ASABE CA/NV Section
Inaugural Student Rally

UC Davis 2020

ASABE CA/NV Section
Inaugural Student Rally Program
January 17 – 20, 2020

Key Contacts:
Hossein Edalati – (530) 220-2489
Tyler Barzee – (530) 638-6975
Lucy Knowles – (408) 513-7178
Vivian Vuong – (858) 610-6442

FRIDAY 01/17/2020

12:00 PM – 1:30 PM — **Arrival, hotel check in, lunch (not provided), Rally registration**

Check in to the hotel and grab lunch downtown or on campus. Park on campus (**Lot 47** is preferred) with a UCD Visitor permit ($10) available at kiosks in lots. Walk from parking lot to rally registration area in **1330 Bainer** Hall. See campus map at end of this document for more details.

1:30 PM – 2:00 PM — **Travel to the UC READ Facility**

28068 Co Rd 98, Davis, CA 95616

2:00 PM – 3:00 PM — **UC Davis READ Facility Tour**

Tour the UC Davis Renewable Energy Anaerobic Digester (READ). The UCD READ was developed by Professor Ruihong Zhang in the Department of Biological and Agricultural Engineering. Opened in 2012 in lieu of the landfill, the digester runs off digesting organic food waste produced by the UC Davis campus and local food processors to achieve zero campus waste by 2020.

https://bae.ucdavis.edu/about/facilities/renewable-energy-anaerobic-digester

Dr. Ruihong Zhang is a Professor in the Dept. of Biological and Agricultural Engineering at UC Davis and a leading expert in the fields of bioenergy and biofuel production, waste treatment, and environmental quality management and control. She has successfully transferred new technologies from her labs to commercial companies. She has > 300 scientific publications and 7 patents. She was recognized as the Phenomenal Faculty by UCD in 2014 and Engineering Innovator by the UCD College of Engineering in 2012. Dr. Zhang received her PhD degree in Agricultural Engineering from the University of Illinois at Urbana-Champaign in 1992. She then joined the faculty of Iowa State University in 1993 and the UCD faculty in 1995. Ruihong led and conducted innovative research and technology development on the production of bioenergy, biofuels, and biochemicals from agricultural, food, and municipal organic wastes, as well as energy crops. Dr. Zhang directed UCD Biogas Energy Project, an alliance between UCD and private industry for research and demonstration of new advanced anaerobic digestion and other technologies to convert a variety of organic residuals into biogas fuels and other valuable products. She earned the grade of ASABE Fellow in 2016.

3:00 PM – 3:30 PM — **Travel to Robert Mondavi Center**

Gateway Parking Structure (Visitor Parking Lot 2), UC Davis, CA 95616
(use permit purchased earlier)

3:30 PM – 4:30 PM

UC Davis Robert Mondavi Institute Tour

UC Davis RMI Jess S. Jackson Sustainable Winery - a large experimental fermentation area and enables students to learn both the principles and the practical applications of sustainability in viticulture and enology.

UC Davis RMI August A. Busch III Brewing Lab. The brewery has a large research facility in cooperation with Anheuser-Busch. The facility teaches students and commercial brewers the importance of beer and brewing as a complex and sophisticated process.

UC Davis RMI California Processing Tomato Industry Pilot Plant. The food lab handles food products such as tomatoes, olives, peaches, prunes, and more.

UC Davis RMI Milk Processing Lab. This lab carries bench-top research to the translational stages in which all the important milk components can be safely isolated and tested for bioactive activity.

https://rmi.ucdavis.edu/facilities

Jill Brigham is the Executive Director of the new UCD Sustainable Wine & Food Processing Center. The mission is to establish and advance best practice designs for high-efficiency food and beverage production. Jill will develop and manage a research portfolio addressing a broad variety of food and beverage industry needs in the areas of water and energy minimization, rainwater recovery and treatment, alternative energy generation, and byproduct recovery. She leads the development of technologies and processes necessary to enable the UCD Teaching & Research Winery to be fully self-sustainable and carbon neutral; generating 100% of power demand, capturing rainwater, recycling all winery process water and cleaning solutions, and capturing carbon dioxide emissions. Prior to joining UCD, Jill worked at NASAs Johnson Space Center where she managed projects and engineering teams developing a wide variety of aircraft and spacecraft systems. Jill has degrees in Computer and Systems Engineering and Electrical Engineering.

4:30 PM – 5:00 PM

Travel to Memorial Union

Park in North Entry Parking Structure, Howard Way, UC Davis, CA 95616

Walk to Memorial Union and go downstairs to Games Area

5:00 PM – 7:00 PM

Memorial Union Pizza and Bowling

7:00 PM – 8:00 PM

Optional Graduate Student Association (GSA) "Snacky" Hour

3rd & U Café (walk), 223 3rd Street, Davis, CA 95616

SATURDAY 01/18/2020

Sponsored by David's Engineering Inc. and California Safe Soils

8:30 AM – 9:00 AM

Registration

Pick up Rally registration packets in **Roessler 55**

Park in Lots 44 and 47 near Campus Data Center (weekend parking free)

9:00 AM – 9:10 AM

Welcome to the UC Davis Biological and Agricultural Engineering (BAE) Department (with Housekeeping and Ground Rules)

The Rally Committee

9:10 AM – 9:30 AM

Opening Statement by Andrew Skidmore, CSU Fresno

Andrew Skidmore is a former California State FFA President, public speaking champion, and American Farmer Degree holder who now attends CSU Fresno and serves as their ASI Senator at Large. He is very involved in local and state agricultural organizations such as California Farm Bureau Federation. He has filed for a provisional patent and hopes to grow his talents in engineering at CSUF. Andrew recently earned the Sigma Alpha Epsilon Cal Iota Gentleman of the Year award. https://andrewlskidmore.com/

9:30 AM – 9:50 AM

Welcome, UCD, & Bainer Hall Overview

Department Chair, Professor Bryan Jenkins, (https://faculty.engineering.ucdavis.edu/jenkins/) teaches and conducts research in the areas of energy and power, with emphasis on biomass and other renewable resources. He has more than thirty years of experience working in the area of biomass thermochemical conversion including combustion, gasification, and pyrolysis. His research also includes analysis and optimization of energy systems. He teaches both graduate and undergraduate courses on energy systems, heat and mass transfer, solar energy, and power and energy conversion, including renewable energy and fuels, combined heat and power systems, economic analysis, and environmental impacts. Prof. Jenkins is a recipient of an Outstanding Achievement Award from the U.S. Department of Energy for exceptional contributions to the development of bioenergy, and the Linneborn Prize from the European Union for outstanding contributions to the development of energy from biomass. He is a Fellow of the American Society of Agricultural and Biological Engineers (ASABE).

9:50 AM – 10:00 AM

Walk from Roessler 55 to Bainer 1330

10:00 AM – 12:00 PM

Department Open House: Bainer 1330

Lab Tours:

1308 Bainer Hall: Food Engg Lab with gastric simulator and spray dryer.

More TBA

Engineering Shop Tour: Bainer 1329

12:00 PM – 12:30 PM

Travel from Bainer to Joe A. Heidrick Western Center for Agricultural Equipment

154 Hills Drive, Davis, CA 95616

https://bae.ucdavis.edu/about/facilities/western-center-for-agricultural-equipment

12:30 PM – 1:00 PM

Lunch/Networking

Buffet style lunch catered by Chickpeas

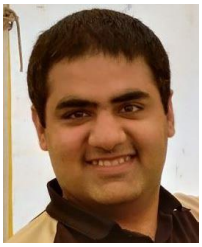
1:00 PM – 1:30 PM

Professional Engineering Licensure by ASABE Young Professionals Community (YPC)

Gayle Baker, PE, received her B.S. in Agricultural and Biosystems Engineering from Iowa State University in 2010. While at ISU, she worked on research on anaerobic digestion and laboratory methane potential tests. Her career started with Illinois USDA-NRCS as a Field Engineer designing soil and water conservation practices, reviewing agricultural waste nutrient plans, and assisting field office staff with design and training needs. In 2014, Gayle became focused on animal waste planning and design with Maurer-Stutz, Inc in Peoria, IL. Gayle is a Professional Engineer (PE) in Illinois, Iowa, Missouri, and Minnesota. A member of ASABE for 13 years, Gayle is the Vice-Chair of the Young Professional Community (YPC) and the coordinator for the student Fountain Wars Competition. Gayle is involved with Illinois Farm Bureau, Illinois Agri-Women, and Illinois Beef Association. Gayle, her husband Jacob, and daughter Brooke, live in west central Illinois on their grain and beef farm.

Noel Menard is a 2013 graduate of the University of Nebraska-Lincoln with an Undergraduate degree in Agricultural Engineering. She works for John Deere in Waterloo, IA as a Test Engineer for 6 and 7R Series Tractors. She has been employed at Deere for 9 years including Quality Engineering at JD Seeding in Valley City, ND and Drivetrain Operations in Waterloo as well as Warranty Analysis at JD in Waterloo.

Noel has been a member of ASABE for 10 years, serving in a variety of leadership roles in the University of Nebraska's Student Chapter and within the YPC including Meetings Council Rep., Standards + Technical Committee Rep., and now as YPC Chair.



Dr. Sushant Mehan's expertise is in hydrologic modeling focused on solving water resources problems. In his professional career, he has been involved in numerous large-scale computer modeling and field-based studies, including assessing the impact of changing climate on hydrology, sediment, and nutrient fate and transport. Hailing from Purdue University (2018), he is skilled in programming languages such as Python and R, and statistical software packages like SAS and JMP for data mining, analysis, visualization, and interpretation. Sushant has experience developing decision-support frameworks for agricultural and environmental applications using advanced technologies, including remote-sensing data and Geographical Information Systems (GIS). Dr. Mehan is the lead modeler for a California Central Valley project to assess the impact of agricultural management practices on nitrate loading to groundwater. He is an expert in using the Soil & Water Assessment Tool (SWAT) and has incorporated improvements to this model. Sushant has been invited to present at national and international conferences, and serves as a journal reviewer. Dr. Mehan is skilled in hydro-informatics, hydro-meteorology, hydrologic modeling, fate and transport of sediments and nutrients in aquatic ecosystems; and water quality and remediation.

1:30 PM – 2:00 PM

Keynote Address: Applying Eng to Bio/Ag/Chem by Bill Orts, USDA ARS

Bill Orts is the Bioproducts Research Leader for USDA Agricultural Resource Service (ARS) in Albany, CA (https://www.ars.usda.gov/people-locations/person?person-id=4240) with experience in bioproducts from agricultural feedstocks, technologies for improving industrial biorefineries, optimization of end-use applications for almond and walnut shells, production of environmentally friendly PHA biopolymers, and more. Bill has been on the UCD BAE Advisory Board since its beginning.

2:00 PM – 2:45 PM

Order of the Engineer/Engineering Trivia Bowl

Those who signed up for the Order of the Engineer will participate in the induction ceremony.

Participate in Engineering Trivia, prizes will be given to the highest scoring students.

Dr. Peter A. Livingston is the Cal Poly BioResource & Agricultural Engineering (BRAE) Department Head. He comes to San Luis Obispo from University of Arizona, Tucson, where he was Associate Professor of Practice in the Agricultural and Biosystems Engineering Department. Peter has > 35 years of professional experience in agricultural and water resources engineering, as well as natural resources planning, holding a B.S. from University of Arizona, M.S. from Colorado State University, and Ph.D. from University of Arizona. Peter has worked for a large international consulting firm, an Indian Nation, and started two firms; left the first to finish his Ph.D. and started Bosquee Engineering to use his experience in agricultural design. Dr. Livingston brings experience in attracting industry projects/funds to, as well as mentoring, Senior Design Projects. He also has experience securing USDA grants for research and inter department and university research experience, looking forward to working with centers and departments on campus and with other universities. Peter is a commissioner for the Accreditation Board for Engineering and Technology (ABET). With his wife, Sue, he raises various exotic animals and brought the alpacas to CA.

2:45 PM – 4:00 PM

Engineering Design Competition (EDC)

Students will be given materials to complete a task. Prizes will be awarded based on technical fulfillment of the task and style.

4:00 PM – 4:30 PM

Judging EDC

Closed session

4:30 PM – 5:00 PM

Travel to the University Park Inn for Dinner

1111 Richards Boulevard, Davis, CA 95616

5:00 PM – 5:30 PM

CA/NV, WAE, ASABE AIM Updates

ASABE CA/NV Officers and Paul Burkner, ASABE BOT

5:30 PM – 6:45 PM

Career Panel

Gayle Baker, Byron Clark, Daniel Voit, and Marcin Whitman

Marcin Whitman, PE, started his career in Naval Architecture and Marine Engineering, consulting to the offshore oil industry and the Department of Defense but soon felt he could make a more meaningful contribution working on the interface between fisheries and engineering. After getting a graduate degree at UC Davis, he started the engineering department for the Southwest Region of NOAA National Marine Fisheries Service (NMFS) where he worked for 9 years with some international consulting interspersed. From 1998- 2018 he was the coastal engineer for California Fish and Wildlife (CDFW), specializing in open channel flow and fluid mechanics but often drawn into issues of fluvial geomorphology. Since retiring from CDFW, he has been consulting part-time on fish passage (fish ladders, fish screens and bypasses), stream/road crossings, and dam removal. Most of his work has been design and design review with some time spent on expert witnessing, lectures, and policy development (e.g Congressional Office of Technology Assessment, Aspen Institute, White House). Marcin holds degrees in Naval Architecture, Marine Engineering, Aquaculture Engineering (UC Davis), and Marine Biology. He is, or has been, a member and/or officer of professional societies such as Society of Naval Architectures and Marine Engineers, World Aquaculture Society, Aquaculture Engineering Society, American Fisheries Society, and American Society of Civil Engineers.

Daniel Voit is President and CEO for Blentech Corporation (www.blentech.com) – a world leading supplier of custom, automated, and engineered food processing equipment solutions for the prepared foods, ready meal and restaurant commissary businesses. He has also served as COO, VP of Engineering, Technical Services Manager, and Applications Engineer. He has a broad basis understanding of all aspects of manufacturing and food process. Under Daniel's leadership, Blentech has expanded its product line to include advanced automation solutions designed specifically for industrial food production applications. This includes the Cooker Cloud remote reporting service and the recipe analyzer system. Prior to joining Blentech, Daniel held positions in R&D with Frito Lay and Quality Assurance with Norpac Foods. He also worked internationally consulting in Central America and, while a graduate student at UC Davis, worked on a NASA funded study to design and build a Multi-Purpose Fruit and Vegetable Processor for a Manned Mission to Mars. Within the industry, Daniel is an advocate for Food Science as past chairman of the UC Davis Food Science Leadership Board and Chair of the Prepared Foods Council of FPSA. Daniel holds an MS degree in Food Processing from UC Davis and a BS degree in Food Science from Oregon State University.

Byron Clark, PE, Project Manager and Principal Engineer for Davids Engineering, Inc. (www.davidsengineering.com) in Davis. Byron is a native of Willows, California, halfway between Sacramento and Redding. After graduating from the UCD Bio and Ag Engineering program, he has worked as an agricultural water management consultant since 2001. Byron has worked in many of the primary irrigated regions of California, including the Coachella and Imperial Valleys, the San Joaquin Valley, the Sacramento Valley, and the Klamath Basin. As a principal engineer with Davids Engineering, based in Davis, he is involved in agricultural water management planning, implementation of the Sustainable Groundwater Management Act, and several other water management initiatives. His clients include agricultural water suppliers, state and federal agencies, and non-governmental organizations. Key aspects of his work include finding win-win solutions allowing agricultural water users to enhance service to their customers while improving water supplies for urban users and the environment.

Gayle Baker, PE, received her B.S. in Agricultural and Biosystems Engineering from Iowa State University in 2010. While at ISU, she worked on research on anaerobic digestion and laboratory methane potential tests. Her

career started with Illinois USDA-NRCS as a Field Engineer designing soil and water conservation practices, reviewing agricultural waste nutrient plans, and assisting field office staff with design and training needs. In 2014, Gayle became focused on animal waste planning and design with Maurer-Stutz, Inc in Peoria, IL. Gayle is a Professional Engineer (PE) in Illinois, Iowa, Missouri, and Minnesota. A member of ASABE for 13 years, Gayle is the Vice-Chair of the Young Professional Community (YPC) and the coordinator for the student Fountain Wars Competition. Gayle is involved with Illinois Farm Bureau, Illinois Agri-Women, and Illinois Beef Association. Gayle, her husband Jacob, and daughter Brooke, live in west central Illinois on their grain and beef farm.

6:45 PM – 7:00 PM	**Group Photo**
7:00 PM – 8:00 PM	**Rally Business Meeting, Student Chapter Updates**

SUNDAY 01/19/2020

Sponsored by Ag Industrial Manufacturing

9:00 AM – 9:30 AM — **Travel to California Safe Soil**

4700 Lang Avenue, Bay C, McClellan Park, CA 95652

9:30 AM – 10:30 AM — **Tour California Safe Soil**

Steve Zicari, PE Chief Technology Officer at California Safe Soil (CSS) transforms food and agricultural wastes into fertilizers, feed, fuels, and sustainable bioproducts. He drives innovation in CSS's production processes, runs the production and product R&D efforts, and oversees the QA/QC program. He holds a PhD in Biological Systems Engineering from UC Davis and a PE in Ag Engineering and previously worked on pilot and commercial anaerobic digestion and bioethanol projects. https://www.calsafesoil.com/

10:30 AM – 11:30 AM — **Travel to Ag Industrial Manufacturing**

110 Beckman Road, Lodi, CA 95240 (Park on-site)

11:30 AM – 2:00 PM — **Lunch & Tour of Ag Industrial Manufacturing**

Paul Burkner, PE, President of Ag Industrial Manufacturing in Lodi, CA. The Stockton native earned his B.S. from Cal Poly SLO in Agricultural Engineering in 1964 and M.S. from University of Hawaii in 1966. Paul earned his PEs in Mechanical Engineering and Agricultural Engineering while working for USDA ARS until 1976 and then Poly Ag, Inc. until AIM incorporated in 1979. He is one of two partners of AIM, Inc. a small manufacturer specializing in "one off" and short run production of specialized ag and industrial equipment. Over the last few years, AIM has developed a niche in winegrape equipment such as the GH 9000 grape harvester, grape gondola, and various pruners. Other equipment is imported and modified to fit California and West Coast vineyard conditions. We employ > 30 full time staff in the complete machine shop, 12 welding stations, and computerized flame cutting equipment along with hydraulic repair and assembly. As President of AIM, Inc., Paul's primary responsibility is the design of the many new pieces of equipment that AIM sells or builds for customers. The design work is primarily done on CAD with an employee inputting the information on a full time basis on one of 3 engineering computer stations. Paul maintains the shop schedule by coordinating drawings, material, machines and people so projects are completed in a timely manner. His spare time is devoted to sales directly to growers locally and abroad or through dealers in California, Oregon, and Washington with occasional special procurement for some overseas customers. AIM exhibits annually at major West Coast ag equipment trade shows including the World Ag Expo in Tulare, California, the largest of its kind in the world with over 1,500 exhibitors that attract several hundred thousand visitors in a 3 day time span. Paul has been an active member of the ASABE since 1964, was inducted as a Fellow in 2009, and is now on the Board of Trustees. Paul also has a pilot's license and Class I driver's license.

2:00 PM – 2:30 PM

Travel to San Joaquin County Museum

Micke Grove Regional Park, 11793 N. Micke Grove Road, Lodi, CA 95240

Pay $6 for parking, enter the park, turn left around the roundabout, turn left at the tee, turn left into the parking loop, and park in front of the San Joaquin County Museum entrance.

2:30 PM – 4:30 PM

San Joaquin County Museum Tour

Take some time to tour the San Joaquin County Museum (http://www.sanjoaquinhistory.org/) including an ASABE historic landmark. The San Joaquin County Historical Museum reveals the rich heritage of the region, from the Miwok and Yokuts Indians through Charles Weber (founder of Stockton and first farmer in the area) and the development of modern agriculture. The Museum has eight exhibit buildings and four historic buildings, including the 1848 Weber house and the 1866 Calaveras School. Exhibits include room dioramas of Weber family furnishings, a children's activity area, and large displays of hand tools and historic agricultural equipment. The 18-acre grounds include the Sunshine Trail living exhibition of native habitats and the Delta Water Path.

4:30 PM – 6:00 PM

Rally Business Meeting, Design Competition Awards, Dinner

At San Joaquin County Museum

MONDAY 01/20/2020

Sponsored by Carolyn M. Jones PE

9:00 AM – 9:30 AM

Travel to the Solano Irrigation District (SID) in Vacaville, CA

810 Vaca Valley Parkway, Suite 201, Vacaville, CA 95688

9:30 AM – 10:30 AM

Solano Irrigation District

Paul Fuchslin, PE, is the Director of Engineering at Solano Irrigation District (SID, www.sidwater.org) in Vacaville, CA. He is a registered Professional Civil Engineer who received his BS in Agricultural Engineering at Cal Poly, SLO and much later achieved a Masters of Management/Public Administration from the University of Phoenix. For the last 19 years Paul has worked for SID. Prior to SID Paul was an irrigation management consultant and grew up in a family business for livestock transportation. Paul was also a past ASABE CA/NV Section Chair. Paul is known as a resource for engineering principles as it relates to agricultural applications (hydraulics in canals & pipelines, pumping plants, irrigation practices, evapotranspiration, etc.). In addition, Paul has spent significant time mitigating urban developmental impacts to District agricultural facilities, negotiating agreements with developers and cities, and most importantly maintaining strong and positive relationships with partner agencies and cities. Some fun projects completed: software program module to calculate crop ET based on real time CIMIS ET data and compare to actual crop use for inclusion in monthly billings; project manager for the construction of the District's new office and shops; spending about $4 million a year on ag

pipeline rehabilitation and canal automation projects; more than $20 million rehabilitating a water treatment plant for Suisun City; and get to work with some really fun people! pfuchslin@sidwater.org or 707-455-4020.

10:30 AM – 11:30 AM **USDA NRCS in California**

Carolyn M. Jones, PE, grew up in FFA and 4-H in Yolo County with an interest in math, the sciences, and agriculture. She earned a B.S. in Biosystems Engineering from UCD in 2001 and joined USDA Natural Resources Conservation Service (NRCS). Starting in the State Office in Davis, she transitioned to the Napa Field Engineer, and now Bay/Delta Team Agricultural Engineer with a brief detail as State Conservation Engineer. She earned her PEs in Agricultural Engineering and Civil Engineering and assists farmers, ranchers, dairy producers, and the public to address natural resource concerns as part of a multidisciplinary team. She handles projects from planning through implementation. Projects are often in irrigation, manure management, roads and stream crossings, stream and wetland restoration, erosion control, ponds, and livestock water systems. Carolyn has been active in ASABE at the Section level as Chair and at the international level as a YPC officer, member of the Board of Trustees (2009-2011), member of numerous technical and standards committees, etc. She's served on the UCD BAE Advisory Board since 2012.

11:30 AM – 12:15 PM **Banks Integration**

Gary Powell, PE, is the Vice President of Banks Integration Group (www.banksintegration.com) in Vacaville, CA. Gary was born and raised in Portola, a small agricultural and forestry town. In 2013 he graduated from UC Davis with a B.S. in Biosystems Engineering where he won an ASABE poster competition for his glucose biosensor senior capstone project and worked for the UCD Museum of Wildlife Biology doing taxidermy. At Banks Integration Group, his career has grown from intern to automation engineer to group engineering manager where they automate biotech and pharma manufacturing processes. He is a member of the UCD BAE Advisory Board. In 2015, Gary was named an Engineering Leader Under 40 by Control Engineering Magazine. He was PMP Certified in 2019 for Project Management and is pursuing an MBA through CSU Sacramento's Executive MBA program.

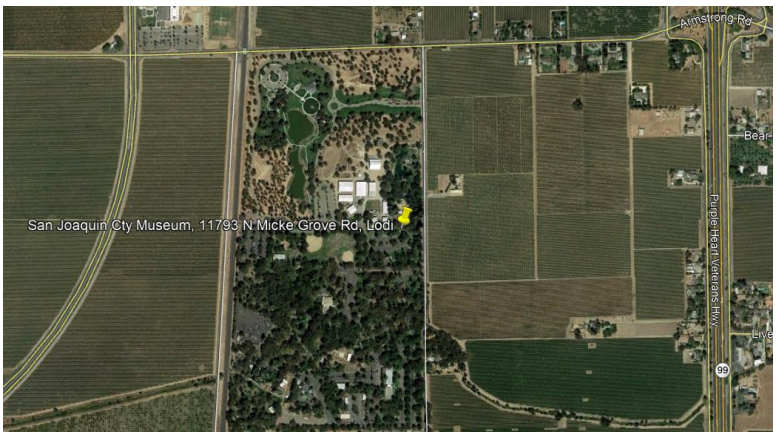
12:15 PM – 1:00 PM **Genentech**

Mike Chan graduated from the UCD Dept. of Biological and Agricultural Engineering (BAE) with a B.S. and M.S. in biological systems engineering in 1998 and 2002, respectively. He started his career in the food industry as an engineer at General Mills. Now a senior manager at Genentech (www.gene.com), a leading biotech company in South San Francisco, Mike leads a team of > 20 engineers and managers that directly support the manufacture of biologics, which includes a wide variety of products that treat several disease areas. Mike has been actively involved with the UCD BAE Dept for several years, most recently as chair of the UCD BAE Advisory Board.

MAPS

Friday & Saturday - UC Davis Map

Sunday – Sacramento & Lodi Map



Monday – Vacaville Map