

SPRING 2017



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STARTUP SPOTLIGHT

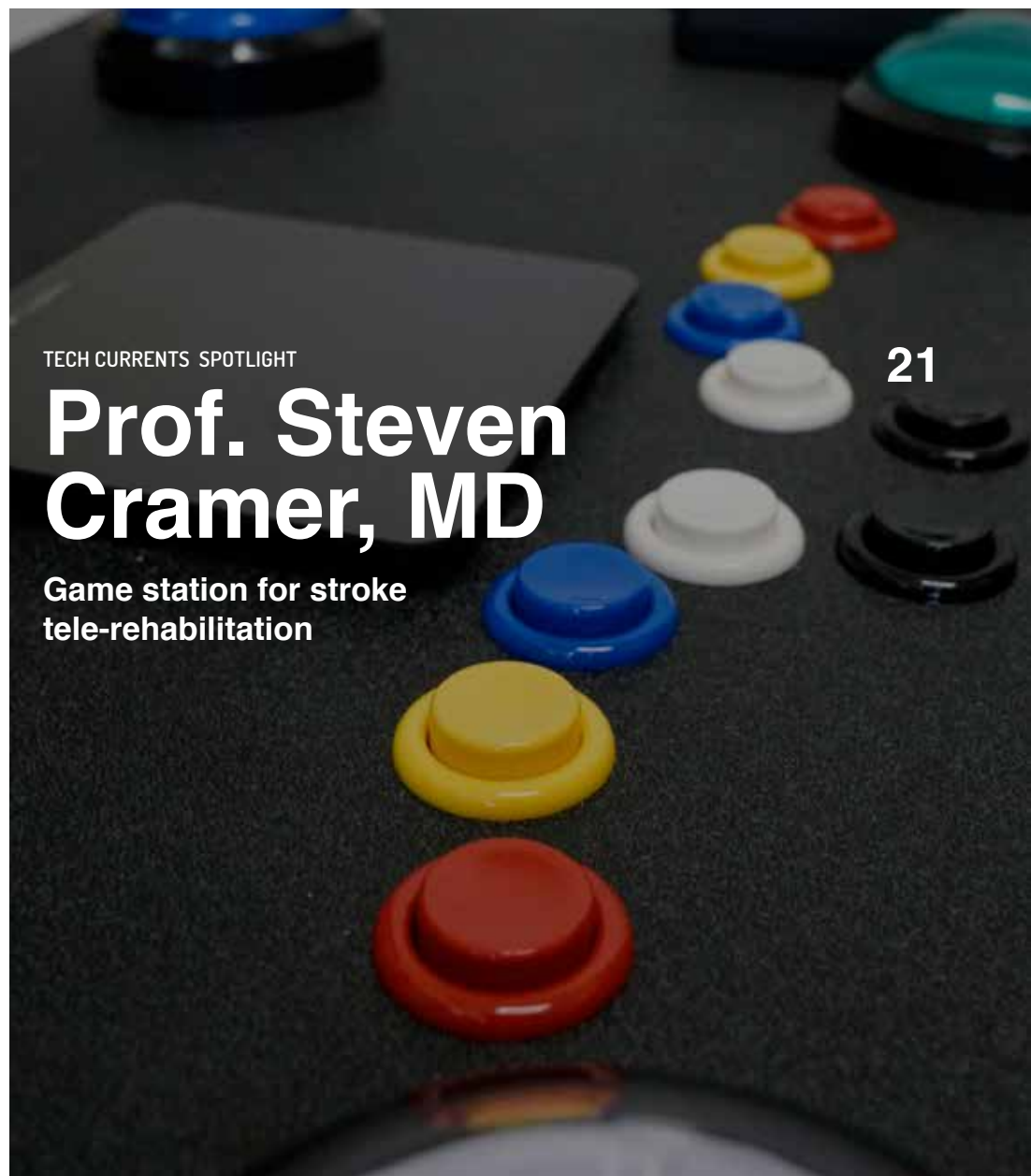
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Making it easy to log, retrieve, and share food memories with friends



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Board Letter



As a board member, I am pleased to see UCI Applied Innovation progress in its goal of bringing campus-based discoveries together with Orange County's vibrant business community to support job creation and economic growth.

As CEO of HOTB Software Solutions, headquartered in Irvine, I am committed to seeing the innovation ecosystem in Orange County continue to thrive. I interact with a variety of emerging companies and promising technologies on a regular basis as a member of Tech Coast Angels and as leadership for HOTB Ventures, a division of our company focused on providing capital and resources to startups with investment philosophies similar to our own so they gain value and validity in the business world. In each of these capacities, I see the impact that Applied Innovation makes on the community.

Creating a hub for innovation and collaboration like the Cove is a game changer for Orange County, providing a space for all stakeholders in the community to interact. As a member of the Wayfinder Expert-in-Residence Network, I see the growth of companies at every stage as they interact with the resources at the Cove. I watch as entrepreneurs become the next generation of innovators and business leaders.

The quality of emerging companies in Orange County becomes increasingly robust and diverse as more research from UCI makes its way into the market through licensing by industry partners, sponsored research, and companies founded by UCI faculty and alumni. Innovation is a driving force for all stakeholders in the community to make a meaningful impact in the world. To this end, I encourage my fellow business leaders to engage with UCI Applied Innovation and support its efforts to make Orange County a global leader in life-changing technology, research, and industry collaborations.

Andy Firoved, CEO, HOTB Software Solutions
UCI Applied Innovation Board Member



Past Tides

Past Tides

StartUpOC - Second Investor Summit

February 22

On February 22, the second StartUpOC Investor Summit sponsored by Applied Innovation, OCTANe, and the Irvine Chamber of Commerce was held at the Cove. Attendees represented a diverse spectrum of venture capital firms, angel investors, and local ecosystem partners. Participating organizations included EvoNexus, FastStart.studio, and Launchlabs @ Chapman University. Participants that pitched included five established and eight emerging companies, representing \$33.5 million dollars raised in total. The program format consisted of a ten-minute pitch by each startup, followed by a Q&A. Monster VR, one of the participating startups, also provided attendees demos of its technology throughout the day.



StartUpOC: Wayfinder startup Flyspan presenting to investors from across the country.

Linda DiMario, Vice President of Economic Development and Tourism for the Irvine Chamber of Commerce, shared the following, “I am proud of the collaboration between the university and the community. This event is a way for us to increase the profile among our local community as well as regionally and throughout the state. We are showing that Irvine and Orange County have an ecosystem for startups that is robust and not such a secret anymore.”

Bill Carpou, President, and CEO of OCTANe shared, “This is an opportunity for us to continue to expand access to capital for the companies that are starting up here in Orange County. We recognize that can be the most important thing for startups. This event is the second in the series, and I

think we have improved on the last iteration. Today, more VCs are in attendance and the companies presenting are of a higher quality. We want to continue with these showcases throughout the year on a quarterly basis.”

From a venture capital perspective, Akhil Saklecha, MD, MBA, Partner with Artiman Ventures, an early-stage sector agnostic venture fund with offices in Silicon Valley and Bangalore, expressed, “Overall, the companies that presented were of good quality and well prepared.” Other groups such as Golden Seeds, Greycraft Partners, Mark IV Capital, Bow Capital, and the Cove Fund were also present for the event.



TriTech Investor Ready Workshops: Richard Sudek, Chief Innovation Officer, Executive Director, Applied Innovation

TriTech Investor Ready Workshops

February 25

Cove resident Tri-Tech SBDC held community workshops in the months of February, March, and April, centered on preparing entrepreneurs for investment. Workshop topics ranged from pitching and SBIR/STTR workshops to crafting and delivering a compelling investor presentation.

How to Prepare for the Investor Audition

On Tuesday evening, Bill Waldo, Senior Consultant for TriTech, hosted the first installment of the TriTech Workshop Series, “How to Prepare for the Investor Audition,” at the Cove. Waldo advised budding entrepreneurs on what it takes to become investor ready and how to get funded by outlining the investment process and investor expectations at each stage. He dubbed his presentation the “Checklist

for Entrepreneurs,” in which he guided the audience using his own knowledge as an experienced angel investor.

The end goal of the presentation was to prepare entrepreneurs with everything they need to give a successful pitch, specifically for angel investor funding. “At the end of the day, investors aren’t going to look at your business plan,” Waldo says. “Investors go for the business model and the entrepreneurs.”

The Art of the Investor Presentation

On February 27, the Cove held “The Art of the Investor Presentation” hosted by Richard Sudek, Chief Innovation Officer and Executive Director at UCI Applied Innovation, where he discussed the craft behind pitching to investors and what makes it successful.

Sudek cites Kyriacos A. Athanasiou, UCI Professor of Biomedical Engineering

and Orthopedic Surgery, as an example to point out that the whole focus of a company is more than just the technology facet. According to Athanasiou, from the scientist and technologist perspectives, the people aspect can destroy a company. The technology only represents about 10% of the equation. As an investor, Sudek believes it’s even lower than 10% of what it takes to bring a product to the market. “At the end of the day, you have a business value proposition and that is what matters, not the technology — no matter how novel or sophisticated the technology is,” Sudek says.

Sudek concluded the workshop with input from audience members Dick Dadamo and Alan Lewis, experienced angel investors from the Tech Coast Angels, as well as an audience Q&A session.

Irvine Company Innovation Day

March 21

The Irvine Company hosted its annual Innovation day on March 20 at the Cove. Its members and leaders discussed new technologies implemented in Irvine Company buildings and their benefits. They also explored technology that they could implement in the future. Keynote Speaker Neil Sahota from IBM Watson introduced the concept of AI and how it can be integrated into everyday life.

Neil Sahota is an IBM master inventor and the worldwide business development lead in the IBM Watson Group. His work experience includes roles as a thought leader consultant for IBM Global Business Services, and business mentor for IBM Extreme Blue. He is also a member of Tech Coast Angels and a professor at the Paul Merage School of Business.

Sahota opened his presentation with a question, “What AI does everyone use on a daily basis?”, to which the audience answered with devices such as the Amazon Echo and Siri. He explained that AI has become very intelligent because machines now learn even faster than human beings. The first example he provided was AlphaGo, an AI technology invented by Google DeepMind that beats humans at “Go,” a strategic board game. This led to the rise of, what IBM calls, cognitive computing. Cognitive computing and cognitive based systems accelerate, enhance, and scale human expertise. This is done by machines learning and building upon knowledge, understanding natural language, and interacting more naturally with humans than traditional programmable systems. Over time, cognitive systems will simulate an actual brain and help solve the world’s most

difficult problems by penetrating the complexity of big data.

Exploring the potential of artificial intelligence, IBM created an AI that uses cognitive computing, named Watson. Sahota described Watson’s many projects. For example, IBM partnered with 20th Century Fox to create a movie trailer using Watson for “Morgan,” a horror film about AI technology. Watson analyzed the movie and picked out the most dramatic scenes to determine what should be put in the trailer. Sahota went on to describe other projects, like how Watson makes music, helps train

athletes by analyzing performance and competitors, makes unique recipes using chemistry, trains animals, drives cars, and creates analytics. IBM Watson even partnered with the law firm BakerHostetler to create ROSS, the first AI lawyer.

“AI is not traditional computing, it’s actually the third generation of computing,” Sahota explained. He also described how IBM Watson and AI generally open opportunities to help solve major pain points in life. “We have to think of AI in terms of solving problems first, rather than thinking about how to automate tasks,” Sahota said.

Irvine Company: UCI Alumus and IBM Master Inventor, Neil Sahota



Wolverine Angels Night

March 29

On March 29, the Cove hosted Wolverine Angels Night, a collaborative event between Michigan University alumni and Applied Innovation, where three different founders shared stories and successes about their startups. Wolverine Angels (WA) was created to connect the world of investors, entrepreneurs, and executives in the University of Michigan community. The investment syndicate invests in the best opportunities, regardless of affiliation to Michigan. A portion of the investment returns is donated to entrepreneurial programs at University of Michigan.

Shane Kelly, Founder and Managing Partner of Wolverine Angels, MC’d the evening and began with an emphasis on the support of early businesses. According to Kelly, a startup is “one of the hardest things you will ever do.” He notes that actively seeking out promising startups to offer advice, mentorship, clients, or funding are key ways to both benefit and give back to the business community. Wolverine Angels reflects this attitude. Eventually, Kelly wants to have a virtual mentorship program to further encourage entrepreneurial growth. Finishing his synopsis on WA, Kelly welcomed the event’s first presenter, Bennett Washabaugh, CEO and Co-Founder of TenantBase.

Washabaugh graduated from the University of Michigan and moved to Chicago, where he became a commercial real estate broker. Although he loved his job, Washabaugh realized “an inherent problem” with the industry in communicating with small businesses looking for office leases. Upon further research, he realized that these underserved companies make up 81 percent of the market. “No brokerage model exists to effectively service these small tenants at scale,” Washabaugh explains. Recognizing

Wolverine Angels Night: Founder and Managing Partner of Wolverine Angels, Shane Kelly

the issue, he seized the opportunity to create TenantBase, a convenient consumer based platform for small business lessors. Through this website, companies have full control of searching and deciding on spaces while maintaining a connection with an experienced advisor in order to navigate the intricacies of real estate jargon. TenantBase offers exclusive deals, popular and recommended spaces, high quality pictures, and monthly rental rates so clients have an easily navigable experience. So far, the company has done exceedingly well with only two markets – Nashville and Irvine. However, it just secured a Custom State partnership which removes barriers to 65 markets and allows TenantBase to access even more small companies as potential clients.

Eddie Lin, CEO and Co-Founder of Nexus Edge, delivered the second presentation. Through a brief example involving autocomplete suggestions on Google, Lin proved the disparate state of young people in the job market – college graduates are either not finding jobs or are underemployed. “That’s why my uber driver had an engineering degree from UPenn,” Lin jokes. Jobs, Lin notes, are no longer posted on job boards as everything now centers around networking. Taking issue with the underutilization of the millennial population, Lin developed Nexus Edge, an AI driven virtual career services office that provides students career support via video chat with mentors. Using the tool involves a three step process. First, a student answers questions regarding interests, fields of study, and potential career goals. Once completed, the website creates a “personalized roadmap” that includes articles, jobs, and LinkedIn learning resources. After that, the student is paired up with a mentor with matching experience and, as research suggests,



makes him/her 40% more likely to get a job. Lin values the face to face interaction with the client and even joined the Cypress College faculty to engage more with his client base. Lin notes, “High engagement is so important. You can’t just reach out to people in the ivory tower.” With this attitude and a key partnership with LinkedIn, Lin plans to connect Nexus Edge with even more educational institutions to benefit an increasing amount of determined students.

Brock Christoval, the Co-Founder of Wayfinder startup Flyspan, spoke last. An experienced entrepreneur with a history working in the defense industry, Christoval knows the importance and potential of drone technology. A popular development for police departments and other agencies, drones serve a clear purpose in the surveillance community. Unfortunately, the data overload from drones prevents quick decision making, which is a key component to many organizations that use them. As a result, Christoval co-founded Flyspan, which grants real time analytics for drones. The software, FlyView, benefits clients in three areas: extraction, management, and analytics of the data. It allows, say, the chief of police to see the data from a drone without ever leaving their workspace. The potential for this technology is high as the market is predicted to be worth 126 billion dollars by 2022. The way Christoval sees it, “In 50 years, you’ll look up and the sky will be filled with autonomous vehicles.” His company seeks to benefit the ever growing development of machinery for the future.

Wayfinder Pitch & Match Event

April 13

On April 13, the Cove hosted the Wayfinder Pitch and Match Event, an opportunity for startups in the Wayfinder program to connect with Experts-in-Residence (EiR). Each team gives one minute pitches to the EiRs to showcase the purpose of their companies and explains how the experts can help moving forward. Juan Felipe Vallejo, New Venture Director, introduced the 29 teams and emphasized the importance of building relationships with the participating entrepreneurs. After thanking the EiRs for their help with the Wayfinder program and highlighting the value of the event, Vallejo welcomed the teams to begin their presentations one by one.

A wide range of startups, from Herbabu, an online Chinese medicine pharmacy, to Desert Farms, a health food company that sells camel milk, presented at the event. Each speaker eloquently described his/her relationship with his/her company and went on to explain the broader goal of the team. In terms of advice and expertise, many people sought help with investment, marketing, networking, and financials. A few had clear monetary goals in mind while others just wanted general advice from an experienced business person. Once the pitches ended, Vallejo asked the EiRs and companies to network with each other in order to acquire the most valuable experience possible.

Wayfinder Pitch & Match: CEO and Co-Founder Brock Christoval of Flyspan



Africa Day: Panelists included professors from the UCI School of Law, School of Social Sciences, Humanities, and Political Science from multiple universities.

Africa Day 2017

April 15

On Saturday, April 15, UCI School of Law's Center for African Business, Law & Entrepreneurship hosted an all-day event celebrating Africa Day at the Cove. It featured a dance performance and panel discussions on Expression, Censorship and Creativity in Africa as well as Colonial and Postcolonial Encounters. The festivities celebrated the resilience, creativity, and innovation of Africa.

The morning panel discussion focused on expression, censorship, and creativity. The panelists each described their research and work in Africa. David Kaye, the Director at the International Justice Clinic and Clinical Professor at the UCI School of Law, examined his research on censorship and expression. His work primarily focuses on teaching public international law, especially international human rights law. He explained the global assault on freedom of expression and how Africa is moving towards the digital space for freedom of speech. With that, Victoria Bernal, Professor at the Department of Anthropology in the School of Social Sciences, continued the discussion by summarizing her paper "Laughing Through Tears: Humor and Dictatorship in Eritrea." She explained how humor unmasks reality, specifically how political satire functions in a dictatorial government. Adding to this, Olufunmilayo Arewa, Director at the Center for African Business, Law & Entrepreneurship and Professor at the UCI School of Law, discussed her paper "Nollywood, Social Media, and Freedom of Expression," which talks about how social media and viral posts contribute

to the political environment in Africa. Authorities attempt to censor the people by inciting social media laws. Tina Beyene, UC Presidential Fellow at the Department of History, explained her paper, "Imperial Erotics and Nationalist Entrapment: Rwandan Feminist Narratives of Mass Rape." Her research and teaching interests in postcolonial studies, transnational and women of color feminisms, gender-based violence in conflict zones in Africa, critical development studies, and women in the horn and central Africa contributed to the conversation by adding a new perspective on censorship in Africa regarding women. Bryan Reynolds, a professor in the Drama department at the UCI School of the Arts, and Mark LeVine, a professor of Middle Eastern History and History at the UCI School of Humanities, discussed oil, art, and resistance in Nigeria and Kenya. They described the effectiveness of political protest and activism as well as their work with PAWA 254, a political activist group in Kenya. PAWA 254 uses art and culture to have a social impact on Africa. With that, the conversation moved to Lukas Ligeti, Assistant Professor in the Department of Music at UCI School of the Arts, who explained how music in Africa has evolved to incorporate technology and new age sounds.

Lunch and a traditional dance performance came after the morning panel. Additionally, the audience viewed a screening of "Exchanging Language - from the Orange to the Gold Coast," which followed 17 UCI students who went to explore the roots of jazz dance in sub-Saharan Africa. The day

continued with an afternoon panel centered on Colonial and Postcolonial encounters. The talk began with Patricia Seed, a history professor at the UCI School of Humanities, who described the rising sea levels along the coast of Africa and their impact on the economy and daily life. Other speakers included Frank B. Wilderson III, Director and Professor of African American Studies and Drama at the UCI School of Humanities, who discussed his book, "Incognegro: Five Years of Exile and Apartheid." He shared his experience as a journalist and as one of the two members in the African National Congress. Tekle Woldemikael, a professor in the Dept. of Sociology at Chapman University, explained his work and research on the cultural divide in Eritrea which will be in his next and third book, "The Invention of Eritrean National Identity."

Crystal Murphy, Ph.D, Assistant Professor at the Department of Political Science at Chapman University, described her work and research on humanitarian interventions in South Sudan. Other speakers included Cecelia Lynch, a political science professor at UCI School of Social Sciences, who focused the talk on her topic titled, "Problematizing 'Resilience' among Religious Humanitarians in Cameroon," which focuses on the ethics of Islamic and Christian NGOs in humanitarian work in Africa, the Middle East, and the centers of NGO power. Erin Mosely, Ph.D, Assistant Professor in the Dept. of History at Chapman University, focused on her research with democratizing Rwandan history after the war and genocide.



General Assembly: Panelists for the event included Steven Itano Wasserman, Director and Producing Partner of the film; Michelle Flowers Taylor, Ed.D, Director of IEC3 at USC Viterbi School of Engineering; Marek Mandau, Analytics Program Manager at Applied Innovation; and Farouk Ferchichi, an executive advisor to a multitude of chief analytics officers around the country.

General Assembly: Talk Data to Me

May 2

On May 2, the Cove hosted a screening of the documentary film, “Big Data: Unlocking Success” at the Talk Data to Me event in collaboration with General Assembly. Following the viewing, a panel comprised of experts from the field answered audience questions about the impact and influence big data has on business, consumers, and everyday life. Members of the panel included Steven Itano Wasserman, Director and Producing Partner of the film; Michelle Flowers Taylor, Ed.D, Director of IEC3 at USC Viterbi School of Engineering; Marek Mandau, Analytics Program Manager at Applied Innovation; and Farouk Ferchichi, an executive advisor to a multitude of chief analytics officers around the country. Each provided clear and necessary insight into the exciting world of big data from a variety of unique perspectives. Mandau summed up the topic, in terms of business, most succinctly in saying, “big data is a tool used to ‘derisk’ your business venture in some competitive way.”

After introductions, the moderator asked panel members what they consider to be the most interesting aspect of big data. Each person had an individual answer tailored to his/her career. Ferchichi cited empowerment. He stated, “As I evolve from a tactician into management and leadership, empowerment sticks.” Big data allows greater communication among large movements, groups, and organizations. It lets users make a difference in a way not previously thought possible.

From a filmmaker’s perspective, Wasserman believed big data grouped information into a more cohesive blend that goes past the nitty-gritty into the big picture of knowledge. After each panelist answered, the floor opened to Q&A. The panelists highlighted both the unknowns and continual evolution of the industry – reminding the audience that a lot of the technology related to their questions is currently ‘in the works.’ One young woman brought up the issue of privacy in big data, to which Taylor answered, “Everything starts with an idea. You have the ability to create a guild to advocate for ethical use of big data. Our privacy is changing more and more each day.”

At the end of the question period, the moderator inquired about the technologies the panelists saw as the future of the field. Wasserman focused on cybernetics and how it influences daily life. He said, “We still haven’t figured out the whole human component of analytics. The cybernetics element will tell us more. How do we guide our own understanding of ourselves through it?” Taylor, who works closely with girls interested in STEM through her program at USC, took on a different perspective. Rather than focus on technology, she noted the influence big data could have on our education systems, particularly K-12. “I would like to see that impact of learning for young kids because, otherwise, we stifle their ability to see what’s possible,” she explained. A networking reception began at the conclusion of the panel, encouraging the audience to converse directly with the experts about opportunities and ask further questions related to big data.

Special Feature:

The UCI Entrepreneur Experience

Innovation is at the heart of UC Irvine, dating back to its founding in 1965. As one of the youngest members of the Association of American Universities, UCI has produced three Nobel laureates and established itself as a global leader in premier research and academic excellence. Numerous innovations have also made their way into the community through industry and other collaborative relationships. With more than 30,000 students, UCI is Orange County’s second-largest employer, contributing \$5 billion annually to the local economy.

Given the university’s history of innovation, entrepreneurship flourishes across the campus at the UCI ANEntrepreneur Center, Beall Center for Innovation and Entrepreneurship at the Paul Merage School of Business, Calit2, Beckman Laser Institute, the Institute for Design & Manufacturing Innovation (IDMI), the Beall and Butterworth Design Competitions, and UCI Applied Innovation. Made up of alumni, faculty, undergraduates, and graduate students, entrepreneurs at UCI access the abundance of resources, mentorship, and education made available to them – moving technology from the laboratory bench to the marketplace and often building companies in the process. The result of this inter-campus collaboration is a growing innovation ecosystem that helps UCI-based startups transition to opportunities that include accelerators, incubators, industry partnerships, and more.

The ANEntrepreneur Center is often the first stop for students interested

in entrepreneurship. It is the campus hub that helps the UCI community of students, staff, faculty, and alumni explore entrepreneurship, refine potential business ideas, and navigate obstacles for existing ventures. Founded in 2014, the ANEntrepreneur Center promotes innovative and entrepreneurial mindsets and skillsets among the campus community. The cornerstone of the ANEntrepreneur Center’s offerings is free, private, one-on-one consulting for founders. “Whether it’s a for-profit or nonprofit, large scalable business or small solopreneur business, entrepreneurs frequently need a coach to help them navigate the rough waters of starting a business,” says David Ochi, Executive Director of the ANEntrepreneur Center. “One-on-one face time with a trusted entrepreneur coach can make all the difference.” In addition to collaborating with other centers for the competitions that take place across campus, the ANEntrepreneur Center hosts workshops and seminars five days a week. “There is no one-size-fits-all solution when it comes to developing entrepreneurship. At UCI, we look at the diverse spectrum of needs and provide resources that interact with one another to provide a holistic experience,” Ochi says.

The Beall Center for Innovation and Entrepreneurship at the Paul Merage School of Business has a rich history of supporting entrepreneurs for over a decade. “We equip students with the knowledge and resources they need to either launch a business or innovate within an organization,” says Professor Imran Currim, Director at the center. The Beall

Center focuses on both curricular and co-curricular activities that includes a minor in entrepreneurship open to all majors and the New Venture Competition. Additionally, certificate programs in innovation and entrepreneurship are available for all undergraduates through the School of Social Sciences and MBA candidates at the Paul Merage School of Business.

Students enrolled in either the certificate or minor programs participate in the New Venture Competition presented by the Beall Center and Applied Innovation. This competition provides staff, students, and faculty an opportunity to form a team, create a startup, and have their idea funded – all within six months. Working collaboratively with both the ANEntrepreneur Center and Applied Innovation, workshops prepare teams for their final presentations and business plan submissions. Applied Innovation also collaborates with the Beall Center through Tech Surge, a parallel track of the New Venture Competition. The track focuses on UCI research based intellectual property (IP), bringing together researchers and entrepreneurs to help advance university technology toward commercialization.

“Participants in the competitions often frequent the ANEntrepreneur Center between workshops to refine their pitch and get additional help. We see the collaboration happening across centers like a relay race, with each organization playing a key role in the entrepreneur’s success here at UCI,” says Hannah Thompson, Program Manager at the Beall Center.

As the next destination for startups, faculty inventors, and researchers to engage with industry and the greater innovation ecosystem, Applied Innovation is home to the newly relaunched Wayfinder incubator program. “This program works closely with all of the campus research centers and competitions with an open line of communication to identify and nurture startups early on. Working in tandem with the ANTrepreneur Center, the Wayfinder incubator program is organized by the New Venture team and aided by Experts-in-Residence (EiRs), volunteers consisting of industry leaders, investors, and subject-matter experts,” says Juan Felipe Vallejo, New Venture Director for Applied Innovation. Wayfinder is a collaborative effort where potential incubator applicants attend workshops led by the ANTrepreneur Center to learn about program expectations and refine their business models. Afterward, teams consult with EiRs to get feedback on their startups and see if they are ready to apply. EiRs also help score, evaluate, and determine a team’s eligibility for the incubator. Accepted teams are placed into a cohort for a three-month structured program that includes a pitch and match event at the beginning, workshops, advising, formal reviews, and a showcase at the end. Teams that are not accepted initially are given detailed feedback from EiRs to refine their submissions and are encouraged to apply again for the following cohort. Wayfinder also accepts winning teams from the New Venture Competition, which serves as another pipeline of emerging companies that could benefit from the network and resources the incubator program provides.

Vallejo cites Velox Biosystems as a recent success story with multiple UCI connections. The core of Velox’s breakthrough technology stems from the research of Dr. Weian Zhao, a professor in the Department of Pharmaceutical Sciences, in collaboration with the Laboratory for Fluorescence Dynamics

(LFD) on campus. Velox is solving the problem of detecting bacteria in blood with a simple, fast, unique approach. After receiving a favorable response from “Nature Communications,” a prominent science journal, Dr. Zhao along with Dr. Chris Heylman, a postdoc working at the LFD, and Neto Sosa, a Ph.D. graduate student working in the Zhao Lab, formed a company to develop the technology further. Refining their product at Calit2’s Techportal incubator, the Velox team was eventually accepted into the Cove’s incubator program and has recently moved to a laboratory space in Orange County. “We engaged with Applied Innovation from the very beginning. Working with the Office of Technology Alliances (now the Invention Transfer Group), we secured the patents needed to commercialize our technology. Additionally, we collaborated with Applied Innovation to fund development for Velox in the Zhao Lab,” says Dr. Heylman, CEO of Velox Biosystems.

Ochi notes Gina Heitkamp of Gengirl Media as a prime example of a UCI alumna accessing resources across the campus to launch her business. Middle School Moguls, the first product line from Gengirl Media, is a character-driven doll, book, and online edutainment line for girls, ages 6-11. As a mentor for MBA students at the business school, Ochi met Heitkamp, CEO, and Co-Founder of the company, and discussed a concept for the business. After presenting at the ANTrepreneur Center for feedback and attending some of the center’s workshops, Heitkamp and her team entered the Business Plan Competition at the Paul Merage School of Business, ultimately winning. Afterward, Heitkamp and her team presented at One Million Cups, a weekly nationwide meetup of local entrepreneurs, where they found an early investor and Kickstarter collaborator. Fast forward to the current day, and the team has since successfully graduated from the Cove incubator program at Applied

Innovation, become a tenant at the Cove, and now has its product sold across the country at large retail stores such as Target and Walmart. “Gina and her team have effectively utilized the vast resources available to entrepreneurs at UCI. Her rapid success in a highly competitive industry is a testimony to the impact that the entire UCI entrepreneur ecosystem can provide to ambitious and talented UCI students and alumni,” Ochi comments.

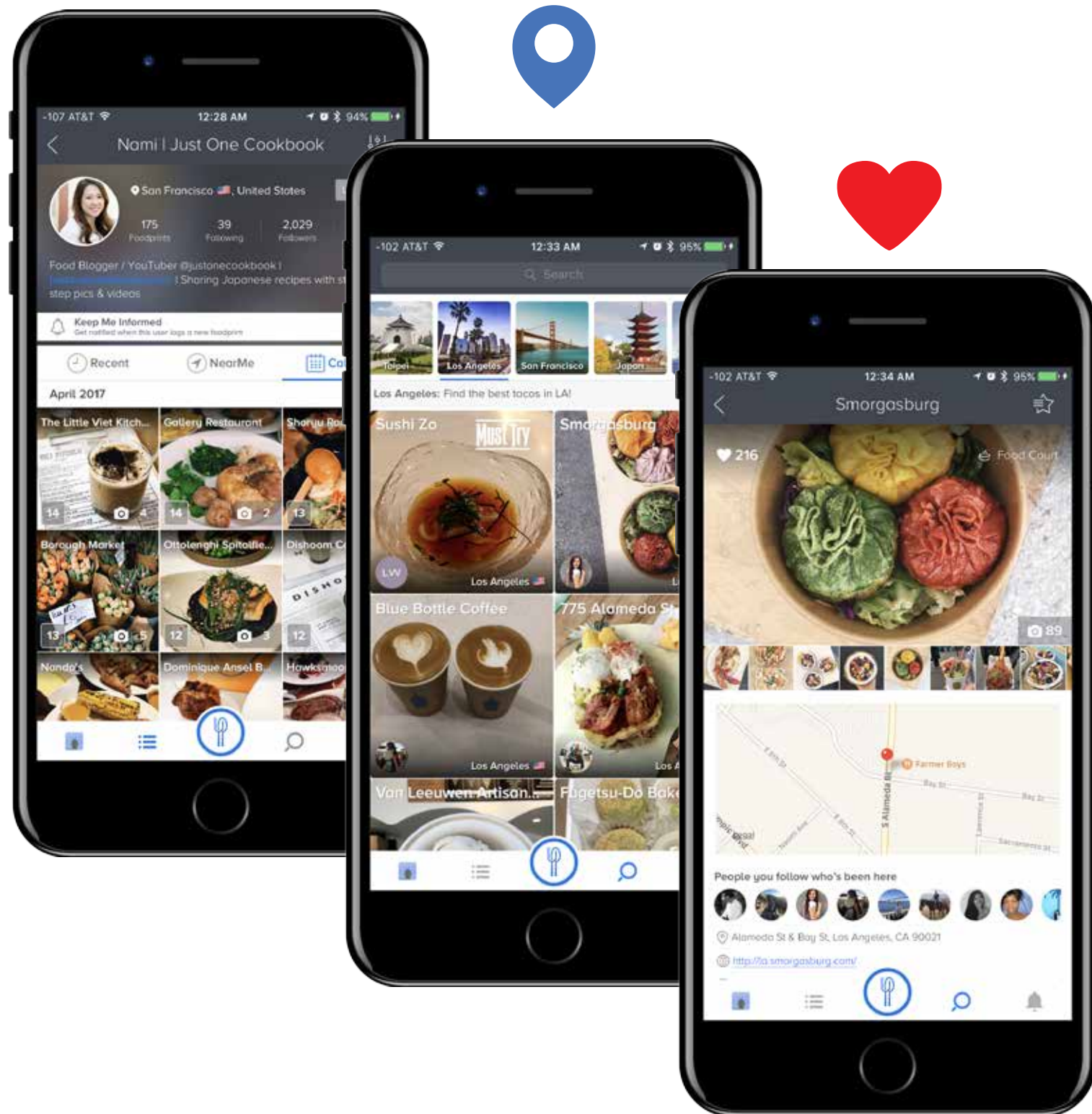
Entrepreneurship thrives at UCI as centers for innovation pursue their mission of providing the guidance and resources needed from across campus to cultivate startups and breakthrough ideas early on. The representation of schools is also more diverse as the Beall Center, ANTrepreneur Center, and Applied Innovation see startup teams comprised of multidisciplinary backgrounds ranging from the schools of Arts, Social Ecology, and Social Sciences to Business and Biomedical Engineering. The integration of these programs fosters a sense of collaborative community within the business ecosystem of Orange County. “These are exciting times for entrepreneurship at UCI,” Ochi says. “We are at the forefront of University based entrepreneurship ecosystem growth and are rapidly becoming a model for ecosystems around the world.”

With this new population of innovators, the UCI community understands the impact of these programs will not just be felt by startups, but throughout the world.



Startup Spotlight

YUMMI



Startup Spotlight: CEO and Founder of Yummi, Pete Wong

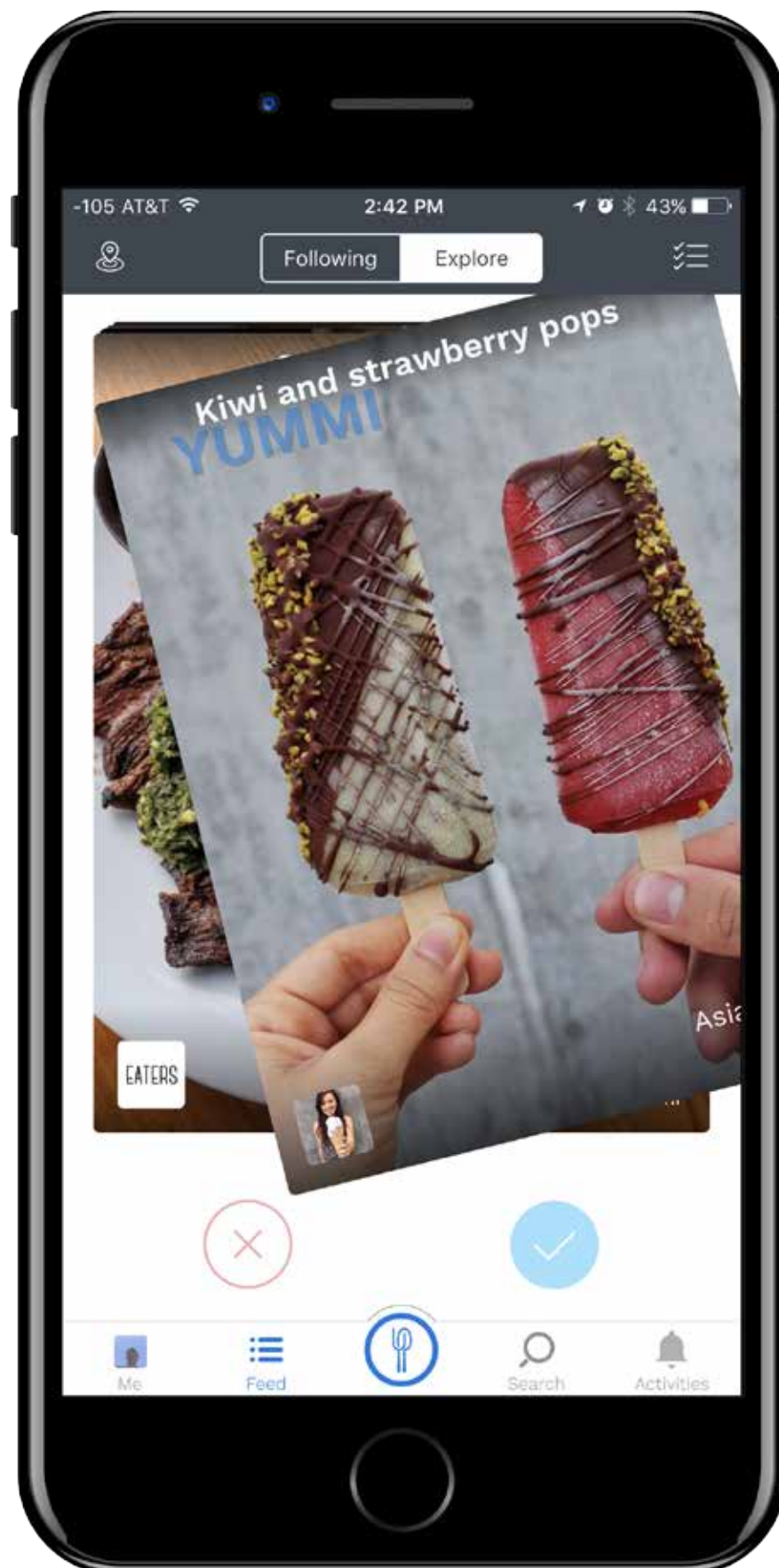
Even before the days of Yelp and Instagram, people took pictures of their meals and documented their food experiences. The world's passion for food is clear with the various stories featured in magazines, restaurant reviews by food critics, and the ratings of Tim and Nina Zagat (creators of the now eponymous Zagat Guide). These all serve as early examples of crowd-sourced food reviews. Two years ago, Pete Wong, a UCI alumnus and EIR at the Cove, observed this same fervor for food while living in Shanghai. He saw an opportunity to explore the idea of an interactive food diary, a social utility that empowers users to log and remember their food experiences.

After graduating from UCI in 1994, Wong spent 18 years in Asia, successfully

growing a career in digital media, evolving marketplaces, and transforming businesses. In those years working abroad, he led business units for some of the world's premier companies such as Deloitte, eBay, Dell, WPP, and Google. A couple of years ago, Wong, drawing upon his years of experience in understanding technology trends and consumer behavior, noticed common pain points among foodies taking photos of their food and wanting to memorialize these "yummi" experiences. According to Wong, people post their food photos online, but current popular social platforms lack the tools necessary to recall past food memories rather than just record them. They all fall short in features that fully serve the needs of foodies who want a one-stop-shop

platform to not just share but recollect where and what they've eaten.

With years of digital advertising experience, Wong considers content and data to be the two most important factors in marketing in this day and age. He points out that, even if foodies do not realize it, when they take food photos, they simultaneously delete valuable content. "My research tells me that there are over two billion smartphone users and statistics say 35 percent take photos of food – equating to 735 million users! That's a lot of people and a lot of food photos. But, surprisingly, less than five percent of all food photos get posted online. The main motivation for sharing these is largely to get 'likes'. The remaining 95 percent either sits on your phone – taking up phone space or



get deleted,” Wong says. Snapping a food photo is essentially capturing a memory of an experience. However, according to Wong, phone albums, cloud backup apps, or the current social apps do not do a good job in helping to retrieve these food memories.

Identifying Yelp, Instagram, and Facebook as popular repositories for online food memories, Wong observed that these platforms all have great features *independently* serving the needs of the foodie community. However, no single platform offers all of the necessary features for foodies in one place. Take Instagram, for example; it is a perfect place to share food photos because, when it comes to cuisine, visually appealing images matter the most. It has become a new source of food information on where to go and what to try. However, it stops short of offering users more benefits. Wong says that many of the foodies he talked to agree that posting food photos on Instagram serves simply as “food for your eyes.” Instagram lacks the ability to locate these “foodprints” when it is most relevant – when users are nearby the restaurant. This shortcoming applies similarly to Facebook. Then there is Yelp, the most commonly used food app. Wong believes that Yelp, while undeniably popular for discovering new food, does not prioritize pictures as much as ratings. Its usability design presents barriers in connecting with friends and their food experiences in a more user-friendly way. As many would agree, people are more likely to prioritize food recommendations from people they already know and trust than from strangers. Yummi is designed in the form of a photo journal with a social graph that combines the food discovery feature of nearby, with a blend of Instagram and Yelp.

With Yummi, Wong says it is all about posting for yourself, the user. The first intent of using it is logging your own food

experiences and memories. “We are branding Yummi as a social utility app for all things food, not just another social network for food. It is first and foremost an app for food logging. The goal is to build a social vertical platform with features and functions entirely to serve the needs of the eating experience,” Wong explains. Yummi takes the best and most relevant features of all the existing popular social platforms and combines them into one, making it a one-stop-shop for recording, remembering, and sharing food experiences. All uploaded photos are backdated, tagged with location and type of cuisine, and automatically arranged by a historical timeline according to when you took the photos. Because of this, regular images turn into “foodprints” on Yummi.

Unlike other social platforms, users’ contents are stored on their screens and given top priority as a first tab placement. The emphasis of this app is more personal as a food diary tool. All “foodprints” can be individually toggled for public viewing or kept private. This is a nice change from other social apps because Yummi is inclusive for people who avoid Facebook or Instagram for privacy reasons. This could potentially open up a bigger market and help Yummi gain a large user base.

These competitive advantages are compelling enough for the food industry to take notice. Recently, Wong brokered a partnership agreement with the Orange County Restaurant Association, an organization representing more than 700 restaurants. It is also the organizer of major events, such as the annual OC Restaurant Week, that rally thousands of foodies to go out and try new restaurants and cuisines. This is a great first step for Yummi as it drives awareness and gets the word out to food lovers who will, no doubt, find this app to be a useful utility in their food adventures. Yummi has also recently been featured on the Food Flavors radio

show and sites such as The Sacramento Bee, 87Magazine, Culination Magazine, and Parade Magazine.

As an alumnus of UCI, Wong loves living in Orange County and has decided to make Irvine the base for Yummi. Wong shared that he believes Orange County has the potential to be the next great tech hub. “I would love to help build up a tech ecosystem here in Irvine. There is an abundance of resources from nearby universities such as UC Irvine, Chapman, CSUF, and CSULB. Those are all great schools with lots of amazing talent hungry to be part of the tech and startup world. The affordability of living in OC compared to other tech and startup hubs makes it attractive to talent from there as well.



Example of a user profile on Yummi.

Being part of UCI Applied Innovation has been wonderful for us as we leverage the resource, support, and inspiration from other innovative startups in the area,” Wong says. “Personally, I think all it takes to continue elevating Orange County’s profile as a tech innovation center is more success stories around good products and companies. We think Yummi is a perfect startup to be based in Orange County because there is already such a diverse, and active foodie community here.”

In the Ecosystem

Vasudev Bailey

**UCI Alumnus,
Venture Capitalist,
and Business Leader**

Vasudev Bailey, Ph.D, is vice president at Quid in San Francisco where he leads the global enterprise team. As a business leader and Silicon Valley venture capitalist, Bailey has experience from multiple startup perspectives. A UCI alumnus who understands the commercialization pathway from a university perspective and a seasoned entrepreneur in building and investing in companies, Bailey understands the ins and outs of innovation and development. He is hopeful about the ecosystem growing in Orange County and, especially, the contributions from Applied Innovation. Bailey shares that collaboration among startups and experienced professionals is key to building a successful product, and, ultimately, a successful business. In the conversation below, he emphasizes the importance of understanding that there are various avenues to achievement; entrepreneurs should choose the path that works best for them.

What are your thoughts on the progress of the innovation ecosystem here in Orange County?

“In the last three years, the amount of initiatives coming from OC, especially from Irvine, have been incredible. I think this is absolutely the right track. You have to start by inviting people from the outside world to see what’s going on here.”

What do you think about Orange County’s potential to be a source for deal flow for Silicon Valley?

“I think Orange County, or Irvine, can be an incredible source for deal flow and I think one of the challenges is access or visibility into what is going on here. I think you already alluded to the various initiatives from blogs, from newsletters, from even



having access to a central place, like an incubator here that allows easier access to talent. I think that one of the other advantages of a facility like this is that you’re already vetting some of the ideas, the IP, the talent. And, it brings and gives a little more trust. It gives the entrepreneurs access to people on the other side, like in the Valley – like me. But, also, it gives us the ability to ask, ‘Can you tell us about the top five companies that you’ve seen in the last three months?’. It is also helpful to capture the data from all of the activity happening here so you can connect us to it. Overall, these are absolutely the right steps.”

On the topic of collaboration, Bailey shared the following thoughts:

“Some of the [startup companies] can get direct investments and others can work [on] partnerships with larger corporations. I think the VC world is one avenue, but I don’t think it’s the only avenue. There’s another, which is connecting with corporations that might have interest in partnering or absorbing or figuring out how to bring some of these ideas to life.”

As a Venture Capitalist, what ultimately influences your decision to invest in one startup versus another?

“There are three things that have to come together for every idea to be venture investable. The first is the concept or idea itself has to be transformative. It has to be something that has legs to have good returns in x number of years. And, it absolutely is a question that you’ll think about. The second is the team and dynamics; ideas are a dime a dozen, but it takes real execution to make something successful. The third is, I think it takes humility and an ability to see. So, if you think about ideas and what you want to invest in, a track record of humility helps because people who are humble enough to surround themselves with people who have done it generally have an easier path to success. I don’t know how you would actually quantify that, but I think one way is that you see if someone is open to the idea of collaborating or bringing in people who he or she thinks will help them accelerate to market faster.”



EIR Spotlight



Bill Waldo

Bill Waldo is a business expert, industry leader, and seasoned entrepreneur. From starting his own successful food services company to aiding fledgling enterprises through all kinds of scenarios, Waldo applies his talent to have an impact on his community. His experience as an entrepreneur, investor, and mentor grant him a unique perspective on the necessary goals that a startup must reach before moving on to investment. He makes clear that idea development, a cohesive team, and viable resources are key to the cultivation of a lucrative business. Ultimately, he states, a steady vision of “making it happen” is what separates the funded from the unfunded companies.

What regulatory or oversight challenges do startups face in the consumer products space from a food services perspective? How can they address and overcome them?

“One of the problems, regulatory wise, that’s out there today, whether you’re in the consumer space or going into it, is labeling. Labeling is a major issue. There are more and more regulations put on labeling, and this has been going on for a number of years.

The consumer goods space is very complicated. If I wanted to try and grow the consumer retail business, how would I do that? What sales channels would I use? What marketing strategies would I use? Those are the most costly parts of the whole process of getting into the consumer business. How do I get it pushed out to the masses? I can have the greatest product in the world, but I have to sell it to retail stores, specialty stores, etc.

One of the most popular methods is the broker community, which I was a part of in the food service industry for my entire career. The goal is to find independent sales representatives who have relationships with the retail industry and can provide access to the retailers from consumer goods people. For example, I have a client right now who has this great bakery mix product and she finally obtained a broker who has relationships with a few small retail chains that are perfect for this particular product. Now she has the ability to get it pushed out there; she has found an independent sales force that gets paid when it performs. And that is a consumer goods person’s utopia because she found an independent sales agency that has relationships with the customers. And those customers are doing business with that broker because they know him/her very well.

Having a relationship with an independent sales organization that has relevant connections allows a consumer goods person to get into the market. If you’re going into the consumer goods business, like any other business, you can’t afford a sales force. You have to have an efficient, effective way to get it out to the masses as quickly as you can.”

From an angel investor perspective, what are the three most important things startups need to have to be investor ready?

“The right product that has scalability, national, and global capabilities. The right team, which is so important, that has the background and skillsets to make it happen.

And the traction, investors won’t go into a lot of detail, but, at the end of the day, the funded businesses are the ones that prove they can make it happen.

I’ve got a CEO, a CTO, and business development people – those are the most important and most critical positions for a company to have to gain investor interest.”

From your experience with TriTech, what are the most common issues you see early-stage entrepreneurs face in Orange County? How do they resolve these concerns?

“First and foremost, they have to be beyond the idea stage.

So many entrepreneurs have an idea, but it’s almost still a hobby for them. One of the things I’m faced with, with early stage companies is, ‘are you ready to turn this into a business?’ It’s not just an idea. They need a working prototype – something to show people. The biggest problem I constantly see is the lack of funding sources. The number one issue with entrepreneurs is that they have an idea or almost have an idea, but they don’t have the adequate funding sources. My recommendation and solution for that is family and friends as that is where 95% of all startups raise their first \$100,000 in capital. Family and friends come first because they are investing in you, so they will be the first group you should reach out to before considering outside investors.

The other problem is the team, because it doesn’t have the resources. People are not going to invest in one person; it’s too risky.”

Across UCI

This section highlights stories happening across the campus.



Tech Currents Spotlight

From UCI ICS

UCI Alumnus and Google Software Engineer Neeraj Kumar takes the TAG tracking device he developed as a student to the public with a Kickstarter campaign.

From UCI News

James Randerson, Chancellor’s Professor in the University of California, Irvine’s Department of Earth System Science, is elected to National Academy of Sciences.

From Calitz

UCI-based startup Red Lion Robotics wins Aging 2.0 Global Search pitch competition for the Orange County chapter, moving on to the next round to compete for the \$10,000 grand prize.

From Beall Center for Innovation & Entrepreneurship at the Paul Merage School Business

Fifteen Teams walk away with more than \$100,000 in cash and prizes following final round of UCI New Venture Competition.

Prof. Steven Cramer, MD

“Stroke is a major cause of human disability and we are trying to come up with ways of giving people a larger dose of rehabilitation therapy, especially in the home, in order to reduce disability after stroke,” Dr. Steven Cramer said.

Cramer’s lab developed a home based tele-rehabilitation system that uses gaming to restore patient hand and arm function after stroke. Although rehabilitation therapy is commonly provided after stroke, many patients don’t get the benefits they need to truly regain function because of lack of access to therapy, high cost of therapy, and compliance issues. Cramer combined his medical knowledge with his earlier experience as a gamer to create a gaming station that help stroke patients practice movements and regain function.

The device, on which stroke patients can play games like “whack-a-mole” with a plastic mallet, was produced by a multidisciplinary team of rehabilitation, occupational, and physical therapists, as well as experts in neurology, gaming, motivational psychology, and computer programming.

Patients use the system under video conference supervision by clinicians at remote locations. “It provides a framework for exercises, for therapy, and also for education so that we can maximize

prevention, to prevent the kinds of complications anticipated after stroke such as another stroke, a heart attack, or depression,” Cramer said.

How Game Station Rehab Works

A patient is first evaluated for appropriateness for the program by a licensed therapist. The therapist enters examination results into a program which produces a customized 80-minute rehab session itinerary. The therapist can further adapt the program for the patient by dragging games or exercises onto the screen or modifying their difficulty or duration. The therapist then sends that treatment plan to the patient’s screen at home where the system, involving a computer and a wireless modem, have been delivered.

The patient has an agreed-upon daily start time with the therapist. During the hour prior to that, the system flashes and emits noises.

“It is all highly structured,” Cramer said. “The patient cannot use this as a computer. There is no keyboard. It is designed as an appliance.” Cramer emphasizes that patients don’t need any computer skills or literacy to use the system – they only need to be able to push a button. The therapist decides in each session which movements the patient needs to practice.

The movements are gamified. “If we want the patient to practice arm extensions, target arm movements, visually guided arm movements, reaching movements, we design the whack-a-mole game,” said Cramer, who proceeded to whack at buttons that lit up in succession with a plastic hammer, racking up points.

“I should point out one thing about the whack-a-mole game: most of the games take place like most video games on the screen,” Cramer said. “The person moves their hand to manipulate what happens on the screen. Whack-a-mole is one of our games that is in first person space. Unless you are an airline pilot, you don’t spend your day working in one visual space while looking at a different one. Instead, what most people do is look at and work in the same visual coordinate system. And that is what the whack-a-mole game does. Just because these are games, doesn’t mean there hasn’t been a lot of thought that goes into many of the details.”

The system provides the therapist with automated feedback. The therapist can see the patient’s score, a graph of scores over time, and a graph of successive scores over time according to the level of difficulty that was assigned. The therapist can then revise the settings in terms of duration or difficulty.

“The therapist can also talk to the patient and say, ‘I see your whack-a-mole score is getting better. How is your shoulder doing?’” Cramer said. “Or, ‘I see your scores have been going down. Have you been trying?’”

According to Cramer, patients need to have some minimal amount of language function to understand the directions. They also need to have sufficient communication skills to report if they are in distress, pain or have another problem. Other than that, they just need to be able to follow the few basic instructions that appear on the screen.

The system has both supervised and unsupervised sessions.

During the unsupervised sessions, patients work through an 80-minute assignment, including a 10-minute break. The system allows working intermittently so patients can take bathroom breaks or go shopping, for example. There is no interaction with the therapist, unless there is a problem. “We always have a mechanism to call in if there is an issue,” Cramer said.

A supervised day begins with a 30-minute HIPAA-compliant video conference. The patient will see the therapist’s face in the corner of the screen. The therapist can see the patient as well as the patient’s screen and activities. “In this way there is a live dialogue,” Cramer said. “You’ve got to have a human factor for this to have long term impact.”

Channeling the Expertise of the Therapist.

“Here we get into what makes a good therapist,” Cramer said. “It involves the human factor as well as understanding the medical science and the skill to implement it. We think we have retained all of these to some important degree in the design of this system.” The therapist has discretion in knowing what exercises to assign, and how to best coach the patient and review progress through video conferences.

Cramer is conducting an NIH funded six week, 12-site clinical trial of the current telerehab-therapy program, dose and intensity-matched with traditional in-clinic rehabilitation, based on the encouraging results of a prior 28 day pilot study. The





A tele-rehab station being used during a session.

study, conducted through the new NIH clinical trials network for stroke, Strokenet, consists of three supervised and three unsupervised sessions of 80 minutes duration per week. Each 80-minute session consists of games, exercises, education, some assessment modules and a 10-minute break in the middle. The patient does daily sessions six days a week.

Seventy nine patients are so far enrolled in the study, which is slated for 124 patients. “We hope to have an answer before the end of 2017 as to whether this tele-rehab approach in the home is as good as what a therapist can do in the clinic,” Cramer said.

The study’s primary endpoint measures arm movement capacity that captures weakness, coordination, precision, timing, and strength, using the Fugl-Meyer Scale (so named after Axel Fugl-Meyer, the Norwegian rehab specialist). “The Fugl-Meyer Scale tells us how somebody’s arm is in terms of 0 being poorest to 66 being normal,” Cramer said.

A typical person entering the trial has a Fugl-Meyer score in the 20s, 30s, or 40s. In the pilot study of 12 patients who got

four weeks of therapy, the average score increased by about five points. “To put that in context, scores of five points represent the minimal clinically important difference,” Cramer said. “That is to say, going up five points on the Fugl-Meyer Scale generally means that somebody’s arm has moved up one functional level — there’s something functional that they can do that they couldn’t do before.” According to Cramer, in the pilot study half the subjects from just four weeks of daily rehab alone, using the prototype of this system in the home, improved beyond that minimal clinically important amount. “They exceeded the minimal clinically important difference,” Cramer said. “We will see how this newer system does in the current trial compared head to head with traditional therapy.”

Next Steps

Cramer’s team is writing grants to fund the next study to see the effects of larger rehab therapy doses for longer periods of time in more heterogeneous populations. “Possibly including going beyond stroke because a lot of the things we are doing here — in terms of better exercise, better activity, better function, better reserve, better cognitive

activity, better education, mood screenings and so forth — is directly important to patients that have had a heart attack, patients who are healthy 75 year olds, patients who have renal failure, patients who have major depression,” Cramer said.

“In the longer term, what the dream is, I believe what we have here is an appliance that will be in the home of many patients for years,” Cramer said. “And when somebody has an event, it will become useful in the internet of things to monitor their activity with various sensors to modulate their behavior using both computerized reflexes and actionable reports to medical professionals and to screen for known complications of what it is that was their index diagnosis.”

“I think this is just scratching the surface. We have to prove it step by step.”

Company Spotlight: Integra Devices

Integra Devices enables the manufacture of integrated, microscopic 3D structures that sense things, move things, and modify radio waves to make possible a new Internet of Things (IoT) and 5G wireless applications. The 10-employee company is housed at two incubators, Calit2 and EvoNexus.

Integra Devices currently builds miniature microwave and millimeter-wave components for the 5G telecommunications market. “We see ourselves really enabling the 5G push,” says Sourabh Dhillon, Business Development Manager. “With 5G pushing the industry to higher frequencies, there is a huge need for small, high performance components at these bandwidths.”

Dhillon explains that the current frequency bandwidth used must move from around 2.4 gigahertz (GHz) to 28 GHz and above. “5G, the next generation of telecommunications, is required to move vast quantities of data at high speed and low latency, or response time. The reason that it is important is because of the IoT. With billions of devices being connected to the Internet, we will need a stronger infrastructure for transmitting data.” The 5G network will deliver extremely fast data speeds at 10 Gbps (gigabits per second, a data transfer speed measurement for high-speed networks) low latency (1 millisecond round-trip delay), and high capacity by utilizing high frequencies (5.25 GHz, 26.4 GHz, and 58.68 GHz).

Thus, IoT and 5G will require new kinds of products that cannot easily be made by current semiconductor manufacturing. “Once you get to higher frequency, you will need a new breed of components that can handle these frequencies at high performance while maintaining small footprints.”

The Enabling Technology

Integra Device’s manufacturing technology, dubbed Amalga™, enables industry to miniaturize electromechanical products, such as radio frequency and microwave electromechanical relays that transmit and/or receive signals between devices, skirting current limitations of established silicon technology. Users can manufacture complex 3D microstructures in laminates such as package substrates and printed circuit boards (PCBs). Integra Devices’ technology allows microelectronic manufacturers to produce components at 1/10 the cost to design, 1/3 the time to develop, and 1/4 the cost it takes to manufacture conventional components without investing in new tools or capital equipment. “This is groundbreaking technology that offers designers another toolbox to considerably increase the performance of their products,” Dhillon comments.

The company’s manufacturing process is based upon 15 years of research from Professor Mark Bachman, formerly at UCI, now IoT Evangelist at the California Institute for Telecommunications and Information (Calit2). Bachman is one of the company’s founders, along with Paul

Dhillon and James Spoto, executives with deep industry knowledge and experience in building start-ups.

Currently, component manufacturers face a tradeoff. There are large, machined components that, at the millimeter and microwave scales, are very expensive but very high performance. There are semiconductor components, which are small and cost effective, but don’t match all the performance needs of high frequency applications. “We bridge that gap,” Dhillon says.

Integra’s first product line is the world’s first miniaturized electromechanical microwave relay. This micro-relay maintains a small footprint like a semiconductor relay, but possesses all the high performance characteristics of larger electromechanical relays. For applications such as reconfigurable and phased-array antennas that require high density and performance, Integra Devices also offers customers custom substrates that enable the embedding of 8, 12, and even 20 GHz relays within printed circuit boards and signal paths. Other elements can be mounted above the relay on the printed circuit board, optimizing valuable surface area.

To learn more, visit www.integradevices.com

Tech Surge:

Purist Takes Top Prize in 2017 Tech Surge Competition

UCI Applied Innovation recently concluded its 2017 Tech Surge competition, which took place over the last seven months. Tech Surge was held in parallel with the New Venture Competition (NVC) at the Beall Center for Innovation and Entrepreneurship at The Paul Merage School of Business. Now in its 11th year, the New Venture Competition (formerly the Business Plan Competition) is a collaborative effort between the Beall Center and Applied Innovation. The NVC serves the Beall Center's mission to provide hands-on opportunities for students to learn about the process of innovation and entrepreneurship. In Tech Surge, teams of UCI entrepreneurs – students, researchers, and faculty – compete to commercialize ventures centered on UCI-generated intellectual property. In addition to over

\$20,000 in prize money, winning Tech Surge teams are automatically entered into the Wayfinder incubator program at the Cove, where they will work on their ventures over the summer in a structured experience involving co-working space, mentorship, workshops, and exposure opportunities.

Eighteen competing teams, representing a wide spectrum of UCI research, participated, from nascent companies producing new medical devices for oral hygiene to others developing stroke diagnostics, snake bite treatments, secure dispensation of prescribed opioids, IT solutions for management of patient flow, and robotic systems for in-home physical therapy. Purist, which is developing a method to locally produce medical isotopes to treat cancer, was the overall winner.

The Competition Experience

The Tech Surge competition featured comprehensive programming led by UCI Applied Innovation. The teams' journeys commenced back in November 2016 at the Tech Surge Mixer held at the Cove, where interested participants learned about available UCI technologies and were encouraged to find potential teammates. The resulting teams applied for Tech Surge in January 2017 and shortly afterwards submitted concept papers outlining their business plans. Throughout the competition, Tech Surge teams were coached on their commercialization pathways by UCI Applied Innovation staff as well as assigned mentors from the Experts-in-Residence Network.

In a series of workshops, participants received an accelerated entrepreneurial education that covered business modeling, intellectual property, and FDA regulations. Teams also learned how to apply for Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) grants – which can be worth up to hundreds of thousands of dollars – and had the opportunity to attend real company pitches

at the Tech Coast Angels investor group. The teams attended a final workshop on how to give an effective pitch and prepared for their final presentations in one-on-one practice sessions. At the May 9 Tech Surge competition finals at the Cove, teams pitched to a panel of judges in closed-door presentations throughout the day. The judges selected the competition's winners before joining the teams at an evening celebratory reception. The winners were announced at the awards ceremony for the New Venture Competition on May 12.

Criteria and Prizes

The Tech Surge competition focuses on what UCI Applied Innovation terms a venture's "fundability." Tech Surge teams were challenged to prepare and present a slide deck and corresponding 12-minute oral presentation that encompassed their big picture/long-term path towards commercialization and ultimately revenue, with a strong emphasis on realistic near-term milestones and the immediate next steps needed to progress to eventual commercialization.

The judges assessed how well teams:

- solved a problem/pain point, expressed their value propositions, and accounted for the 3W's (What are you doing, whom are you doing it for, and why do we care?)
- assessed their market ecosystem, including target market, product-market fit, competitive analysis, and customer discovery
- outlined a commercialization pathway, including what their company will look like, their path to revenue, and how they will sell their product/service
- specified financial/technical milestones over 12-24 months, including specific steps, strategies, and associated costs



Photo: The Paul Merage School of Business

Team Purist won the School of Medicine award (\$15,000) and the Tech Surge first place award (\$10,000) during the UCI New Venture Competition. Team members included (from left): Daniel Dai (EMBA); Mikael Nilsson (Associate Professor, Chemical Engineering and Material Science); Kim Westerbeck (EMBA); Leila Safavi-Tehrani; Donald Magnuson (EMBA). Hayley Young, New Venture Coordinator for UCI Applied Innovation, is on the far left.

Award Winners

The 2017 Tech Surge competition winners were:

Winner (\$10,000):

Purist – Providing distributed on-demand manufacturing of radioactive ingredients to treat cancer.

Runner-up (\$7,500):

APIC Diagnostics – Developing a non-invasive, rapid and economical point-of care test solution for malaria in order to facilitate error-free testing and epidemiological analyses of health records.

Honorable Mention (\$2,500+\$1,250 Bonus*):

Syntr Health Technologies – Utilizing mechanically enriched fat-derived stem cells to reduce the burden of diabetic foot ulcers and prevent amputations.

Honorable Mention (\$2,500 + \$1,250 Bonus*):

NanoShield Biotix – Developing a germ-killing texture inspired by nature with surface applications in industries ranging from ophthalmology to consumer products.

Outstanding Undergraduate (\$1,000):

Salux Diagnostics – Implementing a first-of-its-kind burn wound imager for use in clinical and urgent care settings to improve patient burn injury care.

- delivered a quality presentation with strong handling of questions and answers

To support the mission to generate commercially viable businesses that use UCI intellectual property, UCI Applied Innovation structured its Tech Surge prizes to bridge the so-called “valley of death” for startups and encourage teams to continue their projects post-competition. Prizes for its four main award categories – Winner, Runner-up, and two Honorable Mentions – were distributed via a two-stage allocation process. Winning teams earned a small fraction of their awards as unrestricted cash prizes at the close of the New Venture Competition. However, the remaining prize money will be doled out to the teams as grant funding throughout their Wayfinder incubator program experience to be explicitly used for commercialization activities. As an added incentive, teams can earn a *Bridging Funds Bonus Award, a 50% increase of their Tech Surge prize money, by completing prescribed milestones during the competition. This additional funding will enable teams to bring their concepts closer to commercialization after their summer stint in Wayfinder ends, to better position them for long-term success. Tech Surge also awarded a cash-only prize honoring an Outstanding Undergraduate team.

The Tech Surge competition was managed by UCI Applied Innovation staff members Doug Crawford, doug.crawford@uci.edu, Senior Licensing Officer, and Hayley Young, hayley.young@uci.edu, New Venture Program Coordinator.

Tech Surge Winner Spotlight: Purist

The idea for Purist started a few years ago. “Back in 2011, one day after class, my professor drew a doodle on the whiteboard,” said Leila Safavi, a chemical engineering post-doc. At the time, Safavi was starting a master’s degree in chemical engineering at UCI and considering pursuing a Ph.D. Her professor and graduate advisor, Mikael Nilsson, knew of Safavi’s interest in the medical field.

Nilsson proposed a project to develop a method to use small research reactors for producing medical radioisotopes to solve a dire supply issue. Medical radioisotopes are an important imaging, diagnostic, and therapeutic tool in medicine. At present, the United States is heavily reliant on aging foreign reactors for medical radioisotope needs. There are eight main reactors around the world that create radioisotopes that are shipped to the U.S; only one exists in North America, and that is set to shut down next year.

Nilsson had funding for a research project based on a method used to separate radioactive products in a nuclear reaction, called the Szilard-Chalmers method, which was published in Nature in 1934. “What if we could implement this more than 60 year-old method in small research reactors at universities for domestic radioisotope production?” Nilsson asked Safavi.

Safavi was hooked. “We combined the Szilard-Chalmers method with Professor Nilsson’s vision and developed a technology with a prototype that could benefit from this radioisotope production technique,” Safavi said. “Ever since then he has been my strongest supporter.”

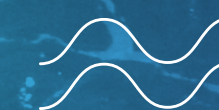
The Purist scientists needed to quickly develop business skills and learn to pitch their ideas. This past fall academic quarter,

Safavi and Nilsson attended a series of I-Corps workshops called ZAP and Boom to accelerate their learning curve. The I-Corps program, funded by the National Science Foundation (NSF), trains scientists to become entrepreneurs by pushing them through a rigorous process of customer discovery and market analysis in which they have to set up telephone and face-to-face interviews with 15 potential customers per week. “It’s a reality check for the company and helps them shape the development of their new products,” comments Gisela Lin, Deputy Director, Center for Advanced Design & Manufacturing of Integrated Microfluidics (CADMIM) at UCI.

During the process of collecting market research, Safavi and Nilsson also learned from their peer Tech Surge competitors’ experiences with financial projections and commercializing laboratory research. “In the initial workshops, I thought it was good to step outside the box and talk to people I didn’t know,” Safavi said.

As part of the Tech Surge competition, Safavi recently had the chance to observe a company pitch to the Tech Coast Angels, an early-stage investor group that meets at the Cove. “The Tech Coast Angels screening was very helpful to see when you get to the position to seek money, what the key financial questions you must answer are,” Safavi said. “It is good to see the respect between the people asking for money and the investors.” According to Safavi, the resources offered by UCI Applied Innovation and coaching by its Experts-in-Residence gave her team “tremendous support” in this process.

The next step for Purist, as the team continues to conduct its research and development, is to learn more about the operations of the facilities that produce medical radioisotopes. They hope to partner with universities that have research on nuclear reactors.



Making Waves

FunBand Inc. Wins Best Presentation Award at TCA's Celebration of Entrepreneurship Fast Pitch

The Samueli Theater in Costa Mesa brimmed with energy on March 8 for the Tech Coast Angels' Celebration of Entrepreneurship Fast Pitch Competition. With over 160 startups that applied to compete, 12 teams advanced as finalists. The event was largely coordinated and orchestrated by Event Chair Ora Villalobos, alongside a dedicated team of staff and volunteers. Before this evening, teams participated in workshops with mentors from the entrepreneur and investor community in Orange County to refine their pitches. Comprised of seasoned experts, mentors devoted over 20 hours to the teams to prepare them for the competition. Available categories for startups to place included Best Presentation, Most Fundable, Best Overall, and Audience Favorite.

Finalists included:

Veriskin, Inc.: A medical device company that is developing a hand-held device for non-invasive skin cancer screening.

Syntr Health Technologies: A Wayfinder incubator startup medical device company that solves the problem of diabetic foot ulcers, using the patient's regenerative stem cells.

TrustedMechanix: An on-demand auto-repair company that saves customers time and money by performing automotive repairs at their homes or offices.

QT Medical: A medical device company that enables patients to manage their heart disease at home with a revolutionary 12-lead electrocardiogram (ECG).

AirDrop: A mobile app that exponentially reduces the hassle associated with travel by utilizing predictive analytics and machine learning to help people get from their door to the airport gate on time, every time.

Boxton: A logistics management company with a unique web platform that saves companies 30% on international bulk shipping by analyzing and bidding out shipments to top global suppliers.

Convert Coal, Inc.: A coal company that cleans dirty coal by extracting pollutants and crude oil before it is ever burned, making EPA compliance profitable for the coal power industry.

D&P Bioinnovations: A regenerative medicine company that provides an off-the-shelf implant to regenerate a damaged esophagus.

FunBand Inc.: A Wayfinder incubator startup company that makes a kid tracker called FunLoop, a wearable device used to help parents keep track of their children in amusement parks using a proprietary network.

Librede Inc.: A synthetic biology company that uses yeast to produce cannabinoids, the active chemicals found in the cannabis plant.

Tot Squad: A company that is disrupting the \$10B baby industry by offering car seat cleaning and installation for parents, rideshare companies, and rental car agencies on its quest to become the Geek Squad for baby gear services.

Party on Demand: A mobile app that makes planning life's celebrations simple and easy, allowing its users to order a full party complete with decorations, food, drinks, hardware, and entertainment – in one hour or less.

Each startup had 60-seconds to pitch their product/service and three minutes to answer questions from an esteemed panel of judges that included lifelong

entrepreneurs, investors, and industry experts comprised of Cove Experts-in-Residence and Tech Coast Angels (TCA) members. With UCI Applied Innovation as a sponsor of the event and a participating judge, Richard Sudek, Executive Director and Chief Innovation Officer, shared some brief opening remarks. He was introduced by Don Kasle, Chairman Emeritus of the Board of Governors for TCA, who also served as master of ceremonies for the evening. Sudek recalled his involvement as both a participant and judge in the inaugural Fast Pitch back in 2001 alongside TCA founder, Luis Villalobos. John Harbison, Chairman of TCA, and Grant Van Cleve, President of TCA Orange County, provided overviews of TCA's progress – highlighting the continued success and growth of the organization. The event also served as an opportunity to celebrate TCA's 20th anniversary.

The pitch competition then took place and, after a series of impressive presentations, the judges tabulated their scores to finalize their choices for each award category. The audience was empowered to vote in real-time via their phones for the Audience Favorite Award. Wayfinder incubator startup FunBand Inc. received the Best Presentation Award. Reheme Feleke, MD, MBA, Co-Founder and CEO of FunBand, thanked her mentors and advisors, who included Cove EiRs. Other winners of the evening included Tot Squad for Most Fundable and Party On Demand, which received both the Audience Favorite Award and Best Overall.

The event concluded with closing remarks from Don Kasle and updates from two winning teams from the previous year, GlobeChat and Chillhound. Both startups shared significant milestones achieved and expressed their gratitude for the support that TCA and the entrepreneur ecosystem provided them to move forward.

BottleRocket Raises 200k+ in Funding

Wayfinder startup BottleRocket has achieved a recent milestone, raising \$240,000 from MuckerLab in Santa Monica and \$20,000 from Dorm Room Fund. BottleRocket is the first on-demand pickup service that rewards users for recycling at home. The team believes change starts with each person, which is why they created a simple way for households to redeem California Redemption Value recyclables at the push of a button. Comprised of UCI students and alumni, BottleRocket's team includes Arthur Avetisov, CEO and Co-Founder; Brian Leung, COO and Co-Founder; and Malik Ahmad, Co-Founder and CMO.

Before starting BottleRocket, both Avetisov and Leung formed a passion for entrepreneurship during their teenage years – eventually meeting at UCI through the Delta Sigma Pi business fraternity. “We wanted to do something different in the industry, we didn't want to take the same routes a lot of kids were taking,” Avetisov says. In May 2015, the pair interviewed with Ryan Foland, former Assistant Director of Blackstone LaunchPad at UCI (now UCI ANTPreneur Center), who provided them with advice and connected them to opportunities and resources. Avetisov and Leung launched their company that same week, and became extremely involved with Blackstone LaunchPad. They even tested

their product last spring — one hundred UCI students signed-up for the service in two days and participated in the one month trial period. Shortly afterward, BottleRocket was accepted into the Cove Share incubator program (now Wayfinder) at Applied Innovation, connecting them to additional resources, workspace, and access to a diverse range of mentors through the Experts-in-Residence network.

Highlights from their progress from 2015 and 2016 include:

UC Irvine Blackstone LaunchPad: ANTPreneurs of the Year (2015) - “Best Startup”, “Best Green Venture”

Entrepreneur's Organization: Global Student Entrepreneurs Award - Orange County (2015) “2nd Place” (hosted at UCI)

UC Irvine Paul Merage School of Business: Business Plan Competition (2016) - “Best Undergraduate Team”

Honing its pitch and business model as it has progressed through each competition, the BottleRocket team has made strides since it tested its first minimum viable product. Both Avetisov and Leung shared that they have gained invaluable experiences that have been integral in their development as entrepreneurs, and are now equipped with knowledge that will enable them to continue growing their company.

BottleRocket's funding from MuckerLab also includes their acceptance into the 2017 cohort for the Santa Monica based accelerator. As described on Mucker Capital's website, “MuckerLab invests at the earliest stage of a company's lifecycle — ‘pre-seed,’ as the first institutional capital — and helps entrepreneurs validate and iterate on the original hypotheses of their core business concepts. In short, [it] helps companies achieve product-market fit in preparation to raise institutional venture financing.” No more than 10 companies

per year are admitted into each cohort, enabling the accelerator program to “ensure that each and every company achieves the operating milestones required for the next round of financing.”

BottleRocket's raise from Dorm Room Fund (DRF), an early-stage, student-run, venture capital firm, also represents a step forward. On a mission to help its peers start new companies, DRF invests specifically in student-run startups and emphasizes a rapid funding process that makes the process as straightforward and founder-friendly as possible. Follow-on funding from over 125 DRF funded companies amounts to over \$200M to date.

To learn more about BottleRocket, or to sign-up for their service. Visit <http://www.bottlerocketrecycle.com/>.

Esqalate Wins Blum Center Competition

Chad Trainer's business idea was born out of his own struggle to find a job.

Trainer, who had a desire to help others, graduated in 2008 from the University of Virginia law school, one of the best in the country. He hoped to land a job in public interest law, but his search was in the midst of the global financial crisis and he couldn't find one. He even moved to Russia in search of an opportunity.

"I finally ended up working for a firm, which is absolutely not what I wanted to do," Trainer said. "I worked there for a month and decided this is not for me."

Then he saw the startup culture in San Francisco and realized technology is the answer to many problems, including his own. He founded Esqalate, a nonprofit group that uses online services to connect law school graduates with experienced attorneys so they can provide free or low-cost services to poor clients.

Trainer's nonprofit service received affirmation Thursday, May 4, winning the third annual Designing Solutions for Poverty Competition hosted by UC Irvine's Blum Center for Poverty Alleviation. Esqalate finished first among 42 entries in the Shark Tank-style pitch contest aimed at finding innovative business ideas to help

those in poverty here in Orange County and around the world.

Judges evaluated the entries largely on two criteria: Whether the business can generate enough revenue to support itself and how much impact it has on solving poverty.

Richard Matthew, director of the Blum Center, said millennials want to work for and start businesses that are ethical and address health, educational and environmental challenges. The competition, open to the public, allows these young people to get advice from entrepreneurs and develop their ideas, he said.

"It's natural for Orange County because you have a lot of entrepreneurs here and you have a lot of students who want to do good," Matthew said.

Dressed in a dark suit, Trainer presented his business model to the crowd gathered at the top floor of UC Irvine's business school building overlooking the campus Thursday. He started off by describing the hardships of those who are wrongfully evicted from their homes but cannot afford a lawyer to fight their case in court.

After Trainer committed himself to running Esqalate, the 37-year-old moved to Costa Mesa from San Francisco so he could save money by living with his mother. He now works out of UC Irvine's Wayfinder incubator, which provides mentors and other resources to help early startups, with cofounder and chief technology officer Ilja Goushcha, web developer Nazariy Dubnytskyy and graphic designer Viacheslav Fonderkin.

Esqalate runs two online services, Proboknow, offering "pro bono" work or free legal representation for the poorest of the poor, and Lowboknow, where clients can seek low-cost offers from attorneys who pay a subscription fee.

The system lets law school graduates gain mentorship and work experience, Trainer said. Meanwhile, experienced attorneys can get their help in providing charitable work.

The two services launched in April 2016 and have raised \$100,000. Winning the Designing Solutions for Poverty Competition will add \$10,000 in prize money, provided by Orange County investors Paul and Dimple Dhillon.

"It is such a tremendous honor," Trainer said Thursday. "It has definitely given us a boost."

The following entries tied for second place and received \$5,000 each:

Loy Loy: A board game that teaches people about savings. Members of UC Irvine's Institute for Money, Technology & Financial Inclusion say they plan to introduce the game in both low-income and wealthier communities so everyone understands the social and economic dynamics of poverty.

Pure Game: A Santa Ana-based nonprofit organization that provides mentors to help children develop character through soccer. Its programs teach children how to break free from their current circumstances and negative mindsets, organizers said.

Some entries were still at a conceptual stage, while others like Esqalate and Pure Game had already launched, Matthew said.

"We are hoping that ... we identify a team where they don't just have a good idea, they also want to implement it," he said.

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<http://www.ocregister.com/2017/05/05/irvine-based-nonprofit-wins-uci-pitch-competition-aimed-at-tackling-poverty/>

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JUNE/JULY TIDES

For a complete list of upcoming events visit:
innovation.uci.edu/events

6.01.17	Thursday	5:30 pm	Young Professionals Leadership Summit
6.02.17	Friday	12:00 pm	Lunch and Learn with John Rossman
6.06.17	Tuesday	7:30 am	OCTANe's Coffee @ the Cove
6.07.17	Wednesday	8:00 am	One Million Cups Irvine
6.08.17	Thursday	4:30 pm	UCI Biomedical Device Senior Design Capstone Final
6.09.17	Friday	12:00 pm	Lunch and Learn with John Connors
6.14.17	Wednesday	8:00 am	One Million Cups Irvine
6.15.17	Thursday	11:30 am	JLABS: Lessons in Herding Cats
6.16.17	Friday	12:00 pm	Lunch and Learn with Neil Sahota
6.21.17	Wednesday	8:00 am	One Million Cups Irvine
6.28.17	Wednesday	8:00 am	One Million Cups Irvine
7.5.17	Wednesday	8:00 am	One Million Cups Irvine
7.18.17	Tuesday	7:30 am	OCTANe's Coffee @ the Cove

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