeck

UCI ROCKET PROJECT

Design, manufacture, and fly an experimental high-powered rocket to test propulsion, materials and control systems for academic and commercial applications.

Students: Xiaowen Shen, Oscar Rodriguez, Elaine Haralson, Victor Morocho, Mark Saleh, Deukkwon Yoon, Isaiah Navarro, Quan Le, Jeff Ma, Brandon Hernaez, Allison Redderson-Lear, Michael Rappuhn, Thanh Vu, Andrew Chavarin, Michael Morey, Michael Rodriguez, Christoph Seeliger, Alexander Padilla, David Hahn, Eric Foster, Jesus Ramos, Jesus Ramos, Jonathan Perez-Bernal, Ross Deason, David Li, Jaspal Sidhu, Luke Guirguis, Miguel Plascencia Quiro, Nicholas Cordero, Sean Godinez, Yvonne Liu, Alok Virkar, Jose Sepulveda, Zhang, Yuan John Zembal, Zach Holley,

Advisors: Kenneth Mease, Dave McCue

ENGINEERING DESIGN IN INDUSTRY: PORTABLE SUPERCHARGER STRIP MEASUREMENT AND REFURBISHING TOOL

To design a bench mounted portable tool that can measure a plastic strip installed on a helix-type roots supercharger rotor to determine its relative clearance or interference with the mating rotor or housing, and cut the strip to a specified linear profile.

Students: Dimas Avila, Dalen Ellis, George Khoury, Christoph Seeliger, Veronica Woen

Advisor: Vincent McDonell, Farzad Ahmadvkhanlou

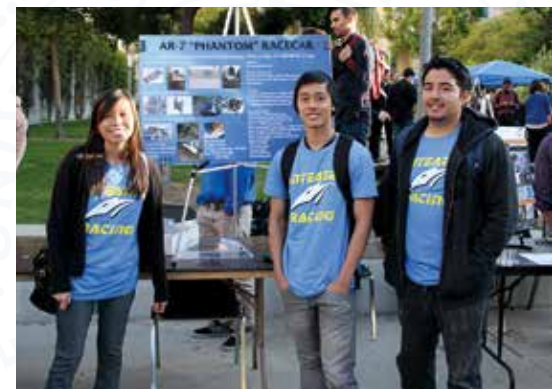
EMERALD BAY B

REHAB ROBOTICS: PROJECT DOOR (DOOR OPENING REACHER)

This project aims to design and manufacture a manually operated, wheelchair-mounted, mechanical system to assist users in opening doors and to aid in the rehabilitation of individuals with severe bilateral arm weakness.

Students: Fady Maher-Labib Barsoum, Joseph Alexis Cuevas, Nathaniel John Directo

Advisor: David Reinkensmeyer





REHAB ROBOTICS: WHEELCHAIR-MOUNTED MECHANICAL ARM FOR OPENING DOORS

Our objective is to construct a fully mechanical wheelchair-mounted arm that is capable of opening doors and aiding in arm motor skill rehabilitation.

Students: Jack Elger Danylik, Kevin Robert Lage, Richard Louis Resseguie

Advisor: David Reinkensmeyer

REHAB ROBOTICS: GRIP TRAINER FOR SPINAL CORD INJURY RECOVERY

This team will design a physical therapy device that will assist in motor control recovery in spinal cord injury, in support of a stem cell research project at UC Davis.

Students: Michelle Yuen-Shan Freret, Scott Nguyen, Jessica Trieu, Kevin Peng Wang

Advisor: David Reinkensmeyer

REHAB ROBOTICS: THE JAMMER CRUTCH

To create a crutch with a deformable tip that maximizes the traction coefficient to reduce slipping, and a spring to decrease impulsive forces caused by impact of use to attenuate auxiliary nerve damage to the brachial plexus.

Students: Nicholas Aaron Brady, Miranda Joy Ramirez, Dane Wright

Advisor: David Reinkensmeyer

REHAB ROBOTICS: INERTIAL MEASUREMENT UNIT FOR TENNIS FEEDBACK APPLICATION

To develop a system comprised of an inertial measurement unit and Android-based device that will allow tennis players to improve their skills without the presence of a coach.

Students: Kenneth Gutierrez, Anthony Boyce

Advisor: David Reinkensmeyer

ROBOTIC HAND

The goal is to create an anthropomorphic manipulator for hazardous materials handling and remote operation.

Students: Tzu-Yu Chao, Justin Raymond Hoogenstryd, Veronica Ann Swanson, Robert Jacob Wikert

Advisor: Ian Harris

RACECAR ENGINEERING: ZETA ELECTRICAL

Electrical and coding team prepare the AR-6 Zeta electric vehicle for competing in the 2014 FSAE competition in Lincoln, NE; team focus is on electrical and coding subsystems.

Students: Leonard James Brzezinski, Wesley Bok Hin Chan, Tzu-Yu Chao, Corey Thomas Connolly, Shiang Yong Lin, James Vincent Soukup, Victor Woo, Joy Mina,

Advisor: J. Michael McCarthy

RACECAR ENGINEERING: ZETA MECHANICAL

Mechanical and body team prepare the AR-6 Zeta electric vehicle for competing in the 2014 FSAE competition in Lincoln, NE; team focus is on mechanical and body subsystems.

Students: Andrew Stephen Salas, Kevin James Sale, Mahmoud Khaled Mahmoud Sherif, Benjamin Vega, Lloyd Edusada Villanueva, Benjamin Robert Zane, Alexander Michael Kaufman, Nick Kurtz, Nicholas David Leighton, James Michael Meier, Harrison He Lu, Alan Bao Dinh, Albert Ho, Adam G. Evangelista, Willis Lee, Henry Diep

Advisor: J. Michael McCarthy

RACECAR ENGINEERING: SAVAGE BLUE

The goal is to design a 300-pound car for the FSAE competition in 2015.

Students: Dean Alexander Baggs, Natalie Bao Chau, Po-Han Chiang, Anthony James Hummel, Lucas Cong Huynh, Dong Hyun Lee, Steve Lin, Chun-Yen Liu, Kenton Aldrich To

Advisor: J. Michael McCarthy

RACECAR ENGINEERING: SAVAGE RED

The goal is to design a steel tube chassis with a four-cylinder, 600C Yamaha r6 engine for the FSAE competition in 2015.

Students: Jimmy Wu, Jack Elger Danylik, William Seung Min Jang, Justin Paul Kenney, Jesus Jose Ramos, Esau Sanchez, Jessica Trieu, Bryant Jeehong Min,

Advisor: J. Michael McCarthy

ENGINEERING DESIGN IN INDUSTRY: IOS MOBILE APP FOR A TEST APPARATUS

To develop an iOS app for mobile devices that can interface with Intellicon Wi-Fi capable products and control them.

Students: Henry Diep, Amanda Nozaki, Rochelle Parker, Lew Piper, Anthony Zhu,

Advisors: Vincent McDonnell, Farzad Ahmadvanlou

EMERALD BAY C

SOLAR STOVE

The goal is to design a feasible solar stove that can cook a meal or boil one gallon of water within a practical amount of time, as well as be able to store energy to be available for use at any time in the evening or early morning.

Students: Caroline Carlotta Pham, Lineker Quan Phuong, Matthew Christopher Savidge, Greg Yuta Tamashiro

Advisor: Derek Dunn-Rankin

ADVANCED COMBUSTION TECH: DEVELOPMENT OF A SMALL ENGINE TESTBED

This project involves developing an engine testbed and experiment with a small, direct-injection, four-stroke, liquid-cooled, and single cylinder engine.

Students: Salvador Badillo-Rios, Mohsin Ahmed Farooqui, Alireza Zavar, Aria Alexander Etemadieh, Maaz Syed

Advisor: Derek Dunn-Rankin

ADVANCED COMBUSTION TECH: PRODUCTION CHAMBER FOR UNIFORM ICE PELLETS

The project is to design a system for the production of uniform ice pellets by freezing water droplets in flight; the ice pellets form the base for the creation of uniform methane hydrate samples.

Students: David Feng, Jaydeep Kumar Kar, Verence Mojica

Advisor: Derek Dunn-Rankin

FUEL CELL BATTERY

The goal of the research project is to experimentally measure the efficiency of a PEM fuel cell under various conditions and its durability under accelerated stress testing.

Students: Alexandre Lim Andres, Dimas Avila, Alan YL Jiang, Cheng Lu, Lindsay Lee Ma, Naoya Matsuda, Kayvon Sadaghiani, Anthony Paul Savedra, Don Quy Vu

Advisor: Yun Wang

WIND ENERGY

The objective of the project is to design, construct and test a horizontal axis wind turbine and eventually implement the future use of turbines on campus.

Students: Ali Suhaylah, Christopher Jinsung Choi, Quan Cui, Yu Hua, Ziyuan Jiang, Ziwei Li, Mahmoud Khaled Mahmoud Sherif, Connor Matthew Stephen, Yingshan Tan, Yufei Zhang, Xu Zheng

Advisor: Yun Wang

MOTORCYCLE ENGINEERING AND DESIGN

The goal of this project is to modify a two-stroke motorcycle frame to hold a four-stroke motor and compare the human-machine interaction between both two- and four-stroke motorcycles.

Students: Lawrence Paul Cavanaugh, Joe King, Jordan Alexander Ritkes, John Patrick Wortham

Advisors: David Reinkensmeyer, Robert "Smitty" Smith

MODELING AND SIMULATION OF HYBRID VEHICLES

This project involves using automotive simulation software to model and simulate the performance and efficiency of hybrid and fuel cell vehicles, to make these vehicles better equipped for commercial use.

Students: Joseph K.S. Bell, Vatche Donikian

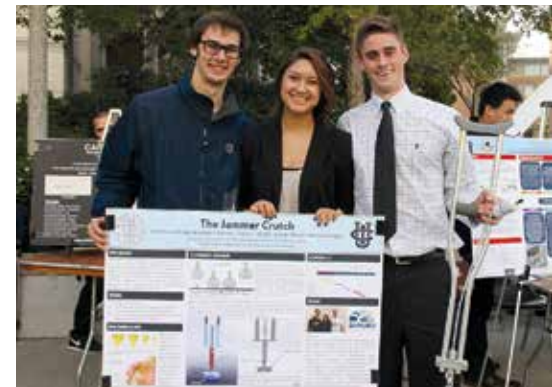
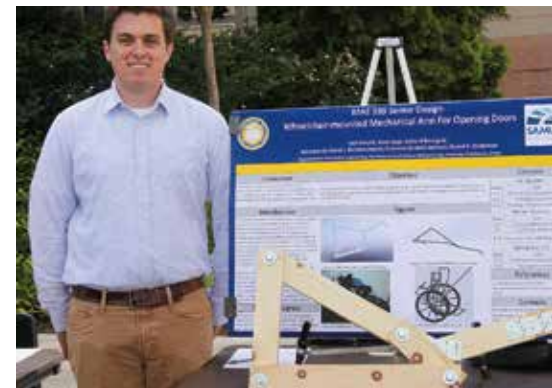
Advisor: Gregory Washington

GAS TURBINE/CHILLER INTEGRATION

The goal is to integrate a 60kW gas turbine, outfitted with a novel exhaust enthalpy control system, which will facilitate exhaust gas heat recovery and raise the overall efficiency of the CHP system.

Students: Shang-Hsuan, Allen Ray Posadas, Michael Ryan Posadas

Advisor: Vincent McDonnell





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