



**California/Nevada Section
Bimonthly Update
November 30, 2020
Eighty-Ninth Edition**

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❖ **Industry Spotlight: Engineers and Almonds Help Make Thanksgiving Sweeter!**

Thanksgiving has just passed, but have you ever wondered how, as Agricultural and Biological Engineers (ABEs), we contribute to making this special day sweeter? Almonds are a great example! Almonds make Thanksgiving dishes and desserts extra special, healthy, nutritional, and sweet! They are used whole, blanched, sliced, and slivered. They are processed into paste, flour, extract, and butter. We would like to take this opportunity to describe the importance of this industry to California and a few of the ways ABEs have and continue to work to shape and impact it.

[According to the California Department of Food and Agriculture \(CDFA\) 2018-2019 Agricultural Statistics Review](#), “California’s farms and ranches received more than \$50 billion in cash receipts for their output.” After, milk/cream (1st) and grapes (2nd), shelled almonds were the third biggest agricultural commodity (\$5.5 billion) and the top agricultural export (\$4.5 billion). California farmers account for 78% of global and 100% of US almond production, growing about 1.2 million tons of almonds annually. In addition to delicious, healthy, and nutritious almonds, orchards also produce hulls, shells, wood, and trees that are used to for energy and alternative value-added products that contribute to the reduction of our environmental footprint.

Sustainable production wouldn’t be possible without the support of engineers, their research, and extension programs. In 1900, 40 percent of the US population (76.1 million) lived on farms, and 60 percent lived in rural areas. By the year 2000, the US population had grown to 282 million, and the respective figures were only 1 percent and 20 percent ([Blog of Dr. Jayson Lusk](#) and [USDA, 2005](#)). Farms have grown more productive in that time and grow more with less inputs. Agricultural and Biological Engineering is the life sciences-based engineering discipline that integrates life sciences with engineering in the advancement of agricultural and biological systems, such as almond production and processing, from molecular to ecosystem levels. We discover, develop, apply, and disseminate knowledge for the sustainable production, management, and use of agricultural and biological materials, and educate students, farmers, and food producers to perform this work. Agricultural and Biological Engineers are typically presented with a challenge: for example, how can we reduce the amount of water required to produce almonds? We then use

engineering methods to evaluate and adapt production strategies, like determining if micro-irrigation could feasibly replace conventional flood and sprinkle irrigation methods.

The following, are a few examples of the impact of Agricultural and Biological Engineers in the effort to improve almond production practices throughout the whole life cycle, while minimizing environmental impacts, identifying health benefits from almond consumption, ensuring food safety and quality, and identifying alternative uses of the orchard biomass:

- **The role of USDA NRCS in helping the almond industry:** Agricultural and Biological Engineers employed by the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) provide technical and financial assistance to almond producers seeking to apply conservation practices to their properties to address identified resource concerns. NRCS works to conserve soil, water, air, plant, animal, and other resources using a suite of Conservation Practice Standards.

NRCS standards require that irrigation systems apply water uniformly without excessive erosion, water loss, reduction in water quality, or salt accumulation. Many farmers have found that installing drip, microsprinkler, or sprinkler irrigation systems can help improve the uniform application of water in their orchards. Often, these systems are implemented for water conservation and can result in improved production. NRCS engineers review designs provided by Certified Irrigation Designers (CIDs) to ensure they meet NRCS standards, and NRCS engineers have also been known to develop irrigation system designs.

In California, Irrigation Water Management (IWM) must also be included with irrigation systems funded by NRCS. IWM is defined as the process of determining and controlling the volume, frequency, and application rate of irrigation water (“when and how much”) in order to meet the objective of increasing water use efficiency while maximizing crop yields. NRCS assists producers with IWM by developing a plan to guide irrigators in the adoption of methods and tools for irrigation management. The IWM plan must include a tool, generally a flow meter and a network of soil moisture sensors, which the irrigator can use to determine when to irrigate and how much water to apply.

USDA NRCS also provides financial assistance through the Field Operations Emissions Reduction practice. This practice helps producers upgrade to “low-dust” harvesters, “clean harvest” pick-up machines, or to replace diesel irrigation pumps with electric pumps in order to help the industry achieve its goal of reducing dust generation during harvesting by 50 percent by 2025. Current almond harvesting practices involve shaking almonds to the ground, natural drying, and picking them up. The picking up step generates a large amount of dust, polluting the air and impacting the health of people over a wide area.

These are just a few ways NRCS can help. There are many other ways that the NRCS can help producers on the landscape. Contact your local NRCS office (www.ca.nrcs.usda.gov) if you are interested in developing a plan with them! And, remember...*NRCS assistance helps people help the land!*

- **Development of a tree-planting site-specific fumigant applicator:** A multidisciplinary collaboration between [Dr. Greg Browne](#), a USDA Agricultural Resource Service (ARS) Scientist, and [Professor Shrini Upadhyaya's](#) research team in the Biological and Agricultural Engineering (BAE) Department at UC Davis yielded a tree-planting site specific fumigant applicator, which can apply a small amount of fumigant in the vicinity of a future tree planting site to control for replant disease. The system was extensively tested, and the results showed the possibility of reducing the fumigant input by a large amount. *This is great for the almond farmers and our environment!* A commercial

version of the system has been developed in collaboration with TriCal Inc., a distributor and applicator of soil conditioning and fumigation products.

- **System to measure absorption of PAR from the almond orchard canopies:** In another project, Dr. Upadhyaya's research team, working with Extension Specialist in the Department of Plant Sciences at UC Davis, [Dr. Bruce Lampinen](#), have developed a system to measure absorption of photosynthetically active radiation (PAR) from canopies of almond orchards. The system has been widely used all over the state and a large amount of data has been collected to determine potential almond orchards yield. The data obtained from this system can also be useful in implementing precision irrigation, therefore reducing the amount of water used to irrigate commercial almond orchards.
- **Real-time, proximal leaf monitor:** Dr. Upadhyaya and his research team, has also developed a real-time, proximal leaf monitor to detect plant water status. The monitor, integrated into a compact, sensor suite for environmental conditions, resolves the temporal issues related to continuous sensing of plant water status. The system has been shown to potentially reduce water use in almond production by 30%. This system has been patented and licensed and is in the early process of commercialization.
- **Finding the balance between ecosystem health and the water demands of the almond industry:** Producing crops requires water, and almond production is no different. But keeping California's streams and groundwater reservoirs amply supplied with clean water is also important. Working to balance the two is just one of Professor Tien-Chieh Hung's areas of interest. Dr. Hung is the current [Director in the Fish Conservation and Culture Laboratory](#) and [Adjunct Assistant Professor](#) in the BAE department at UC Davis. Dr. Hung and his team is applying aquaculture engineering to conserve endangered and threatened local native species. For example, his lab holds a refuge population of the endangered Delta smelt (*Hypomesus transpacificus*) and propagate the fish, as a safeguard from extinction. Dr. Hung's lab has several research and collaborative projects working on finding a balance between maintaining the ecosystem in the Delta and the use of water for agricultural purposes, including the almond industry.
- **Recycling almond hulls and shells as value added byproducts, Part 1:** Due to the challenges and uncertainties of using almond shells and hulls as feed supplements in the dairy industry, [Dr. Jesus D. Fernandez Bayo](#) laboratory in the BAE department at UC Davis is investigating novel ways of adding value to these byproducts. Almond hulls and shells have proven to be a suitable and sustainable tool to control soil borne pathogens such as lesion nematode in a pre-planting almond orchard through biosolarization.

Almond hulls and shells used as soil amendments during biosolarization (photo courtesy of Dr. Fernandez Bayo)



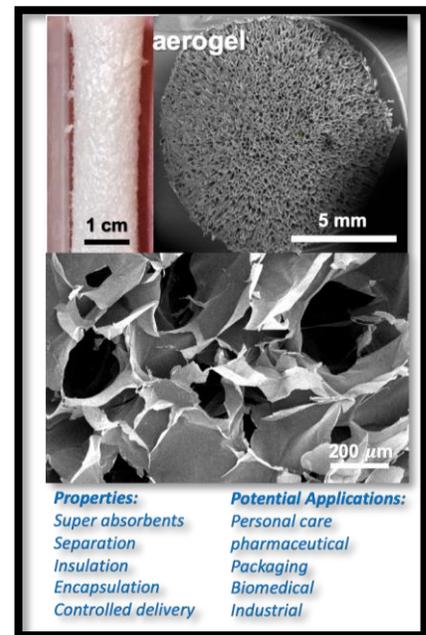
Furthermore, Dr. Bayo's team has been able to develop new engineering condition under which these byproducts can be composted by also serving as viable feedstock to raise black soldier fly (*Hermetia illucens*) larvae, which can then be fed as supplements during chicken production. If you don't believe us, look at the following photo...Nice!



Almond hulls and shells byproduct used as Feedstock to grow black soldier fly larvae (photo courtesy of Dr. Jesus D. Fernandez Bayo)

Through these processes, almond byproducts are converted into higher value products for nutritious protein and fat to feed animals and a high-quality soil amendment.

- Recycling almond hulls and shells as value added byproducts, Part 2:** So, now we know that byproducts such as shells and hulls can be used as soil amendments, compost, an energy generation feedstock, and feedstock for insects and other animals. But, what if we tell you that these byproducts can also be transformed into renewable functional materials such as fibers, films, coatings, hydrogels, organogels, and aerogels to develop an array of industrial and consumer products. Well, this is exactly what [Distinguished Professor You-Lo Hsieh](#), from the Textiles Graduate Group in the BAE department at UC Davis, has been working on. Professor You-Lo Hsieh has studied efficient and effective ways of extracting cellulose nanofibrils from almond shells and hulls, offering one of the highest valued-added valorization of almond byproducts. *Are we ready to package our delicious almonds using almond aerogels? We are almost there, as can be seen in the following image.*



Aerogels from almond shells & hulls nanocelluloses (photo courtesy of Dr. Jesus You-Lo Hsieh)

- System for handling and drying off-ground harvested almonds:** When it comes to dust production during almond harvesting, engineers are offering alternative solutions to further improve Field Operations Emissions Reduction practices. Off-ground harvesting of fresh almonds is a potential alternative solution, but requires additional drying to prevent the almond fruit from spoiling. [Dr. Zhongli Pan's](#) team in the Department of Biological and Agricultural Engineering at UC Davis has developed a new integrated postharvest technology to handle and dry off-ground harvested almonds. The patent pending technology includes presorting based on aerodynamic and physical properties, hulling, and drying of in-shell almonds. Since the almond hull has much higher moisture content than the shell and kernel, the new technology can save up to seventy percent of energy for drying and significantly improve throughput. Drying using high temperature air can also kill the insects in almonds. Dr. Pan's team is working the industry to commercialize the technology.

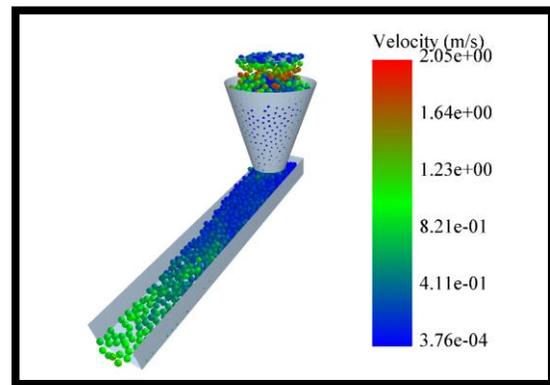
- Facilitating off-ground harvesting in the field:** Parallel to Dr. Pan's work, [Dr. Irwin R. Donis-González's](#) an Extension Specialist in the field of Postharvest Engineering in the BAE Department at UC Davis and his team are collaborating with industry partners, other engineers in the US and around the World, such as [Professor Reza Ehsani](#) in UC Merced Department of Mechanical Engineering, and [Dr. Michael Coates](#), an engineering scientist in the Plant & Food Research Institute in Australia. They are investigating opportunities to modify existing harvesting equipment to facilitate dust-less, off-ground harvesting of almonds. In addition, they are developing the technique to properly dry fresh almonds in stockpiles, directly in the field or while resting before hulling. Drying almonds in stockpiles will not require further infrastructure development, it is inexpensive, adaptable to different stockpile dimensions and environmental conditions. *Look at the photo below, Yum! – All of those sweet almonds are ready to be dried in their own stockpile drier!*



Setup of a 7-ton almond stockpile to safely dry almonds adjacent to the orchard floor (photo courtesy of Dr. Irwin R. Donis-González)

- Using DEM to understand almond processing and reduce kernel damage:** Before almonds are packaged as kernels, harvested almonds go through several mechanical processes during hulling and shelling. A large percentage of almond kernels are damaged during processing. Kernel damage could be reduced by improving processing machinery. A proper understanding of machine-material interaction is required for improved machinery design and reduce kernel damage. This is why [Dr. Mohammad Sadek](#), an Assistant Professor at the BioResources and Agricultural Engineering (BRAE) Department at California Polytechnic State University in San Luis Obispo (Cal Poly), focuses on understanding the dynamics of almond kernel flow during mechanical processing, using discrete element modeling (DEM). DEM is capable of generating particle level information by reflecting the behaviors of the real-life machine-material interaction, therefore reducing cost and shortening the prototyping phase during equipment development. The following image shows the velocity profile of almond kernels (each particle) on a conveyor belt. Other parameters, such as force, stress, kinetic energy, and contact can be extracted for further analysis and can define machinery development – *How cool!*

Almond (kernel) velocity profile on a conveyor belt
(photo courtesy of Dr. Mohammad Sadek)



- Investigating almond roasting conditions to improve storage:** Release of oil from almonds due to damaged cellular structures can degrade the quality of products that incorporate almonds, such as granola bars. Therefore, Professor and Engineer, [Dr. Nitin Nitin](#) in the Departments of Biological and Agricultural Engineering, and Food Science and Technology at UC Davis and his team are investigating the effects of different processing conditions on the microstructure of almond tissue and quantify these changes using imaging. They determined that oil-roasting processes (140 °C and 150 °C) have a significant impact on the microstructure of almonds when compared to the hot air-roasting and blanching processes. Oil-roasted almond at 150 °C had a greater cellular damage due to cell wall and membrane rupture. These changes in the microstructure of almonds would make them more susceptible to release oil during storage. The image analysis presented allows quantitative evaluation for the effect of different processing on almond microstructure and quality – *Thank you Dr. Nitin and team for keeping our almonds oily... Remember, almond oil is good for you!*

So the next time somebody asks you – *What does a Biological and Agricultural Engineer do? You can answer...Well, we definitely help make Thanksgiving sweeter.* Although we all know that we do much more!

Are you a Biological, Agricultural, Food, or other related Engineer? Have you, your school, or company been working on topics related to Almond production? We would like to hear your stories. Please contact Dr. Irwin R. Donis-González at irdonisgon@ucdavis.edu.

❖ California-Nevada Section Membership Update

As of November 1, 2020, the section has 271 registered members. The section has added 46 new members since January 1, 2020.



Remember to renew your ASABE membership for 2021 by Nov 19 to be entered into a drawing for one of ten MasterCard \$50 gift cards. Paying your dues is easy. Simply log into your record from www.asabe.org and click the "Renew Now" box to access your invoice. You may also call (800) 371-2723 or (269) 932-7028 to pay your dues. If you would rather wait for a copy of your invoice by mail, it will be sent to you by mid-November.

To continue to expand our section programming, please consider adding \$20 as voluntary dues for the CA/NV Section. Your generosity is greatly appreciated.

❖ Announcement: 2021 ASABE CA-NV Virtual Student Rally; Jan 16-17, 2021

After an immensely successful inaugural Student Rally held last year at UC Davis, this year's student rally, hosted by CalPoly, is going virtual. What is a Student Rally, you ask? The ASABE CA/NV Section Student Rally is an event where students through the Section can participate in a weekend filled with social and professional activities designed to expand their network and aid in career development in Agricultural and Biological Engineering and related technological fields.

Student rallies are a perfect time to learn about undergraduate and graduate opportunities at Section colleges and universities and explore job opportunities in our field with in-person industry, government, and academic representatives.

This year's Student Rally will take place virtually from Saturday, January 16th to Sunday, January 17th, 2021. Activities will include:

- Industry Tours and Q&A
- Career Panels
- Leadership Presentations
- Licensure and Ethics Discussions
- Friendly challenge competitions
- Social and professional networking

This is a valuable event for students in Agricultural and Biological Engineering and related fields. Updates will be posted on the Student Rally website: <https://asabecanv.wordpress.com/rally/>. For questions, please email Student Rally Executive Committee President, Jose Amezcua (jcamezcu@calpoly.edu) or the Section (asabecanv@gmail.com).



2021 ASABE CA-NV STUDENT RALLY

ASABE

SAVE THE DATE:
JANUARY 16-17, 2021

HOSTED VIRTUALLY

The flyer features three photographs: a green tractor in a field, a group of people gathered around a table, and a large group photo of students and professionals in front of a building.



WHAT IS A STUDENT RALLY?

The ASABE CA/NV Section Student Rally is an event where students throughout the ASABE CA/NV Section are invited to join us for a weekend filled with social and professional activities designed to expand your network and aid your career development in Agricultural and Biological Engineering and related technological fields. Student rallies are a perfect time to get to know your colleagues, learn about undergraduate and graduate opportunities at Section colleges and universities, and explore job opportunities in our field with in-person industry representatives. Due to COVID-19 restrictions, the 2021 ASABE CA/NV Section Student Rally will be held virtually.

WHAT TO EXPECT

- INDUSTRY TOURS
- LEADERSHIP PRESENTATIONS
- CAREER PANELS
- BUSINESS MEETINGS
- COMPETITIONS
- LICENSURE AND ETHICS

THANK YOU SPONSORS:

- AG INDUSTRIAL MANUFACTURING
- BOSQUE ENGINEERING
- CONDOR ENGINEERING
- G3 ENTERPRISES
- J.G. BOSWELL COMPANY
- QUAD KNOPF INC

SPONSORING INSTITUTIONS:

- Butte College
- FRESNO STATE
- MODesto STATE COLLEGE
- CSU BAKERSFIELD
- UNIVERSITY OF CALIFORNIA MERCED
- UC DAVIS
- BIOLOGICAL AND AGRICULTURAL ENGINEERING
- UNIVERSITY OF NEVADA, RENO
- CAL POLY
- HUMBOLDT STATE UNIVERSITY

2021 ASABE CA-NV Student Rally Flyer

❖ **Announcement: 2021 ASABE CA-NV Virtual Annual Meeting; Feb 10, 2021**

Due to the current COVID-19 pandemic, the ASABE CA/NV annual meeting will be held virtually. The Section leadership team is actively working to assess the current challenges, and provide an experience that's as good as in-person to our members. Here is a tentative schedule for the meeting:

Date: Wednesday - February 10, 2021

Time: 5:00 - 8.30 pm

Location: Virtual

AGENDA

5:00 pm	Virtual poster competition (Details coming soon)
6:30 pm	Business Meeting: Intro, Section Initiatives/Update, Student Rally Update, Officer Elections, School Reports, Awards, and Sponsor Appreciation
7:00 pm	ASABE representative: TBD
7:30 pm	Featured speaker: TBD
8:10 pm	Closing comments
8:15 pm	Adjourn

❖ **Accepting Nominations: 2021 Section Officers and 2020 Engineer of the Year**

The Business Meeting during the ASABE CA-NV Annual Section meeting includes the important tasks of electing the new Section Officers and announcing Section Awards.

We are looking for highly motivated, passionate members to serve as the 2021 Section Officers. Officers must be ASABE members and residing in California Nevada. Officer duties typically involve monthly online meetings and work on one or more of the Section's Committees: Membership, Programming, Public Relations, Career Development, Awards, and Industry Student Liaison. Officer positions may be found on the [ASABE CA-NV Officers page](#) and descriptions can be found in the [Section Bylaws](#). To inquire more or to nominate yourself or other qualified individuals, please contact Nominating Committee Chair, Hossein Edalati (ahedalati@ucdavis.edu or ahedalati@gmail.com).

Accepting 2020 Engineer of the Year Nominations.

Do you know someone who has made amazing contributions to Agricultural Engineering? Someone who has done something to help the public welfare and/or humankind for the better? You should nominate them. Nominations are now open for the ASABE CA-NV Engineer of the Year Award. For more information, please contact Section Chair, Lynn Groundwater (LGroundwater@ppeng.com). Forward all nominations to Awards Chair, Dr. Mohammad Sadek (mosadek@calpoly.edu).

❖ **Requesting Input: California-Nevada Section Bylaws Update**

The CA-NV Section officers recently proposed changes to the Section Bylaws. The current adopted version as well as the proposed modifications (identified with tracked changes) can be reviewed on the ASABE CA/NV website (<https://asabecanv.wordpress.com/bylaws/>). The Section will vote on the recommended version in early 2021 for possible adoption.

❖ **Announcement: 2021 Ag Equipment Technology Conference; Feb 8-10, 2021**



The November 2020 issues of Inside ASABE, the ASABE monthly newsletter, included the following announcement:

Join us from the comfort of your own living room February 8-10, 2021, as we gather, virtually, for the 25th Agricultural Equipment Technology Conference.

Registration will open soon, and we have a special gift for the first 100 registrants. Watch for details and program information at <http://asabe.org/AETC2021>.

❖ **Job opportunities**

New ASABE Career Resources

Thanks to a new partnership with [Resume Target](#), a professional resume writing service, ASABE is pleased to offer complimentary career-related resources to ASABE members seeking professional development and career tips. Features include a host of resume templates, networking tips, and job searching strategies.

We invite you to check out the [career platform and the free resources](#) available.

Applying for State of CA Jobs

The State is hiring engineers! First, visit <https://calcareers.ca.gov/> and click the “Get a State Job” link. Run a search for “engineer” or a similar term. Click on View Job Posting for position details. Descriptions are often boilerplate so be sure to read the duty statement. To become eligible to apply, you must take an assessment (often an exam, interview, or other metric) by clicking the “Apply Now” and “I want to obtain eligibility” links from that job posting page. The job description page will contain links and information on how to apply using standard state application form.

Consider creating an account at the Create Account/Log In link at the top right allows you to save and reuse your information for upcoming jobs. Further guidance is available at <https://calcareers.ca.gov/CalHRPublic/Landing/Jobs/Steps.aspx>. Good luck!

Assistant Professor of Biotechnical Engineering at UC Davis ([Job #JPF03875](#))

RECRUITMENT PERIOD

Open date: November 11th, 2020

Next review date: Monday, Jan 4, 2021 at 11:59pm (Pacific Time)

Apply by this date to ensure full consideration by the committee.

Final date: Wednesday, Nov 10, 2021 at 11:59pm (Pacific Time)

Applications will continue to be accepted until this date, but those received after the review date will only be considered if the position has not yet been filled.

DESCRIPTION

As part of UC Davis' commitment to hire leading research faculty dedicated to the success of historically underrepresented and marginalized student communities and address the needs of our increasingly diverse state and student population, the College of Agricultural and Environmental Sciences and the College of Engineering at the University of California, Davis, announce an Assistant Professor faculty position in the Department of Biological and Agricultural Engineering. Applications are encouraged from candidates with a strong background in any current or emerging area that will fit within our department's disciplinary focus in Biotechnical Engineering.

This is an academic year (9-month), tenure track position with teaching, research, and service responsibilities and includes the expectation that the appointee will conduct mission-oriented research and outreach/engagement of relevance to the California Agricultural Experiment Station (<https://caes.ucdavis.edu/research/aes>).

For full application details and to apply: <https://recruit.ucdavis.edu/JPF03875>

Data Analyst with Brightmark (Contract Position)

Location: Remote

The Data Analyst will assist E&O and Operations teams with data entry and reporting. The position reports to the Director of Environmental Markets.

Key Responsibilities:

- Collaborate with full time employees.
- Create reports using the data acquisition tools available.
- Help develop new reporting templates.
- Routinely run report templates and send results to appropriate parties, with an emphasis on clarity and regularity.
- Enter data into Excel, Salesforce, and other data management tools as needed.
- Routinely evaluate data quality, and clearly document all data gaps and unrealistic or impossible data points.
- Help develop and execute strategies to correct data quality where needed. Keep clear records about when/how data was changed.

For full application details and to apply:

<https://www.brightmark.com/about/careers/data-analyst/>

Engineering Intern (Instrumentation) at West Biofuels, LLC

Location: West Biofuels LLC, 14958 County Rd 100B, Woodland, CA 95776

Description: The Engineering Intern is responsible for technical tasks including specifying, configuring, and testing of sensor and instrumentation devices at the West Biofuels research site and other project sites. The qualified candidate will have a strong interest in controls and instrumentation with at least 1- year of relevant industry, laboratory, or other related experience.

Job type: Part-time to full-time hourly employee

The duties and responsibilities of this role include:

- Selection, installation, and calibration of instrumentation devices on West Biofuels equipment.
- Maintenance of existing controls and data acquisition systems: maintaining and upgrading hardware/software; supervision of equipment inventory; hardware/firmware troubleshooting
- Data Evaluation and Reporting: data set management; data reduction, analysis, and evaluation; development of written reports; assistance with presentations.

Additional responsibilities:

- Managing and analyzing large datasets.
- Working with plant technicians on their tasks under the direction of management.
- Ability to take and pass worksite safety courses and follow safe operating procedures.

Qualifications:

- BS (or undergraduate Senior) in Mechanical, Chemical, or Electrical, Engineering; or similar field. MS or graduate student preferred.
- Basic knowledge of thermal and fluid systems, and basic probability and statistics. · Basic knowledge of electronic systems and troubleshooting (use of voltmeter, ammeter, etc.)
- Basic knowledge of sensor systems, electric motors, and control switches.
- Demonstrated writing skills in English.
- MS Office Suite.
- Basic computer graphics skills (AutoCad, SolidWorks, SketchUp, other)
- Ability to work collaboratively and independently.
- Strong interest in energy systems.
- Ability to lift 30 pounds and sit and stand for extended periods of time.
- Previous experience in control systems design and programming would be beneficial.
 - Familiar with PLC systems: such as National Instruments, GE PROFINET, or Allen-Bradley ControlLogix.
 - Proficiency in system process control & automation software languages including: NI LabView, C or C++, GE Proficy, or Allen-Bradley RSLogix.

Company policy is that all candidates and employees are entitled to equal opportunity regardless of race, color, religion, gender, marital status or sexual orientation. We are committed to recruiting, training, developing and promoting employees based on individual qualification, competence and merit.

Candidates should send resume and letter of interest to:

- Michael Long, R&D Manager: Michael.Long@WestBiofuels.com

20 positions: Per Diem Farm Laborers; Dept. of Viticulture & Enology at UC Davis

This position is responsible for providing skilled and semi-skilled agricultural vineyard field support for research and teaching projects, including performing general nursery duties of the vines; performing specialized cultural work such as irrigating, applying insecticides, herbicide and fertilizers; perform pruning, suckering, leafing, harvest, disking; and operating farm equipment such as tractors, fork lifts, and all-terrain vehicles at vineyard facilities near Davis and Oakville and other College facilities as assigned.

Must be available to work with 24 hours' notice.

Job ID: 12892

Please click on the appropriate link below for complete details, qualifications, and to apply.

External Applicants:

https://careerspub.universityofcalifornia.edu/psp/ucdavis/EMPLOYEE/HRMS/c/HRS_HRAM.HRS_APP_SCHJOB.GBL?Page=HRS_APP_JBPST&Action=U&FOCUS=Applicant&SiteId=7&JobOpeningId=12892&PostingSeq=1

Internal Applicants:

https://ucpath.universityofcalifornia.edu/peoplesoft-native/EMPLOYEE/HRMS/c/HRS_HRAM_EMP.HRS_APP_SCHJOB.GBL?Page=HRS_APP_JBPST&Action=U&SiteId=8&FOCUS=Employee&JobOpeningId=12892&PostingSeq=1

The deadline to apply is December 18, 2020.

2 Position: Consultant and Summer Intern, at Wonderful Company Strategy Group

Headquartered in Los Angeles, The Wonderful Company is a privately held \$4 billion global company dedicated to harvesting health and happiness around the world through its iconic consumer brands. The Wonderful Strategy Group is the internal consulting group for the Wonderful Company. The Strategy Group pursues three objectives:

- Work with operating companies in the Central Valley of California to improve performance both through new growth initiatives and efficiency/cost reduction actions. These include a broad set of projects from M&A due diligence and international expansion to plant floor operations effectiveness and improvement in core operating processes.
- Facilitate new business development at holding company level, including product development, acquisition screening, due diligence, and post-acquisition integration.
- Provide a "pipeline" of talent to all the businesses and brands of the Wonderful Company.

Please visit company website at www.wonderful.com to apply directly using the requisition number below:

- Consultant, Strategy (Bakersfield, CA) - TWC5090
- Summer Intern, Strategy (Bakersfield, CA) - TWC5595

Please email questions or inquiries to Stacey Schneider in Talent Acquisition at Stacey.Schneider@wonderful.com.

Temporary Position: Associate Engineer at Banks Integration in Novato, CA

Banks Integration is looking for several students to work in a full-time position. This is a contract position for 2 months. This is an urgent hire since they are looking for a starting date as early as next week (Nov 9th), if possible. There may be an opportunity to be brought on as a permanent full-time employee, but there are no guarantees. They are open to all engineering majors; specifically, new graduates. The position description and link below is for the application:

<https://phf.tbe.taleo.net/phf03/ats/careers/v2/viewRequisition?org=GLENMOUNTGLOBAL&cws=37&rid=441>

Job Summary: Banks Integration Group, an E Technologies Group Company, is seeking an enthusiastic Engineer who wants to be part of a growing business.

Responsibilities include development, implementation, testing and startup of technical solutions created by yourself or others, and frequent communication to management.

You will be working closely with project managers and senior engineers to leverage their technical experience and expertise in controls, instrumentation, networking and software development to deliver high-quality and high-value solutions.

This is a temporary position that will be located at a customer site in Novato, CA and is estimated to be approximately two months in duration.

Primary Responsibilities:

- Support application/system deployment projects emphasizing the software development lifecycle (SDLC)
- Able and willing to transport, lift and install PC equipment in a controlled laboratory environment
- Work closely with Business Analyst team and internal IT groups to facilitate issue resolution
- Ensure all tracks of project implementation occurs in accordance with established change control procedures
- Work cooperatively with engineering and staff
- Responsible for aspects of project schedule requirements
- Configure various software and hardware components for biopharmaceutical laboratory applications

Required Knowledge, Skills, and Abilities:

- BS Engineering degree or equivalent educational background
- Troubleshooting and supporting hardware and applications on Windows Operating System environment
- Mechanical interaction with personal computers (e.g., opening of PCs and upgrading/replacing parts)
- Experience building and deploying validated systems in a GxP environment a plus.

Banks Integration Group is an Equal Opportunity / Affirmative Action Employer. Applicants are considered for employment without regard to race, color, religion, sex, age, disability, military status, genetic information, citizenship status, or any other basis prohibited by law. Banks Integration Group will provide reasonable accommodations to qualified individuals with disabilities and for religious beliefs.

Integrative Data Analytics Intern at Corteva Agriscience (3 Month; Woodland, CA)

Description

Corteva Agriscience seeks students for full-time internships within our global Data Science and Informatics group working on integrative data analytics for digital agriculture at our Woodland Research Facility in Woodland, California. We are aggressively building Big Data and Predictive Analytics capabilities to deliver improved services to our customers.

Our interns will work on key problems related to applications of digital agriculture combining multiple data streams including weather, soil, imaging, drone and/or satellite to create new product insights and deliverables. The intern should be familiar with traditional machine learning and deep learning-based approaches for data analytics. This includes familiarity with Cloud/Linux development and able to perform data-preparation (wrangling, munging, pre-processing/cleaning and alignment), data-visualization, basic statistics and data modeling techniques with large datasets.

Responsibilities - What You'll Do:

- Design and implement novel big-data geospatial analytics to enable high-throughput data products for our digital agriculture space.
- Hands-on integration of various data and sensor components including data clean up, alignment, normalization and ETL pipeline development.
- Evolve and deploy our core machine learning/deep learning algorithms to enable highly optimized models to be delivered to our research customers.
- Applied testing and validation of developed compute solutions under field conditions while documenting learnings for further tooling development.

Qualifications - What You'll Bring:

- Currently enrolled in a graduate education program pursuing (or planning to pursue) a Ph.D. or M.S. in Computer Science, Remote Sensing, Software Engineering, Machine Learning, Artificial Intelligence or related scientific discipline.
- Ideal candidate will have completed graduate level coursework in image processing, statistics and machine learning.
- Minimum 3.0 cumulative GPA
- Programming skills in Python and/or R, with use of scripting (Bash, etc.) to quickly create prototype and debug solutions on Cloud / Linux / embedded platforms.
- Familiarity with geospatial tools including QGIS, GeoPandas, RasterIO and/or GDAL
- Interest in learning new technologies, latest ML algorithms, programming techniques, languages, and operating systems.
- Excellent interpersonal skills and a can-do attitude with the ability to thrive in a fast-paced dynamic environment. Experience in research, life sciences, or in data science is a plus.
- Excellent analytical and problem-solving skills with the ability to work as part of a global team and, at times, independently while appropriately prioritizing tasks.
- Strong verbal and written communication skills in English are required.

You'll Stand Out With:

- A deep understanding of data processing/analysis algorithms and techniques
- Experience with IOT and/or streaming data utilization

Corteva Agriscience™ serves to enrich the lives of those who produce and those who consume, ensuring progress for generations to come. Our employees fulfill this purpose everyday by building/participating in an inclusive culture where we encourage each other to stay curious, think

differently, act boldly and do what's right for our customers, our co-workers, our partners and our planet. With over 20,000 team members from 130 countries, innovating in 140 world class R&D facilities, we have the resources, leadership heritage and partner ecosystem to make a meaningful impact now and into the future.

The position description and link below is for the application:

<https://careers.corteva.com/ShowJob/JobId/472023/IntegrativeDataAnalyticsIntern3MonthWoodlandCA>

Do you have a job opportunity you would like to advertise? Is your organization or school hosting a career fair that you would like people to know about? Please let us know. Contact the ASABE CA/NV Section at asabecanv@gmail.com.

Do You Feel A Calling?

Would you like to get more involved with ASABE and the CA-NV Section? Do you have ideas for Agricultural and Biological Engineering activities?

We have several opportunities to work on various committees: planning for the next Section Student Rally, writing stories for the bimonthly update (the next one will be published in January), and organizing the annual business meeting. If you would like to get more involved, want some exposure to people in industry, or have some interesting new ideas of ways to improve the CA/NV Section please contact Dr. Irwin R. Donis-González at irdonisgon@ucdavis.edu.

- For previous editions of the Update, please visit <https://asabecanv.wordpress.com/newsletter/>.
- If you have questions or comments, feel free to contact Dr. Irwin R. Donis-González (contact info above)
- If you have ideas for update items or would like to get involved in the Section, please let us know!