



RISING TIDE

STARTUP

CenSyn Brings Brain Health to Front of Mind

The UCI startup is developing a portable EEG device in hopes of putting it into the hands of medical professionals across the world.

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“IT’S UP TO YOU TO BRING
YOURSELF TO THE ATTENTION OF
POWERFUL PEOPLE AROUND YOU.
THEY’RE NOT GOING TO FIND YOU
ON THEIR OWN.”

— Richard Parsons, American business executive

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Stay up to date with news about UCI’s innovations and commercially promising technologies. Find this issue of Rising Tide at innovation.uci.edu/news

If you have story ideas, contact the editor-in-chief: connorj@uci.edu

Past Tides

EVENTS AT THE
COVE @ UCI



Orange County Business Journal Innovator of the Year Awards / September 2020

Michael Katz, partner at Maschoff Brennan law firm, presents Martha Montoya, CEO of Wayfinder startup AG Tools, with Orange County Business Journal's Innovator of the Year award during the event's sixth annual celebration. The pre-recorded virtual ceremony features a brief Q&A with each winner.



VC Speaker Series with Unlock Ventures / October 2020

Sanjay Reddy, partner at Unlock Venture Partners, discusses the firm's philosophy, investment criteria and other interesting stories from the Southern California tech ecosystem with Luis Vasquez, UCI Beall Applied Innovation associate director of Venture Collaboration.



UCI Beall Applied Innovation Introduces Event Series: Making Waves: Entrepreneur Conversations

UCI Beall Applied Innovation is launching Making Waves: Entrepreneur Conversations, a new signature event series this year, sponsored by UPS. The Making Waves events will bring successful entrepreneurs from the local community and around the world to the Cove @ UCI to inspire the next great idea.

Each event will feature a speaker delivering either a keynote message or a lively discussion via fireside chat with a moderator or panel of entrepreneurs. These discussions will include stories of how those successful entrepreneurs got started, how they scaled, why they failed and their lessons learned from their experiences.

The Making Waves: Entrepreneur Conversations series will be held virtually for the near future and occur on a quarterly basis. The events are free and open to the public.

The first event was held in December 2020, which featured Leen Kawas, founder and CEO of Athira Pharma, Inc. Read more about this special event in the March 2021 issue of Rising Tide magazine.

Sign up for our newsletter to receive updates about these events and more: innovation.uci.edu/subscribe



All of these events were held over virtual platforms and did not take place at the Cove @ UCI. All photos on this spread are screenshots from virtual events.

The Cove takes great care in ensuring a safe environment for tenants and visitors. COVID-19 safety measures include requiring face coverings and temperature checks, providing hand sanitation stations, designated workstations, and displaying public health signs throughout to encourage cleanliness and social distancing.



C O
V E

Since the Cove @ UCI has been open, an average of 40,000-50,000 people have come through the building per year in support of innovation, entrepreneurship, industry and the community. Take part! Check out and register for upcoming events: innovation.uci.edu/events



RESOURCE

Faculty Innovation Fellowship Program Welcomes Second Cohort

THE PROGRAM DRAWS FROM ALL SCHOOLS AND FIELDS ON UC IRVINE’S CAMPUS TO PROMOTE CROSS-COLLABORATION AND STIMULATE CAMPUS CONNECTIONS USING UCI BEALL APPLIED INNOVATION’S RESOURCES.

On the UC Irvine (UCI) campus, world-class faculty connect with each other and build the campus community in the name of innovation, all thanks to the Faculty Innovation Fellowship program. Faculty Innovation Fellows are selected based on their record of innovation at UCI and are chosen to be ambassadors for UCI Beall Applied Innovation.

Each year a new cohort is recruited to bring a new opportunity for fellows to cross-collaborate with one another across different disciplines and cohorts. In December 2020, the program recognized its second cohort of 18 fellows who will join the program’s first cohort, which was recognized in January 2020.

To become a fellow, the faculty describe the work they do, their research and how innovation affects what they do in their field and their interaction with students during a nomination and review process.

Spearheaded by David Tiemeier, Ph.D., managing director of the Research Translation Group at Applied Innovation, fellows can access Applied Innovation’s network of advisors, entrepreneurs, mentors and companies.

“They can use these resources to enhance the innovations they generate and to move those innovations toward commercialization,” said Tiemeier. “In turn, as they become more familiar with those resources, they’re in a better position to share that information with the faculty around them in the schools in which they operate.”

This latest cohort will serve from 2021 through 2022:

- **Maksim Plikus**, Professor / School of Biological Sciences
- **Nia Dowell**, Assistant Professor / School of Education
- **Mo Li**, Associate Professor / Henry Samueli School of Engineering
- **Alex Borucki**, Associate Professor / School of Humanities
- **Theresa Tanenbaum**, Assistant Professor / Donald Bren School of Information & Computer Sciences
- **Yama Akbari**, Assistant Professor / School of Medicine
- **Kevin Beier**, Assistant Professor / School of Medicine
- **Hamid Djalilian**, Professor / School of Medicine
- **Michael Oh**, Professor / School of Medicine
- **Raj Vyas**, Associate Professor / School of Medicine
- **Shawn Xiang**, Associate Professor / School of Medicine
- **Young Jik Kwon**, Professor / School of Pharmacy & Pharmaceutical Sciences
- **Shane Ardo**, Associate Professor / School of Physical Sciences
- **Matthew Harding**, Professor / School of Social Sciences
- **John Crawford**, Professor / Claire Trevor School of the Arts
- **Holly Poe Durbin**, Professor / Claire Trevor School of the Arts
- **Vincent Olivieri**, Professor / Claire Trevor School of the Arts
- **Kelli Sharp**, Assistant Professor / Claire Trevor School of the Arts

With the addition of the second cohort, the program now has 35 faculty members from across campus.

“It’s making them more familiar with the resources that are available to them and with each other. It’s empowering them to become ambassadors for innovation to other faculty,” said Tiemeier. “And, it’s creating an opportunity for ‘innovation synergy’ by bringing innovators from quite different disciplines together.”

Learn more Applied Innovation’s resources at innovation.uci.edu/resources ///

*Resources Mentioned in this Story

Cove @ UCI
innovation.uci.edu/the-cove/

AVAILABLE TECHNOLOGIES

Coming Down the Pipeline

SOME OF UCI’S TOP AVAILABLE TECHNOLOGIES CURATED BY UCI BEALL APPLIED INNOVATION’S RESEARCH TRANSLATION GROUP

The Research Translation Group manages over 1,000 inventions from UC Irvine (UCI) researchers spanning the areas of engineering, medicine and life sciences, physical sciences, communications and computer sciences. These innovative technologies are available for licensing.

Tech ID #: 28708

ENDOSCOPIC, LAPAROSCOPIC, ROBOTIC AND MINIMALLY INVASIVE FORCE SENSOR AND MONITORING SYSTEM

Minimally invasive ureteroscopy, or an examination of the upper urinary tract, is a common procedure in adults, with over 10,000 procedures conducted annually in California alone. The ureteral access sheath (UAS), a highly effective device used to facilitate minimally invasive ureteroscopy, can injure the patient when excessive force is used during its placement. Inventors at UCI have developed a minimally invasive force sensor and monitoring system that measures force during UAS placement and can prevent injury by alerting the physician when they are approaching the threshold for injury.

Ralph Clayman, M.D. / School of Medicine

Licensing Officer
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Tech ID #: 32036

XNA ENZYMES TO VALIDATE AND TREAT GENETIC DISEASES

Many diseases, such as cancer, produce healthy as well as disease-causing versions of the same protein in our cells. Establishing therapeutics that can effectively treat these diseases has become a big challenge in precision medicine, as it is extremely difficult to distinguish RNA messages that differ by a single mutation.

Inventors at UCI have addressed this issue by developing a novel gene silencing technology, based in part on a synthetic nucleic acid or XNA. This xeno-nucleic enzyme or XNAzyme, can site-specifically cleave mRNA strands at precise nucleotide positions to silence the expression of disease-associated proteins, while leaving the healthy RNA templates unharmed. This new technology offers an efficient, safe and effective approach to treat genetic diseases that were previously considered untreatable.

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Find all UCI-available technologies at
innovation.uci.edu/tech

UCI Professor Weian Zhao

Develops Microscopic Solutions to Medicine's Biggest Problems

THE UCI PROFESSOR AND HIS LAB
FOCUS ON SOLVING PROBLEMS
WITH SPEED AND ACCURACY.

Speed and accuracy play a large role in how the world progresses on a technological level, and healthcare and medicine are no different. In healthcare, an increase in speed and accuracy can mean the difference between life and death.

UC Irvine Professor Weian Zhao, Ph.D., knows this and works to develop technologies for rapid diagnosis, stem cell therapy and drug discovery through his research and startups he co-founded.

“UCI BEALL APPLIED INNOVATION PROVIDES ONE OF THE BEST ENTREPRENEURIAL AND STARTUP HUBS IN THE COUNTRY. THE RESOURCES ARE THERE, YOU JUST NEED TO MAKE THE EFFORT!”

— Weian Zhao, Ph.D.



EXPOSURE AND INSPIRATION

Zhao's first experience with medicine and helping others came during his childhood. His father was given minimal medical training as part of China's barefoot doctor program to provide rural villages with basic healthcare, including preventive care and treatment for common illnesses.

“That childhood experience played a major role in formulating my future career. I was able to see how medicine helps people in need,” said Zhao.

And while it is clear that Zhao enjoys his career in chemistry, he admits it wasn't much of a choice early on, as he was placed in the chemistry program after completing China's National College Entrance Examination.

It was not until Zhao started his graduate studies at McMaster University in Ontario, Canada, that he first came to appreciate the potential of a research career. Zhao attributes this realization to his first-year roommate who would frequently share journal articles and talk to him about the latest research.

“I got really attracted to research and realized ‘this is pretty cool seeing the potential of how research – chemistry specifically – can impact society and people's lives,’” said Zhao. “From that point on I took off on that career path.”

TRANSLATIONAL MINDSET

Zhao went on to conduct his postdoctoral work at the Harvard Medical School and Massachusetts Institute of Technology (MIT) under the guidance of mentors Jeff Karp,

Weian Zhao, Ph.D.,
and Phil Felgner,
Ph.D., collaborate
to create a rapid
high-throughput
COVID-19
serological test.



professor of Medicine at Brigham and Women's Hospital at Harvard Medical School, and Rob Langer, an institute professor at MIT. Both Karp and Langer's entrepreneurial and translational achievements helped Zhao establish his own research philosophy of trying to address the immediate needs of society – in clinics specifically – and developing new technologies to address those needs.

“For me, doing research and startup companies are synergistic; they are very complementary of each other. It's not a distraction as some people think,” said Zhao.

In 2014, inspired by his mentors, Zhao co-founded his first startup, Velox Biosystems, based on his rapid diagnostic technology. The startup – a graduate of UCI Beall Applied Innovation's Wayfinder* program – is largely focused on the detection of bacteria in the blood, but recently collaborated with Nanommune Inc., a startup founded by Phil Felgner, Ph.D., professor of Physiology and Biophysics at UCI's School of

Medicine and director of UCI's Vaccine Research and Development Center. Together, the two UCI startups produced a rapid high-throughput COVID-19 serological test and are working on a viral antigen test that can determine the specific respiratory virus a person may have been exposed to, including SARS-CoV-2.

“The point is to diagnose a disease very rapidly, when time really matters,” said Zhao. “If you can diagnose diseases earlier, you tend to be more effective in terms of treatment.”

His second startup, Amberstone Biosciences, which was co-founded shortly after his first, aims to develop novel immunotherapeutics for cancer and other immune disorders. Their core technology allows them to screen drug candidates in higher numbers and in far less time than current methods. This highly efficient workflow has the potential to drastically reduce the time and money it takes to get a drug from lab to patient.

Zhao finds that his research and entrepreneurial activities complement each other and is currently involved in three startups he co-founded.

The latest venture, Arvetas Biosciences, uses a technology made in collaboration with Enrico Gratton, Ph.D., UCI distinguished professor of Biomedical Engineering and principal investigator of the Laboratory for Fluorescence Dynamics. This technology can rapidly analyze single-molecule biomarkers from patient tissues. By quickly and accurately determining specific biomarkers, like those from a tumor sample, clinicians can better understand which drug to prescribe an individual patient, enabling a higher standard of precision medicine.

Zhao's entrepreneurial mindset is second nature to him but he believes it can be cultured by those who are dedicated enough.

"Faculty new to starting a company have to develop a habit of thinking about commercialization and realize there is a lot of work," said Zhao. "No one is going to come with money and people and commercialize your technology for you; it's a real commitment."

For UCI faculty who want to learn more about entrepreneurship and translating their research, Zhao directs them to the programs and resources* at UCI Beall Applied Innovation.

"UCI Beall Applied Innovation provides one of the best entrepreneurial and startup hubs in the country. The resources are there," said Zhao. "You just need to make the effort!"



Ph.D. student Josh Gu prepares formalin-fixed paraffin-embedded (FFPE) tissue for imaging.



Gu uses the lab's technology to run multiplex spatial analyses of samples.

SOLVING PROBLEMS

Zhao's dedication to solving problems has garnered a lot of attention and landed him many accolades. Notable achievements include winning the National Institutes of Health Director's New Innovator Award, which recognizes early career investigators behind innovative projects in the biomedical, behavioral or social sciences. He was also named one of MIT's Technology Review's 35 Innovators Under 35, which recognizes outstanding innovators who are younger than 35.

In 2019, Zhao joined Applied Innovation's inaugural Faculty Innovation Fellowship program and one year later, he received the Innovator of the Year award during Applied Innovation's third annual UCI Innovator Awards celebration, which recognizes UCI faculty and researchers who actively promote commercialization of university innovations and intellectual property.

Zhao also holds appointments at the Sue & Bill Gross Stem Cell Research Center, Chao Family Comprehensive Cancer Center, Edwards Lifesciences Center for Advanced Cardiovascular Technology, the Institute for Immunology, Department of Biomedical Engineering, Department of Biological Chemistry, and Department of Pharmaceutical Sciences.

Whether working with physicians to find opportunities to improve clinics or being approached with a problem, Zhao and team are up for the challenge. He credits the lab team's agile mindset and diversity – both in terms of degree levels as well as scientific fields represented – for their ability to tackle the immediate needs of society, be it rapid diagnosis of sepsis or COVID-19 antibodies.

"I'm really excited for the next five years at the lab ... but who knows, maybe there will be another pandemic or something else," said Zhao. "We're going to take them one at time, and that's the nature of my research; very adaptive and designed specifically to address the immediate need."

Learn more about the Zhao lab at faculty.sites.uci.edu/zhaolab ///

*Resources Mentioned in this Story

Resources at UCI Beall Applied Innovation
innovation.uci.edu/resources

Wayfinder Incubator
innovation.uci.edu/programs/wayfinder-incubator



Ph.D. students Jayapriya Jayaraman and Michael Melody use droplet microfluidic technology to discover immunotherapeutics.

“



...WHO KNOWS, MAYBE THERE WILL BE ANOTHER PANDEMIC OR SOMETHING ELSE. WE'RE GOING TO TAKE THEM ONE AT TIME, AND THAT'S THE NATURE OF MY RESEARCH; VERY ADAPTIVE AND DESIGNED SPECIFICALLY TO ADDRESS THE IMMEDIATE NEED.”

– Weian Zhao, Ph.D.

“THEIR EEG PEN HAS THE
POTENTIAL TO REVOLUTIONIZE
EEG RECORDING, AND RESULTS
FROM EARLY PROTOTYPES
ARE ENCOURAGING.”

— Peter Crosby



STARTUP

CenSyn

BRINGS BRAIN HEALTH
TO FRONT OF MIND

THE UCI STARTUP IS DEVELOPING A PORTABLE EEG DEVICE
IN HOPES OF PUTTING IT INTO THE HANDS OF MEDICAL
PROFESSIONALS ACROSS THE WORLD.

TEXT: JACKIE CONNOR / PHOTOS: JULIE KENNEDY

The brain is the most intricate part of the human body that, through years of evolutionary growth and development, has served as the central organ that progresses all species forward. Serving as the body's central intelligence, the three-pound organ encapsulates and controls the body's vital functions, like heart rate and respiration, as well as physical functionalities, intellect, emotions, memory and so much more.

However, as important as an organ as the brain is, UC Irvine (UCI) startup CenSyn says brain health monitoring has not been as front of mind in the medical community as it should be to enable on-the-go brain screening for the modern world. And they intend to change that.

An electrocardiogram (ECG) records the electrical signal from the heart to check for different heart conditions and can be found in smartphones and smart watches, tracking a person's heartbeat, oxygen levels and more. But why not include an **electroencephalogram** (EEG)?

Enter: CenSyn

The startup wants to bring brain health into focus, solve several issues concerning access to this type of healthcare – including earlier diagnoses of brain conditions – and provide earlier access to brain data for any medical professional across the country and world. And, they want to do this using an EEG the size of a pen.

STARTING OUT

In 2019, after graduating from the Department of Biomedical Engineering in the Henry Samueli School of Engineering, Ayushi Patel, Andy Bhushan and Trevor Silence all had one thing in common – they did not want to go the same route their peers were going, which was to find a job at a company.

“We knew that we wanted to really take what we learned and apply it to something a little bigger,” said Bhushan, co-founder and business strategist at CenSyn.

Drawing from personal experiences, ranging from losing loved ones to experiencing a lack of access to basic healthcare, the trio launched CenSyn in 2019.

“It was a dream for me back in community college to be a part of something where we create neuro-devices,” said Silence, co-founder of CenSyn. “That’s why I was drawn to it and that’s why I’m passionate to take it forward.”

BUILDING THE DREAM

Through their passion and determination, the CenSyn team developed a portable, pocket-sized EEG device that is about 5 inches tall and can easily travel with the intention of measuring brain waves from any point in the country. The team joined the National Science Foundation's I-Corps program* at UCI Beall Applied Innovation where they were able to interview a wide variety of doctors to determine the need for their device.

“The I-Corps program was instrumental for us at Applied Innovation. It helped us get in touch with clinicians who deal with these situations on a daily basis, understand their environment and develop a solution that would enhance their workflow,” said Bhushan.

After months of research and development, the team literally put their brains together to test out their device, four months of their own brain data, to be exact.



THE I-CORPS PROGRAM
WAS INSTRUMENTAL
FOR US AT APPLIED
INNOVATION. IT HELPED
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CLINICIANS WHO DEAL
WITH THESE SITUATIONS
ON A DAILY BASIS,
UNDERSTAND THEIR
ENVIRONMENT AND
DEVELOP A SOLUTION
THAT WOULD ENHANCE
THEIR WORKFLOW.”

— Andy Bhushan

E·LEC·TRO·EN·CEPH·A·LO·GRAM / noun

a test that detects electrical activity in the brain using electrodes attached to the scalp

(source: Mayo Clinic)



The CenSyn team, Ayushi Patel, co-founder and CEO, Andy Bhusan, co-founder and business strategist, and Trevor Silence, co-founder, work together in the Cove Prototyping Lab located at UCI Beall Applied Innovation.

CenSyn also joined Applied Innovation's Wayfinder program, where they utilize the community of startups and entrepreneurs as source of information. The team currently rents a lab bench in Applied Innovation's Cove Prototyping lab*, which is generously supported by Base 11*, where they utilize the 3D printers.

The Cove Prototyping Lab includes 3D printers, laser-cutting machines, manual and automatic machining equipment and an extensive electronics station for building circuit boards. Base 11, a national organization out to solve the growing STEM talent pipeline crisis, which is exacerbated by the underrepresentation of women and minorities, partnered with Applied Innovation to donate funds and equipment to the lab.

"If you have any problems or questions, Sara [Willman] and Myia [Dickens] are always very responsive. Working on the mechanical design and 3D printing stuff, those are the people I see every day," said Silence. "Working with them and having access to that has been a blessing. I don't think we'd be here in the same place without that."



“IF YOU HAVE ANY PROBLEMS OR QUESTIONS, SARA [WILLMAN] AND MYIA [DICKENS] ARE ALWAYS VERY RESPONSIVE. WORKING ON THE MECHANICAL DESIGN AND 3D PRINTING STUFF... WORKING WITH THEM AND HAVING ACCESS TO [THE COVE PROTOTYPING LAB] HAS BEEN A BLESSING. I DON'T THINK WE'D BE HERE IN THE SAME PLACE WITHOUT THAT.”

— Trevor Silence

Through Wayfinder, the team also met Innovation Advisor* Peter Crosby, who has 40 years of experience in the medical device industry. Crosby has since joined the CenSyn team as executive chairman.

"Their EEG pen has the potential to revolutionize EEG recording, and results from early prototypes are encouraging," said Crosby. "CenSyn is led by a team of outstanding young entrepreneurs who are hungry for success, and reach out for help and advice wherever they can find it."

WHY IT MATTERS

Standard EEG machines can stand at five-feet tall. The machines often cost around \$25,000 and require a medically trained specialist to operate it. Most often these machines are located in metropolitan areas, and according to CenSyn, out of the 6,300 hospitals the team surveyed, only 1,800 have EEG machines available — some in limited capacity.

"Even hospitals that have EEGs sometimes run out of space for patients," said Patel, CenSyn CEO. "So now they have to decide who gets off of these machines so they can put somebody else on it ... the triage process can get complicated as well."

According to a 2019 study, traumatic brain injury (TBI) is a leading cause of death and disability, contributing to about 30 percent of all injury-related

The Differences Between CenSyn's Pen EEG and a Standard EEG



Graphic: Elisa Le

deaths in the U.S. In 2015, the CDC cited that more than 3 million people nationwide experienced seizures. When someone experiences a TBI or seizure, every second that can be added toward diagnosing and treating a patient counts toward saving lives.

"We have created a device that can be taken anywhere to get the necessary data for instant screening of seizures, TBI and other neurological conditions," said Bhusan. "The reason why that's so important is because when you get quicker data, you give faster treatments. And when you give faster treatments, you can greatly improve the outlook for patients."

FORWARD THINKING

Recently CenSyn has grown into a team of 11 and has been working with a local angel investor group on securing pre-seed funding. They are focused on pursuing a study with clinicians to gather patient data, which will allow the team to pursue **FDA 510(k) clearance**. CenSyn also aims to continue to increase awareness about brain health and focus on accessibility to change how people view brain data.

"I feel like it's so neglected that even to explain to somebody what an EEG is requires an ECG example, which already says a lot," said Patel.



OUR DEVICE, WITH ITS AFFORDABILITY AND INCREASE IN ACCESSIBILITY, CAN CHANGE HOW PEOPLE VIEW BRAIN DATA AND THE COLLECTION OF BRAIN DATA..."

— Ayushi Patel

"That should not be the case of the level of awareness. Our device, with its affordability and increase in accessibility, can change how people view brain data and the collection of brain data, which would be the goal."

Learn more about CenSyn at censyn.com ///

FDA 510(K) CLEAR-ANCE / noun

A 510(k) is a premarket submission made to FDA to demonstrate that the device to be marketed is as safe and effective, that is, substantially equivalent, to a legally marketed device (section 513(i)(1)(A) FD&C Act).

(source: fda.gov)

*Resources Mentioned in this Story

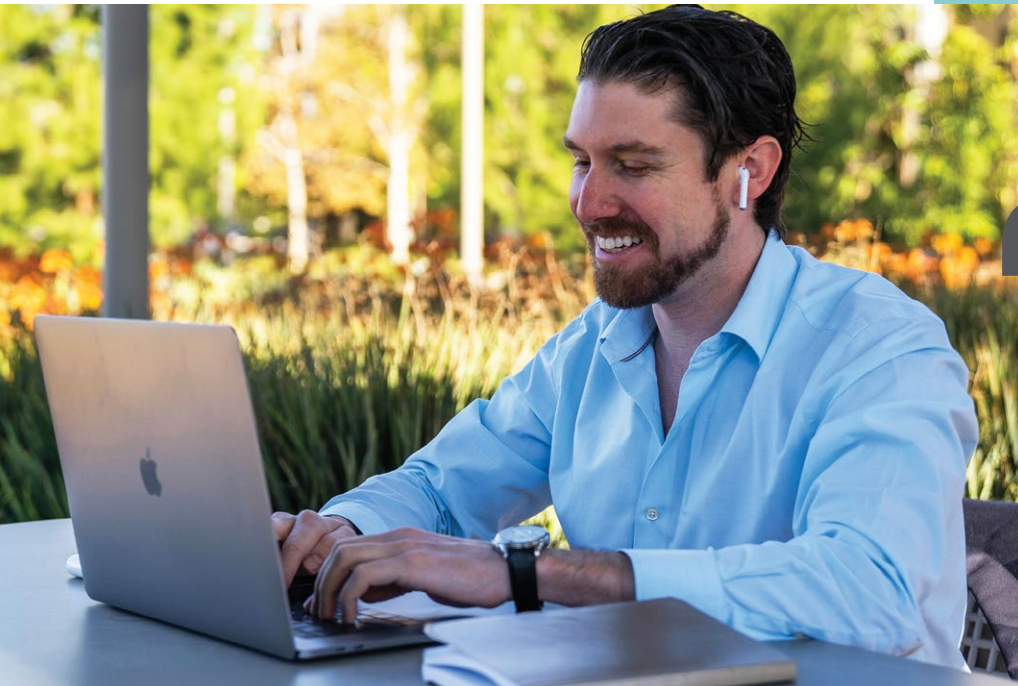
Cove Prototyping Lab
innovation.uci.edu/the-cove

I-Corps
innovation.uci.edu/programs/i-corps

Innovation Advisors
innovation.uci.edu/programs/innovation-advisors

Wayfinder Incubator
innovation.uci.edu/programs/wayfinder-incubator

Neal Bloom, founder of Fresh Squeezed Tech, angel investor and Innovation Advisor at UCI Beall Applied Innovation, has many roles in bringing together Orange County's business and entrepreneurial communities.



DEEP DIVE

FROM LAUNCHING ASTRONAUTS
TO PROMOTING STARTUPS,

Neal Bloom Connects the Southern California Ecosystem

ONE MEDIA OUTLET AT A TIME

THE ENGINEER-TURNED-ENTREPRENEUR
USES HIS MEDIA PLATFORMS TO HIGHLIGHT
INNOVATION IN SOUTHERN CALIFORNIA.

“

I'M REALLY PASSIONATE
ABOUT MAKING PEOPLE
PROUD OF THE COMMUNITY
THAT THEY ARE IN AND
RAISING AWARENESS,
WHICH WILL ATTRACT MORE
TALENT AND MORE CAPITAL.”

— Neal Bloom

*Resources Mentioned in this Story

Innovation Advisors
innovation.uci.edu/programs/experts-in-residence

Wayfinder Incubator
innovation.uci.edu/programs/wayfinder-incubator

TEXT: KAITLIN AQUINO / PHOTOS: CELINA BHANDARI

Serial entrepreneur Neal Bloom champions innovation while wearing several hats across the Orange County business ecosystem.

He is the founder of Fresh Squeezed Tech, a multimedia outlet that covers all the latest technological developments in Orange County, as well as the CEO of Fresh Squeezed Tech's parent company, Rising Tide Partners (not affiliated with Rising Tide magazine). He is also an investor at Tech Coast Angels, the largest angel investment group in the U.S., and an Innovation Advisor* at UCI Beall Applied Innovation, where he mentors startups in the Wayfinder* program.

Although Bloom worries he is spreading himself too thin with his myriad involvements, he hopes his diverse set of roles ultimately benefits all the business communities he serves.

“I'm always interested in what else is going on,” said Bloom. “So, I've had to rein in and make sure that all of it acts as a funnel and still has some long-term impact for me and my mission, which is building good startup communities.”

Despite his experience as an investor and an entrepreneur, Bloom's background lies in mechanical engineering. Fresh out of UC San Diego, Bloom started out as an aerospace engineer for Pratt & Whitney Rocketdyne, a company that designed and produced rocket engines. There, Bloom helped launch 84 astronauts into space by building rocket engines for the NASA Space Shuttle program.

“I don't think they should allow 23-year-olds to have that kind of power or experience, but I loved it,” said Bloom. “I ate it up.”

When the Space Shuttle program retired, Bloom embraced entrepreneurship. He recalls that about 60 percent of the Space Shuttle team lost their jobs once NASA ended the program.

“I didn't get laid off, so I actually had some survivor's guilt,” said Bloom. “These 20-, 30-, 40-year vets working on manned space [vehicles] had no idea how to retool and remarket themselves. That's when Portfolium was born.”

Portfolium, founded by Bloom and his co-worker at Pratt & Whitney Rocketdyne, is a social networking platform that allows job applicants to visually showcase their skill sets. Last year, tech company Instructure bought Portfolium for \$43 million. However, Bloom had already parted ways with the company four years before.



Neal Bloom's multimedia outlet Fresh Squeezed Tech covers all things tech in Orange County and features media content including podcasts, social media engagement news stories and more.

“My founder breakup was super eye-opening,” said Bloom. “It almost feels like a classic textbook of all the things that could go wrong. We had verbal agreements; we had founders with the exact same background. We were living together and working together. It was very intense and shocking at the moment. But looking back, I realized we set ourselves up for failure.”

It took some time before Bloom could recover from losing his company. However, he used the lessons he learned when founding both Fresh Squeezed Tech and Fresh Brewed Tech, another one of his media outlets that covers all things tech in San Diego.

“I learned to channel that failure toward pushing me forward,” said Bloom. “Having a chip on your shoulder is actually super motivating. You want to make sure company number two is going to be even more successful because of whatever happened with number one.”

Today, Bloom and his team at Fresh Squeezed Tech write blogs, produce podcasts, create social media posts and curate newsletters for tech and startup communities of Orange County. Bloom hopes to eventually expand and create similar media outlets for Santa Barbara and the Inland Empire.

“I'm really passionate about making people proud of the community that they are in and raising awareness, which will attract more talent and more capital,” said Bloom. “I just know I'm passionate about making Southern California the place to grow a tech company.”

Learn more about Fresh Squeezed Tech at freshsqueezedtech.com ///

Four Faculty Recognized at Third Annual UCI Innovator Awards

THE VIRTUAL AWARD CEREMONY ACKNOWLEDGED INNOVATORS FOR THEIR WORK IN COMMERCIALIZING UNIVERSITY INTELLECTUAL PROPERTY.

UC Irvine is home to brilliant minds who not only conduct groundbreaking research but also inspire and educate the next generation of researchers and scholars. To show appreciation for the achievements of UCI researchers and faculty who are working actively to promote commercialization of university intellectual property, the UCI Innovator Awards was established with support from the Beall Family Foundation. Awardees receive a trophy, a monetary gift and certificates from local and state officials.



*Resources Mentioned in this Story

Research Translation
innovation.uci.edu/about/research-translation



Yoonjin Won, Ph.D., from the Henry Samueli School of Engineering received the Emerging Innovation/Early Career Innovator of the Year Award. The award recognizes an individual who has displayed excellence in the early stages of their career or in the very beginning stages of a breakthrough that would be considered innovative. Won's research uses data-driven physics, extreme computing and materials design to bring efficiency enhancements to energy, water, manufacturing processes and electronics cooling. Her recently filed patent application details a novel, environmentally safe manufacturing method that allows for the production of porous products, which could have numerous applications, including the creation of biocompatible supports for spine surgery.



Sunil Gandhi, Ph.D., from the School of Biological Sciences received the Entrepreneurial Leader of the Year Award. The award recognizes an innovator who has shown an enterprising spirit by transforming at least one significant innovation from the university into a market-ready product or service. Gandhi has pioneered technology to visualize complex tissues, like the brain. He has co-founded two startups: Translucence Biosystems, whose imaging system allows for next-generation 3D imaging of biological tissues like the brain, and another company formed with two fellow UCI professors, which aims to use cell therapy to treat neurodegenerative diseases.



Weian Zhao, Ph.D., from the School of Pharmacy and Pharmaceutical Sciences received the Innovator of the Year Award. The award recognizes a researcher at UCI who has demonstrated excellence by developing a breakthrough technology, idea or process and has demonstrated its large potential to create economic value and improve lives. Zhao focuses on developing technologies for rapid diagnosis, stem cell therapy and drug discovery. His research is currently being utilized by several startup companies he co-founded, including Velox Biosystems, which focuses on the rapid detection of infectious diseases and antibiotic resistance; Amberstone Biosciences, which aims to develop novel immunotherapeutics for cancer and other immune disorders; and Arvetas Biosciences, which uses a technology to rapidly analyze single-molecule biomarkers from patient tissues for precision medicine.



Philip Felgner, Ph.D., from the School of Medicine received the special COVID-19 Response Award. The award recognizes an innovator who has demonstrated an innovative and entrepreneurial drive in response to the global pandemic. Felgner has been at the forefront of COVID-19 diagnostics since January 2020, and his microarray technologies allow for sensitive testing of proteins and antibodies to detect and monitor the course of infection. In addition to developing a COVID-19 Coronavirus Antigen Microarray that detects antibodies against coronavirus-infected people, which was used in a six-month study on UCI healthcare workers, his startup Nanomune recently collaborated with Velox Biosystems to produce a rapid high-throughput COVID-19 serological test.

UCI Beall Applied Innovation proudly celebrates the accomplishments and achievements of UCI faculty and acknowledges that to recognize innovative thinkers is to recognize the pursuit of knowledge for the benefit of humankind.

Learn more about the UCI Innovator Awards and to see past awardees:
innovation.uci.edu/programs/uci-innovator-awards ///

Across Campus

SOME OF THE LATEST STORIES
FROM THE UCI CAMPUS



UNIVERSITY OF CALIFORNIA, IRVINE

UCI researchers have found a way to prevent the transmission of malaria parasites through genetic technology. The prevention technique employs the “population modification” strategy, which introduces genes that block parasite transmission to mosquito chromosomes using a CRISPR-Cas9 gene drive system.

news.uci.edu



DONALD BREN SCHOOL OF INFORMATION & COMPUTER SCIENCES

Over 200 guests tuned into the Women in Technology at UCI organization’s first-ever virtual panel focused on “Altered Environments, New Opportunities.” The virtual event encouraged attendees to continue hunting for career and leadership opportunities despite the challenges of the new remote world and emphasized the importance of diversity in the workplace.

ics.uci.edu



HENRY SAMUELI SCHOOL OF ENGINEERING

A paper published in Nature by researchers from UCI and other institutions details the material components that make the diabolical ironclad beetle so tough and crush-resistant. The paper also demonstrates how engineers can benefit from the beetle’s newly uncovered design.

engineering.uci.edu



SCHOOL OF BIOLOGICAL SCIENCES

A study by UCI biologists provides new insight into how melanoma develops. The study overturns the idea that moles stop growing because of stress from the original mutation and shows that moles shut down because the cells inside the mole communicate with each other.

bio.uci.edu



SCHOOL OF MEDICINE

A UCI-led study found a simple sugar in human breast milk, or N-acetylglucosamine, promotes myelin repair in mice and correlates in individuals suffering from multiple sclerosis. In the U.S., N-acetylglucosamine is sold as an over-the-counter dietary supplement.

som.uci.edu

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In the Ecosystem

RESIDENTS OF THE
COVE @ UCI AT A GLANCE

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For more information on community partners, visit:
innovation.uci.edu/the-cove/ecosystem



UCI BEALL APPLIED INNOVATION
EMPLOYEE FEATURE

David Gibbons

DAVID GIBBONS SHARES HIS EXPERIENCE AS A CIVIL ENGINEER CORPS OFFICER IN THE U.S. NAVY, HIS LOVE FOR EXPLORING THE TROPICAL COASTLINE AND THE BEST PIECE OF ADVICE HE’S EVER RECEIVED.

Behind every technological breakthrough is a team of hardworking facilitators. As the director of Industry Sponsored Research at UCI Beall Applied Innovation, David Gibbons, P.E., MBA, helps facilitate innovation by ensuring UCI researchers secure the funding they need.

Q What do you love most about what you do?

I’ve really enjoyed the ability to interact with some of the brightest people in the world. Occasionally, the professors I work with are featured on a television program being interviewed about some advanced topic of science and I get to yell and scream and get my kids downstairs and tell them I know that person.

Q What is something about you that others wouldn’t necessarily know after meeting you for the first time?

I was once in the Navy. It was a great experience for me. I think the military imparts personal accountability on people. That wasn’t me necessarily before I was in the military so I can credit them for the aligning of my character.

Q What are some of your hobbies?

I like to mountain bike. I like hiking and camping. I love scuba diving. I grew up on Jacques Cousteau programs and got certified when I was 13. My boys were both certified at 13 and my third son will do so as well. We’ve dove in Kauai, Cabo and the Galapagos together. I would like to get back into that but it’s just difficult to find the time.

Q What’s the best piece of advice you’ve ever received?

Always take the meeting because you just don’t know what it could lead to. Being open to new ideas and people and experiences makes you unique because a lot of people don’t want to invest their time if they don’t see the immediate return to themselves. Over time, it kind of creates a professional karma. I’ve found that you just build up a lot of good will with other people that you can then call upon later to help you out. ///

TEXT: KAITLIN AQUINO / PHOTO: RYAN MAHAR



AG Tools optimizes the food and agricultural supply chain by providing real-time data analytics to farmers, buyers and shippers.

SUCCESS STORY

AG Tools Stacks Up Successes

THE STARTUP THAT HELPS USERS MANAGE MARKET VOLATILITY AND REDUCE FOOD WASTE KEEPS ON GROWING.

2020 proved to be a challenging year for many. Despite this, some companies were able to be successful amid the pandemic. One such company that found success was Wayfinder* startup AG Tools, the software company that brings big data, analytics, reports and forecasts to the agriculture supply chain.

Led by CEO and founder Martha Montoya, the startup not only managed to make headway, but also continually hit new milestones, won awards and attracted attention from discerning organizations.

In 2020 alone, AG Tools won first place and a \$200,000 investment at the San Diego Angel Conference, first place and \$125,000 at the Flywheel Investment Conference, and had their software validated and listed on the Microsoft Azure Marketplace, which lends the company more credibility with corporate America and overseas. The company also won “Best Investment Opportunity” in Next Wave Impact’s Founders of Color Showcase, received an Investor Judges’ Award at Octane’s Tech Innovation Forum, and was recognized as one of 20 winners from a pool of more than 4,500 companies in Pepperdine University’s Most Fundable Companies competition.



EVERY SINGLE COMPETITION AND AWARD REQUIRE US TO STOP AND REVIEW WHAT WE ARE DOING AND ADJUST OR KEEP ON SOME OF THE PATHS WE HAVE CHOSEN.”

– Martha Montoya

“Today, everyone, including non-industry stakeholders, understand the terminology, which is our core competency,” said Montoya. “On top of that, people watched news stories about food waste happening in this country, not only across the globe. It is allowing us to move faster on both investment and customer acquisition.”

Montoya herself was the recipient of a number of awards, including the Rising Star Entrepreneur of the Year Award at the Women’s Venture Summit and an Innovator of the Year Award at the Orange County Business Journal Innovator Awards, both of which occurred within days of each other in September.

Montoya likens the pursuit of competitions and programs to training for a major sports tournament and recommends it to other entrepreneurs.

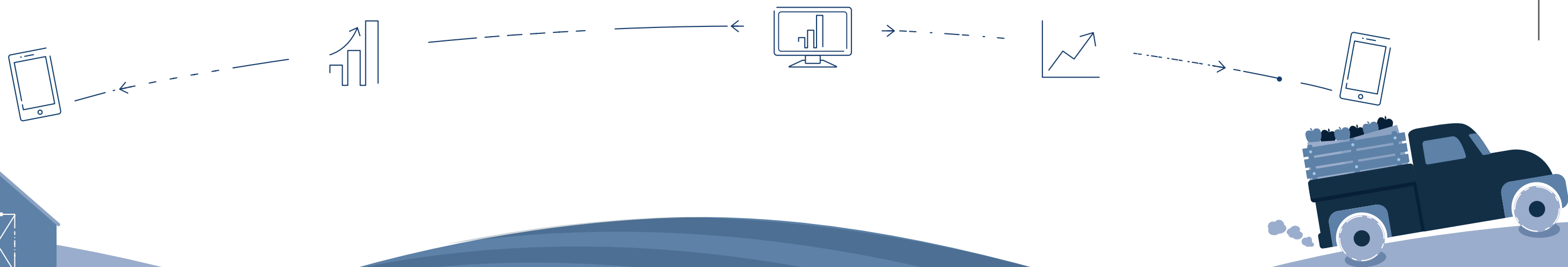
“You need to keep practicing at every single tournament you can get in to,” said Montoya. “On top of that you get amazing mentors, comments and analysis that makes you only better. It requires a high element of time management and discipline so it is not for everyone, but if you can do it, you must do it.”

AG Tools’ future plans involve focusing on programs that open doors to new potential customers and prepare the company for the long term. They also have plans to further develop their intellectual property before making a global push with their technology.

Learn more about AG Tools at agtechtools.com ///

AG Tools was also accepted into accelerators, incubators and other like-minded programs that will aid the company even further. Programs include Women in Cloud, a community-led economic development organization; the Techstars Farm to Fork Accelerator, which focuses on companies taking on major food system challenges; the Larta Institute, an accelerator that caters to companies in the agriculture industry; an agtech accelerator program in North Dakota through Plug and Play, an innovation platform; and the Boston Consulting Group and Msaada Partners-backed Majira Project, which provides resources to post-accelerator companies that help underserved communities.

The increased buzz, according to Montoya, is in large part due to pandemic-related supply chain challenges that many Americans were finally able to witness firsthand – something she’s been entrenched in for over 25 years.



*Resources Mentioned in this Story

Wayfinder
innovation.uci.edu/programs/wayfinder-incubator



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innovation.uci.edu/support-innovation

UCI Beall Applied Innovation is a dynamic, innovative central platform for the UCI campus, entrepreneurs, inventors, the business community and investors to collaborate and move UCI research from lab to market.

WAYS TO GET INVOLVED

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UCI Beall Applied Innovation

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