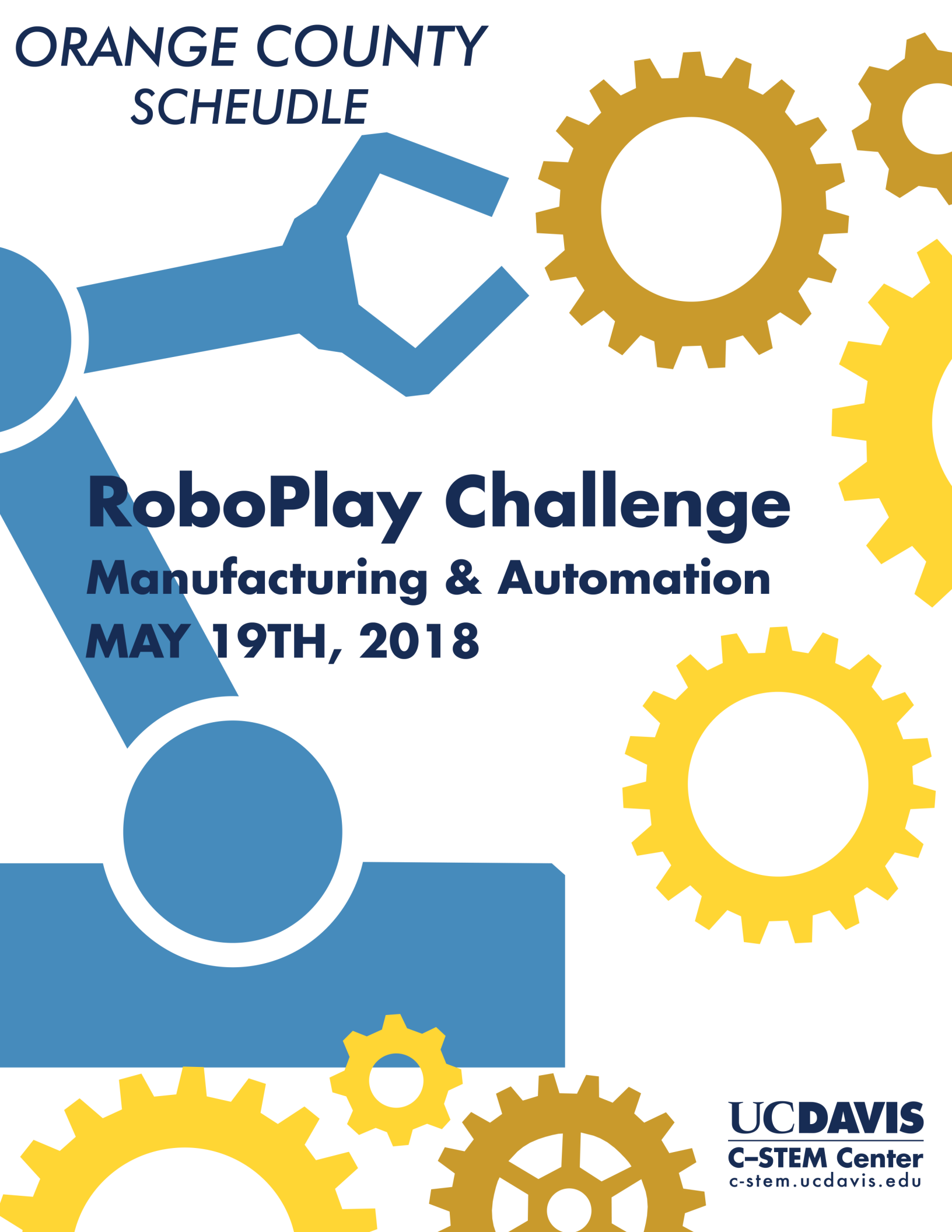


# ORANGE COUNTY SCHEUDLE



## **RoboPlay Challenge** **Manufacturing & Automation** **MAY 19TH, 2018**

# *C-STEM is a UC approved Educational Preparation Program for Undergraduate Admission to all UC Campuses*

## **Message From the Director**

Dear C-STEM Teachers and Students,

Welcome to the 2018 RoboPlay Challenge Competition!

This year the C-STEM team has organized an extraordinary day for our C-STEM students. Our goal is for all our C-STEM students to have fun showing off their teamwork, critical thinking, and problem solving skills. Today will be full of excitement as students overcome the manufacturing and automation challenges we have laid out.

We are very proud to be a UC Approved Educational Preparation Program for undergraduate admission to all UC campuses. We are particularly proud of our C-STEM Math-ICT Curriculum which provides students with up to 12 years of computer science education through hands-on integrated learning of math and computer science.

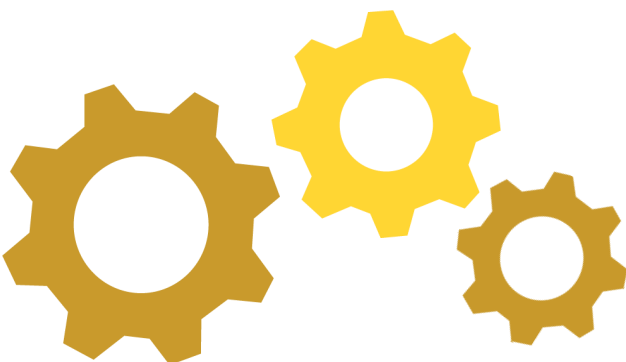
As the program grows and expands, so does our wealth of curriculum and educational technologies. We recently released C-STEM Studio version 4.6 which overhauls the user experience. It is easier than ever to navigate C-STEM Studio and to use its collection of tools to seamlessly connect and control Linkbots, Lego Mindstorms, Arduino, and Raspberry Pi. As always, C-STEM Studio continues to be a freely available resource for all students and teachers. RoboBlockly has also received recent updates including a new Classroom Management System for C-STEM schools where teachers can directly assign activities to students and keep track of their scores and progress all from within RoboBlockly.

We would like to extend a warm welcome to our new participants this year and welcome back those who are returning. We have an extraordinary group of students with us and, for the first time, are operating at maximum capacity of the UC Davis Pavilion. Today we have nearly 40% more teams than we did last year with 119 teams at UC Davis and 33 teams in Irvine.

Excitement is also growing as we get closer to our Girls in Robotics Leadership (GIRL) and GIRL+ camps this summer where we will have more participants than ever before with 12 camps.

We are proud of all of you.  
Good luck in the competition!

Dr. Harry H. Cheng  
C-STEM Center Director and Professor



## Organized by



## RoboPlay Challenge Competition Schedule - May 19, 2018

TIME	EVENT
7:30 - 8:30 AM	Registration and Setup for RoboPlay Challenge Competition
8:30 - 8:40 AM	Welcome and Introduction
8:40 - 9:00 AM	RoboPlay Challenge Competition Introduction
9:00 - 12:00 PM	RoboPlay Challenge Competition Problem Solving
12:00 - 12:45 PM	Lunch Break
12:45 - 3:45 PM	RoboPlay Challenge Competition
3:45 - 4:00 PM	Break Time
4:00 - 5:00 PM	Awards Ceremony: <ul style="list-style-type: none"><li>• C-STEM Awards of Achievement</li><li>• GIRL's Leadership Award</li><li>• C-STEM Awards of Excellence</li><li>• C-STEM Scholarship</li><li>• RoboPlay Video Competition Winners</li><li>• RoboPlay Challenge Competition Winners</li></ul>

## Contact Information

C-STEM Center Director:

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C-STEM Regional Coordinator  
Orange County Site:

Merry Kim

Email: [mkim209@ivc.edu](mailto:mkim209@ivc.edu)

Phone: (949) 367-8309

Share photographs taken during the RoboPlay Competition with Lead Photographer Nicholas Chan at [ngchan@ucdavis.edu](mailto:ngchan@ucdavis.edu) for a chance to be featured on the C-STEM Center website and social media!

## COMMITTEES

### RoboPlay Competition Volunteer Leadership

*RoboPlay Chief Judge:* Rex Schrader

*RoboPlay Coordinator:* Emma Kristovich

#### Davis, CA

*Regional Chair:* Daniel Ryan

*Regional Coordinator:* Emma Kristovich

*Head Judge:* Rex Schrader

*Division Lead Judges:* Roger Nattkemper  
Dan Hull

#### Irvine, CA

*Regional Chair:* Merry Kim

*Regional Coordinators:* Parisa Bendavoud

Annie Gao

Sherin Stephen

*Head Judge:* Ansel Teng

*Division Lead Judges:* Bruce Feinstein  
Ajith Gopinathan

### Challenge Task Development Team

Emma Kristovich

Chandni Nagda

Josh Tu

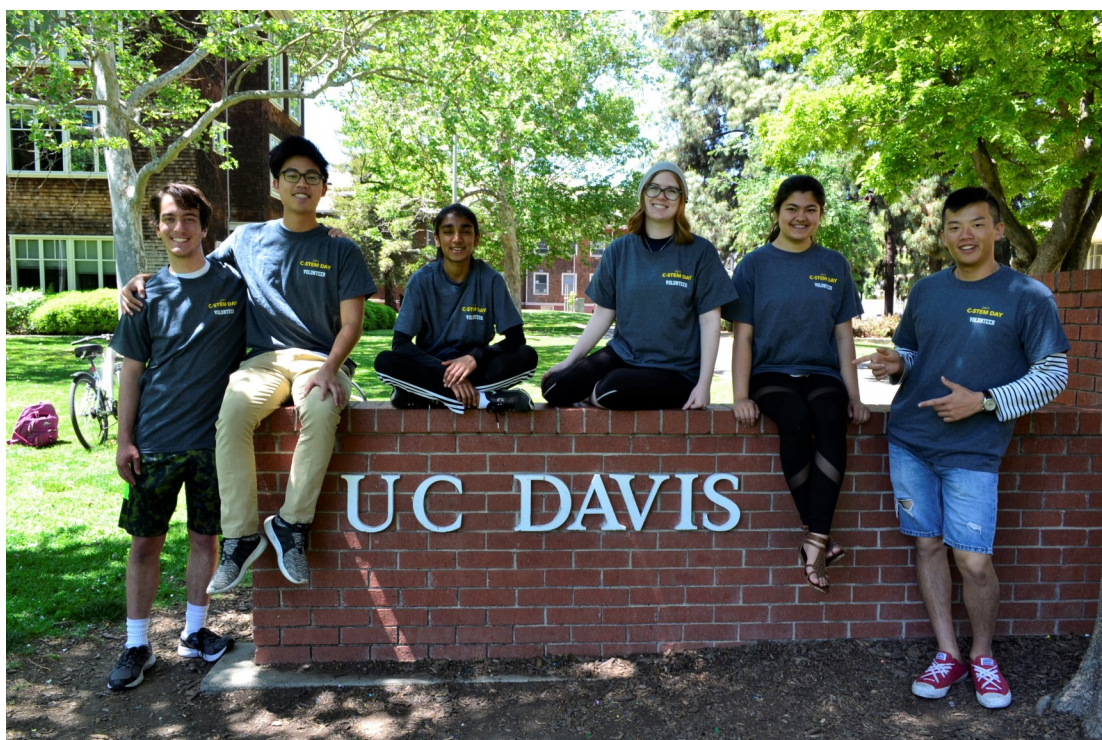
Mae Underwood

Steven Herman

Rachel Talbot

Jerry Kuo

Tim Hulse



# COMPETITION INFORMATION

## General Competition Information

- The competition lasts six hours, split into two portions.
  - Unscored: The first three hours are for students to build and program their robots to complete the challenges presented during the competition.
  - Scored: The last three hours are for teams to compete against each other.

## Unscored Competition Information

- Each team has a designated practice area (pit) to place their 2018 RoboPlay practice mat.
- Each team has two 17-minute practice periods on the official 2018 RoboPlay Competition Board between 10am and noon.

## Scored Competition Information

- Each team has three 17-minute competition periods on the official RoboPlay Competition Board between 12:45pm and 3:45pm. Each 17-minute period begins and ends as specified in the schedule. Please be prompt.
- There is a three-minute passing period in between each team's run.

## Reminders for Students:

- Read the scoring criteria to decide the best strategy for earning points.
- There are 10+ challenges to complete in any order. Successful completion of each challenge earns team points. The goal is to get as many points as possible. Try for partial points if a team cannot complete the entire challenge.
- Ask clarifying questions.

## Challenge Competition Awards:

- Awards are given to the first, second, and third place winners for each respective division at each of the RoboPlay Challenge Competition locations.
  - Regional awards are not issued in divisions with fewer than four competing teams.
- Statewide awards are awarded to the first, second, and third place winners for each of the divisions.
- In the case of a tie score, the following will be used as tie breakers:
  - Team with the lowest total number of scoring runs, including aborts
  - Team with the fewest aborts if score runs are identical
- Additional Judge's Awards are decided by the judges for each division at each competition location.
  1. Perseverance Award – goes to the team that improvises and overcomes a difficult situation while still maintaining a high level of performance
  2. Spirit Award – celebrates a team that displays extraordinary enthusiasm and spirit
  3. Teamwork Award – recognizes a team that fluidly works together with strong communication, tasks delegation, and excellent time management

# COMPETITION RULES

## General Rules

- Teams may not use custom-made parts.
- Use of electronics during the competition other than Linkbots and the designated laptops (including personal computers, calculators, cell phones, tablets, or any other computing device) is prohibited.
- There is no internet access during the competition. Teams using the internet during the competition will be disqualified.
- Teams may not collaborate with other teams.

## Practice Pit Rules

- Each team may bring extra Linkbots as backups, but no more than five Linkbots may be out at one time in the practice pits.
- Teams may use as many laptops as they have students in the pits.

## Competition Area Rules

- Teams may not bring more than one laptop into the competition area.
- Teams may not use more than four I-bots and one L-bots simultaneously, nor have more than five active Linkbots at a time (an additional may be used as a dongle).
- Challenges may not be “chained together.” Teams cannot complete two challenges simultaneously with the same program.
- Teams are responsible for setting up the competition board for each run of each challenge, as specified in the challenge text.
- Challenges are immediately stopped when the 17-minute period ends. Points will be calculated when time is called.
- No Bots may be placed on the Competition Board during the three-minute passing period between competition times.

## Random Numbers:

- Input random numbers into the program at the beginning of each run.
- Use the scanf() function to pass random numbers into the program.
- Random numbers change at the start of every run. Refer to the Table Judge, who will display and announce the relevant numbers for each run.
- Enter your random numbers only after pressing “Run”. Step away from the computer after inputting the numbers.
- Do not strategically abort your challenge to get better random numbers. Judges may ban teams that abort challenges from participating in the remainder of the competition period.

## Software/Programming:

- Software: C-STEM Studio v4.0 or higher, Ch 8.0, Linkbot Labs 1.1.1
- Programs for controlling the robots are written in Ch and run in ChIDE from SoftIntegration, Inc.



## SCHEDULE FOR ROBOPLAY COMPETITION - DIVISION 1

SCHOOL	TEACHER	TEAM NAME	BOARD & PIT	PRACTICE	COMP TIMES
Beacon Park Middle School	Sandra Lee	G.M.B. (Genetically Modified Bengals)	C/8	10:20 - 10:37 11:20 - 11:37	1:05 - 1:22 1:45 - 2:02 3:05 - 3:22
Corona del Mar Middle	Peter Selby	Wifighters	D/10	10:00 - 10:17 11:00 - 11:17	12:45 - 1:02 2:25 - 2:42 3:25 - 3:42
Corona del Mar Middle	Peter Selby	C-Kings	D/11	10:20 - 10:37 11:20 - 11:37	1:05 - 1:22 1:45 - 2:02 3:05 - 3:22
Costa Mesa High	Racine Clark	CMMS Mavericks - Div1	D/12	10:40 - 10:57 11:40 - 11:57	1:25 - 1:42 2:05 - 2:22 2:45 - 3:02
Costa Mesa Middle School	Mark Smith	CMMS Lady Mavericks - Div1	C/9	10:40 - 10:57 11:40 - 11:57	1:25 - 1:42 2:05 - 2:22 2:45 - 3:02
Horace Ensign Intermediate	Todd Metcalf	RoboBees	E/13	10:00 - 10:17 11:00 - 11:17	12:45 - 1:02 2:25 - 2:42 3:25 - 3:42
La Paz Intermediate	Joella Russert	La Paz Intermediate	G/19	10:00 - 10:17 11:00 - 11:17	12:45 - 1:02 2:25 - 2:42 3:25 - 3:42
Los Alisos Intermediate	Dan Moreno	Los Alisos 1	F/16	10:00 - 10:17 11:00 - 11:17	12:45 - 1:02 2:25 - 2:42 3:25 - 3:42
Los Alisos Intermediate	Dan Moreno	Los Alisos 2	F/17	10:20 - 10:37 11:20 - 11:37	1:05 - 1:22 1:45 - 2:02 3:05 - 3:22
McPherson Magnet	Lauri Truong	Robotopia	E/14	10:20 - 10:37 11:20 - 11:37	1:05 - 1:22 1:45 - 2:02 3:05 - 3:22
McPherson Magnet	Patricia Marzolo	Unknown	E/15	10:40 - 10:57 11:40 - 11:57	1:25 - 1:42 2:05 - 2:22 2:45 - 3:02
Rancho Santa Margarita	Mark Bantle	RSM Roadrunners	G/20	10:20 - 10:37 11:20 - 11:37	1:05 - 1:22 1:45 - 2:02 3:05 - 3:22
Rancho Santa Margarita	Mark Bantle	RSM Roadrunners 2	G/21	10:40 - 10:57 11:40 - 11:57	1:25 - 1:42 2:05 - 2:22 2:45 - 3:02
Serrano Intermediate	Darin Petzold	Serrano Alumni	F/18	10:40 - 10:57 11:40 - 11:57	1:25 - 1:42 2:05 - 2:22 2:45 - 3:02
Sierra Vista Middle	Dieter Kutz	Robo Hobos	A/1	10:00 - 10:17 11:00 - 11:17	12:45 - 1:02 2:25 - 2:42 3:25 - 3:42
Sierra Vista Middle	Dieter Kutz	H4CK3R 54CK3R5 (Hacker Sackers)	A/2	10:20 - 10:37 11:20 - 11:37	1:05 - 1:22 1:45 - 2:02 3:05 - 3:22
Sierra Vista Middle (Team SciOly)	JP Mathot	Sierra Vista Middle School SciOly S	A/3	10:40 - 10:57 11:40 - 11:57	1:25 - 1:42 2:05 - 2:22 2:45 - 3:02

## SCHEDULE FOR ROBOPLAY COMPETITION - DIVISION 1

SCHOOL	TEACHER	TEAM NAME	BOARD & PIT	PRACTICE	COMP TIMES
Sierra Vista Middle (Team SciOly)	JP Mathot	Sierra Vista Middle School SciOly V	B/4	10:00 - 10:17 11:00 - 11:17	12:45 - 1:02 2:25 - 2:42 3:25 - 3:42
South Lake Middle	Nga Le	The Attacking Sharks!	B/5	10:20 - 10:37 11:20 - 11:37	1:05 - 1:22 1:45 - 2:02 3:05 - 3:22
South Lake Middle	Nga Le	South Lake Tech Sharks	B/6	10:40 - 10:57 11:40 - 11:57	1:25 - 1:42 2:05 - 2:22 2:45 - 3:02
South Lake Middle	Nga Le	Dancing Turtles	C/7	10:00 - 10:17 11:00 - 11:17	12:45 - 1:02 2:25 - 2:42 3:25 - 3:42

## SCHEDULE FOR ROBOPLAY COMPETITION - DIVISION 2

SCHOOL	TEACHER	TEAM NAME	BOARD	PRACTICE	COMP TIMES
Villa Park High	James Hughes	Spartan Robotics	H/22	10:00 - 10:17 11:00 - 11:17	12:45 - 1:02 2:25 - 2:42 3:25 - 3:42



## SCHEDULE FOR ROBOPLAY COMPETITION - DIVISION 3

SCHOOL	TEACHER	TEAM NAME	BOARD & PIT	PRACTICE	COMP TIMES
Costa Mesa Middle School	Mark Smith	CMHS Mustangs - Div3	K/31	10:00 - 10:17 11:00 - 11:17	12:45 - 1:02 2:25 - 2:42 3:25 - 3:42
Irvine High	Faten Sakallah	The Dream Eating Llamaz	I/25	10:00 - 10:17 11:00 - 11:17	12:45 - 1:02 2:25 - 2:42 3:25 - 3:42
Irvine High	Faten Sakallah	Expert Cyphers	I/26	10:20 - 10:37 11:20 - 11:37	1:05 - 1:22 1:45 - 2:02 3:05 - 3:22
Northwood High	Ibeth Jaime Aguilar	2b    !2b	I/27	10:40 - 10:57 11:40 - 11:57	1:25 - 1:42 2:05 - 2:22 2:45 - 3:02
Northwood High	Ibeth Jaime Aguilar	No //	J/28	10:00 - 10:17 11:00 - 11:17	12:45 - 1:02 2:25 - 2:42 3:25 - 3:42
Serrano Intermediate	Darin Petzold	Serrano Alumni Robo Hackers	K/32	10:20 - 10:37 11:20 - 11:37	1:05 - 1:22 1:45 - 2:02 3:05 - 3:22
University High School	Tinh Tran	POGGERS	J/29	10:20 - 10:37 11:20 - 11:37	1:05 - 1:22 1:45 - 2:02 3:05 - 3:22
University High School	Tinh Tran	University High School 1	J/30	10:40 - 10:57 11:40 - 11:57	1:25 - 1:42 2:05 - 2:22 2:45 - 3:02
Valley High School	Minh Vu	ValleyFalcon	K/33	10:40 - 10:57 11:40 - 11:57	1:25 - 1:42 2:05 - 2:22 2:45 - 3:02
Westminster High	Huy Pham	WHS Juniors	H/23	10:20 - 10:37 11:20 - 11:37	1:05 - 1:22 1:45 - 2:02 3:05 - 3:22
Westminster High	Huy Pham	WHS Sophomores	H/24	10:40 - 10:57 11:40 - 11:57	1:25 - 1:42 2:05 - 2:22 2:45 - 3:02

# Orange County C-STEM 2018

(C-STEM = Computing, Science, Technology, Engineering & Math)

## Participating Middle, High School and ROP Instructors

Sandra Lee – Beacon Park Middle School

Peter Selby (Physics) - Corona del Mar Middle School

Racine Clark (Math/Engineering) - Costa Mesa High School

Mark Smith (Computer Programming/Math) - Costa Mesa Middle School

Todd Metcalf – (Math) Horace Ensign Intermediate

Faten Sakallah – Irvine High School

Joella Russert - La Paz Middle School

Dan Moreno – Los Alisos Intermediate

Patricia Marzolo - McPherson Magnet School

Lauri Truong – McPherson Magnet School

Ibeth Jaime Aguilar (Computer Science) - Northwood High School

Mark Bantle (S.T.E.M.) - Rancho Santa Margarita Intermediate

Darin Petzold (Engineering/PLTW) - Serrano Intermediate

Dieter Kutz – Sierra Vista Middle School

JP Mathot – Sierra Vista Middle School

Nga Le – South Lake Middle School

Tinh Tran – University High School

Minh Vu (Engineering/CAD) - Valley High School

James Hughes – Villa Park High

Huy Pham (Science) – Westminster High School

## Acknowledgements

A very special thank you to Irvine Valley College,  
Christopher McDonald, VP of Instruction, and  
Lianna Zhao, Dean of Math, Science, and Engineering  
for their support of the Orange County C-STEM Project and its success.

We would like to recognize the following individuals for believing in the importance of C-STEM and in the power of innovation and collaboration to create opportunities for students in Orange County:

- Ruth Abatzoglou, Santa Ana USD
- Ibeth Jaime Aguilar, Northwood HS
- Mark Bantle, SaddlebackValley USD
- Kathy Boyd, Orange USD
- Gustavo Chamorro, LA/OC RC
- Christine Cherry, CTEp
- Marilyn Cunneen, Huntington BeachUSD
- Marie Christie Dam, Prop 39 Director
- Linda DiMario, Irvine Chamber of Commerce
- Joe Erven, McPherson Magnet
- Jeff Farr, Foothill HS
- Bruce Feinstein, Irvine Valley College
- Jurate Foes, Irvine Valley College
- Debra Friedman, Saddleback Valley USD
- Annie Gao, Yale University
- Ajith Gopinathan
- Chris Harrington, CSU Fullerton
- Carol Hume, Coastline ROP
- Don Isbell, Santa Ana USD
- Patsy Janda, Irvine USD
- Jillian Johnson-Sharp, CTEp
- Raja Khabbaz, IEEE
- Merry Kim, Irvine Valley College
- Maria Madrigal, Digital Media Center
- Carolyn Larson, University HS
- Patricia Lim, Calit2, UC Irvine
- Grant Litfin, Tustin USD
- Chan Loke, Irvine Valley College
- Raul Manriquez & His Staff, University HS
- Beverly Matsuda, Northwood HS
- Connie Mayhugh, Huntington Beach UHSD
- Alisa McCord, OCDE
- Bruce Noble, DSN – Energy
- Tiffany Nguyen, Irvine Valley College
- Laura Ott, Saddleback Valley USD
- Connie Park, University HS
- Len Pettis
- Darin Petzold, Saddleback Valley USD
- Debra Richardson, UC Irvine
- Sarah Santoyo, Rancho Santiago CCCD
- Dejah Swingle, Mt. San Antonio College
- Ansel Teng
- Shirley Tseng
- Laurie Truong, Orange USD
- Keith Tuominen, Irvine USD
- Aurora Valencia, Irvine USD
- Michael Vossen, Newport-Mesa USD
- Peggy Webster, Newport-Mesa USD

Thank you to Irvine Valley College-ATEP, Irvine USD, University High School, CTEp, Newport-Mesa USD Office of College and Career Education, Coastline ROP, and UC Davis C-STEM Center staff, volunteers and participants in the fourth annual C-STEM Day in Orange County.

### **IRVINE VALLEY COLLEGE CAREER TECHNICAL EDUCATION (CTE)**

Career Technical Education (CTE) programs at Irvine Valley College are designed to prepare students for a high-skill, high-wage, high-demand career within the current job industry. Irvine Valley College offers over 30 career certificates designed for completion in two years or less. We welcome you to explore IVC's wide selection of outstanding Career Technical Education Programs, including Engineering, Biotechnology, Interactive Media Arts, Laser Technology and more. A Career Technical Education Counselor is available to assist you in exploring your educational and career options at Irvine Valley College. To schedule a counseling appointment with the CTE Counselor please call, 949-451-5592. For more info visit <http://academics.ivc.edu/cte>.

### **DOING WHAT MATTERS FOR JOBS AND THE ECONOMY**

Among the activities of the California Community Colleges Chancellor's Office, the programs of the Division of Workforce and Economic Development bridge the skills and jobs mismatch and prepare California's workforce for 21st century careers. The Division collaborates with employers, organized labor, local communities, and their community colleges

#### **The Opportunity**

The opportunity exists for community colleges to become essential catalysts in California's economic recovery and jobs creation at the local, regional and state levels.



#### **The Strategy**

Doing What MATTERS for jobs and the economy is a four-pronged framework to respond to the call of our nation, state, and regions to close the skills gap. The four prongs are:

- [Give Priority for Jobs and the Economy »](#)
- [Make Room for Jobs and the Economy »](#)
- [Promote Student Success »](#)
- [Innovate for Jobs and the Economy »](#)

## Goals

The goals of Doing What Matters for Jobs and the Economy are to supply in-demand skills for employers, create relevant career pathways and stackable credentials, promote student success and get Californians into open jobs.

## The Road Ahead

A focus on priority/emergent sectors and industry clusters; take effective practices to scale; integrate and leverage programming between funding streams; promote common metrics for student success; remove structural barriers to execution.

Californian community colleges are vital to the economy.

The California Community Colleges play an important role in boosting our state's economy by serving more than 2.6 million students a year. In fact, one out of four community college students in the U.S. is enrolled in a California community college, making it the nation's largest system of higher education.

Our 114 colleges provide students with the knowledge and background necessary in today's competitive job market. With a wide range of educational offerings, the colleges provide workforce training, basic skills courses in English and math, certificate and degree programs and preparation for transfer to four-year colleges and universities. In a difficult economy, a college education is critical. Our campuses also serve as a natural gateway for veterans seeking a degree or job skills to transition to civilian life.

## **INFORMATION & COMMUNICATION TECHNOLOGY - DIGITAL MEDIA**

Information Communications Technologies, ICT, and Digital Media are now integrated into almost every technology, industry and job. Consequently, understanding ICT and Digital Media as a sector requires that we look at the producers of and the users of ICT and Digital Media.

## **IEEE Orange County**



IEEE is the world's largest technical professional organization dedicated to advancing technology for the benefit of humanity.

[www.ieee.org](http://www.ieee.org)

## **BE A PART OF C-STEM**

The UC Davis Center for Integrated Computing and STEM Education (C-STEM) aims to transform computing, science, technology, engineering, and mathematics (C-STEM) education through integrated learning, guided by two key objectives: To close the mathematics achievement gap that exists in K-12 education, and to develop students' 21st century problem solving skills in order to tackle real world concerns.

The C-STEM program has been implemented across various regions in California, and will soon be implemented in new areas across the United States. The program only works when everyone is involved to help students succeed: parents, teachers, school administration, and community.

We are looking forward to seeing you become part of C-STEM in any of the following ways:

### **Volunteer your time:**

C-STEM events such as the RoboPlay Challenge Competition wouldn't be possible without volunteers. No experience required! In addition, if you are a C-STEM teacher, there are numerous ways you can help the C-STEM program, at your local district, at conferences, or at other events.

### **Make a donation:**

The C-STEM Center is currently looking for individual, corporate, and foundation sponsors to help fund C-STEM scholarships, events, and programs. We can work with you to design a sponsorship package that meets your needs and helps provide C-STEM programming and educational opportunities to more students across the nation.

### **Talk to others about C-STEM:**

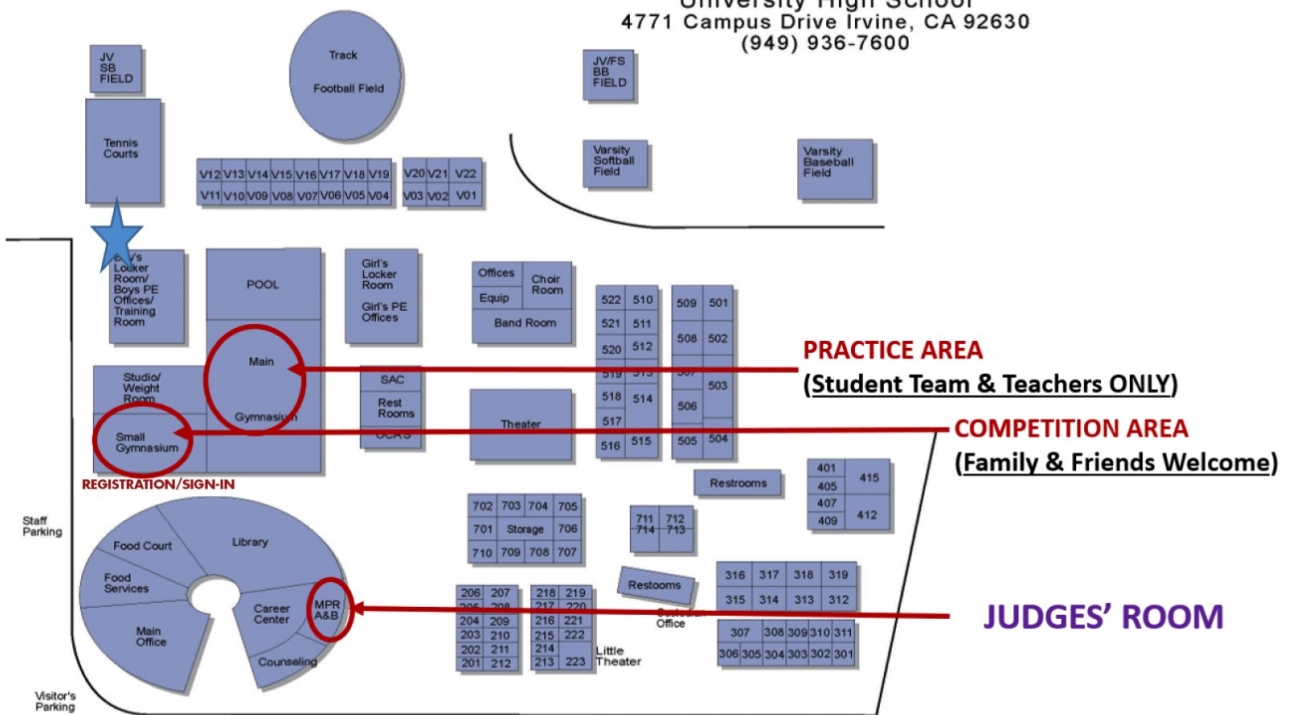
Help bring C-STEM programming to your local school and district! If you liked what you saw at the RoboPlay Challenge Competition and would like to see it in your child's local school and district, contact Dr. Harry Cheng, C-STEM Center Director and Professor, (530) 752-5020, hhcheng@ucdavis.edu. It also helps to talk to your teachers and principals at your schools and help us connect with them!



**C-STEM DAY RoboPlay Competition – Orange County**  
**A Program of UC Davis, organized by Irvine Valley College.**  
**Hosting Site:**

University High School  
 4771 Campus Drive Irvine, CA 92630  
 (949) 936-7600

**Culver Drive Entrance :**  
**STUDENTS, TEACHERS, JUDGES & VOLUNTEERS**  
**ENTER & PARK HERE**



**Campus Drive Entrance – Friends, Families and Community**  
**Members Enter & PARK HERE**

# UC DAVIS

## C-STEM Center

<http://c-stem.ucdavis.edu>



## Hewlett Packard Enterprise



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## UC DAVIS

### COLLEGE OF ENGINEERING



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# Barobo



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