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A large, vibrant watercolor splash in shades of yellow, orange, red, and blue serves as the background for the central text. To the left of the text are two white, 3D-style rectangular blocks, one above the other, with a slight shadow.

2019 EAST BAY INNOVATION AWARDS

www.EastBayEDA.org



OUR MISSION

The East Bay Economic Development Alliance is the regional voice and networking resource for strengthening the economy, building the workforce and enhancing the quality of life in the East Bay.

EAST BAY EDA OFFICERS

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Alameda County Board of Supervisors
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EAST BAY EDA COMMITTEE LEADERSHIP

Business Development & Resources Committee

Co-Chair: Diana Chavez, Working Solutions
Co-Chair: John McManus, Cushman & Wakefield

The Business Development & Resources Committee provides access to resources and opportunities for growth for the East Bay's business community.

Economic Development Directors' Council

Chair: Kwame Reed, City of Antioch
Chair-Elect: Katie Bowman, City of San Leandro

The Economic Development Directors' Council convenes economic development professionals to lead regional strategies that impact business attraction, retention and growth; marketing; economic data and analyses; policy reforms to improve the business climate; shared best practices; and professional development.

Employer Advisory Committee

Co-Chair: Trina Ostrander, Institute for STEM Education, CSUEB
Co-Chair: Judith Wetterer, Wareham Development

The Employer Advisory Committee increases effective employer leadership in education and workforce development, and promotes employer-led best practices to create a local STEM-skilled workforce.

International Trade & Investment Committee

Co-Chair: Jesse Riveron, Bank of America Merrill Lynch
Co-Chair: Ken Rosenberg, Bridge Bank

The International Trade & Investment Committee identifies and promotes policies, strategies and best practices that maximize import/export opportunities for East Bay companies, assistance for foreign-owned companies based in the East Bay, and foreign investment in the East Bay.

Land Use & Infrastructure Committee

Chair: Art Dao, Alameda County Transportation Commission

The Land Use & Infrastructure Committee works to ensure that policies and related legislation support the East Bay's competitive business climate, maintain efficient transportation and goods movement systems, and contribute to a high quality of life for workers and residents.

Legislation & Advocacy Committee

Co-Chair: Ed Del Beccaro, TRI Commercial Real Estate Services
Co-Chair: Scott Wilson, Lawrence Livermore National Laboratory

The Legislation & Advocacy Committee lends expertise and champions messaging to communicate East Bay EDA's perspective on important policy matters and ballot measures which may affect regional competitiveness and quality of life.

Marketing & Communications Committee

Co-Chair: Micah Hinkle, City of Oakland
Co-Chair: Carol Johnson, East Bay Regional Park District/Regional Parks Foundation

The Marketing & Communications Committee identifies and recommends regional marketing strategies to promote the assets of the East Bay, and the value of the East Bay Economic Development Alliance.

Membership Engagement Committee

Chair: Hon. Karen Stepper, Town of Danville

The Membership Engagement Committee creates opportunities for member participation to address organizational priorities, networking, member-to-member connections, and visibility for leadership roles.

A MESSAGE FROM THE CHAIR

Keeping innovation alive in the East Bay



Keith Carson
Chair, East Bay Economic Development Alliance; Supervisor, Alameda County District 5, Vice President, Alameda County Board of Supervisors

Disrupting innovations have become the norm and a powerful economic engine. As these innovations attain market traction, they require a supply of labor to meet this demand. The management consulting firm, Korn Ferry, anticipates robots and automation will certainly change the way we work but will never fully replace the need for human beings. They foresee a significant human talent deficit in the United States primarily due to projected boomer retirements at a rate of 10,000 each day for the next nineteen years. By 2030, they estimate that labor shortages in the U.S. will not only threaten our technology leadership, but also cost the nation \$1.7 trillion in unrealized revenue.

The issue is not simply the number of workers. We are the prototype of an innovating economy. Our companies require many new and different skills, but also workers who can constantly upgrade, communicate well with others, work in ad hoc teams and adapt to shifting technologies, organizational structures, partners and suppliers.

A successful innovative economy such as ours requires a tight partnership between business and education. Businesses need the skills taught by a liberal arts education, but also brand new, rapidly evolving technical skills in their workers. Supporting this economy will require a disruption in the traditional ways we have been

educating and training our residents.

Educational institutions need to realize that being qualified is as important as being educated. But business must also take ownership of the need for employees to be taught the latest technical skills. In addition to creating internships, business can build their own apprenticeship and in-house training programs. Business needs to be a strong voice for the fundamental and specialized training that best prepares today's students for future jobs, many of which we cannot even define at this moment. Business must be more than a funder of education and training. It must also be an advocate, champion, mentor and visionary. At the East Bay Economic Development Alliance, we support our business leaders in these roles.

The innovative businesses, artists, and organizations celebrated and showcased at the 2019

East Bay Innovation Awards demonstrate creativity, risk-taking, knowledge and skills that are beyond standard educational learnings. We must realize that these innovations in businesses, community organizations, music and dance have evolved from basic skills and knowledge, in an environment that enables innovation to flourish. East Bay EDA congratulates our awardees and finalists, and working together, the East Bay will always be a place that nurtures innovation.

A successful innovative economy such as ours requires a tight partnership between business and education.

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About the East Bay Economic Development Alliance

The East Bay Economic Development Alliance (East Bay EDA) is a public/private partnership serving Alameda and Contra Costa Counties. We are the regional voice and networking resource for strengthening the economy, building the workforce, and enhancing the quality of life in the East Bay. Engage with us!

www.EastBayEDA.org

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Investing in the East Bay

THRIVING ECONOMY OFFERS OPPORTUNITY TO BALANCE PROSPERITY AND FAIRNESS

BY SCOTT MCGREW, Television Host and News Anchor, NBC Bay Area

Emeryville has more entrepreneurial clout than Dallas, Texas. Companies in Hayward have raised more venture capital than those in Portland, Oregon. Pleasanton more than Miami, Florida. In 2018, the East Bay received almost \$5 billion in venture investment and \$1.25 billion just for clean tech. These numbers – first reported by my colleague Joanna Glasner – probably don't surprise you. Nor do they surprise me. The East Bay is an incredible economic engine. East Bay CEOs and entrepreneurs are frequent guests on my television show, Press:Here on NBC Bay Area.

But we are the choir. We need to spread the East Bay message to the world outside the San Francisco Bay Area, and the East Bay Economic Development Alliance is doing a fantastic job as a preacher. I am incredibly proud and flattered to be a part of spreading that message through the East Bay Innovation Awards.

I've covered tech in the Bay Area for decades and have watched as "Silicon Valley" spread both beyond the valley and beyond silicon itself into robotics, Software as a Service and biosciences – three of the East Bay's big economic drivers.

Robotics fascinate me – creating industries we have never before thought of while making us wonder if we will all have jobs in the future. Biosciences have proven themselves as big money makers. And I'm still trying to explain SaaS to my parents.

As we watch companies flee ludicrous property prices in San Francisco, the East Bay grows. As other cities and indeed other countries discover our talented workforce, the East Bay grows. This gives us a unique opportunity to get it right:

economic growth and prosperity as companies move in, but with fair treatment, affordable housing and opportunity for those who were here first. It's something San Francisco and San Jose have struggled to get right – lessons the East Bay must get right.

And we can get it right.

**In 2018, the East Bay
received almost
\$5 billion in venture
investment.**

Scott McGrew is the host of Press:Here, seen Sunday mornings at 9am on NBC Bay Area and online at pressheretv.com. He is also the host of the new podcast, Sand Hill Road, available on iTunes, Stitcher or wherever you get your podcasts.

**THE OAKLAND A's ARE PROUD TO SUPPORT
THE EAST BAY INNOVATION AWARDS 2019**



#ROOTEDINOAKLAND

Progress is people-powered

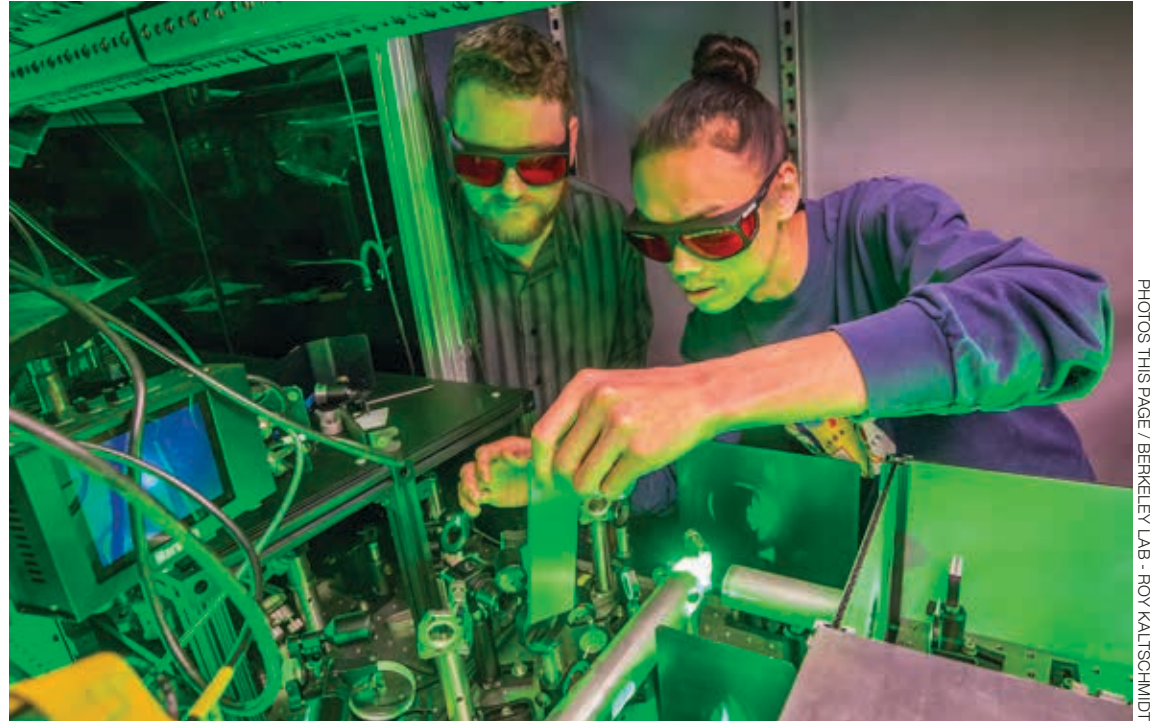
2019 INNOVATION AWARDS NOMINEES ILLUSTRATE THE SCOPE OF THE EAST BAY'S CONTRIBUTIONS TO THE SCIENCES

BY OWEN POINDEXTER

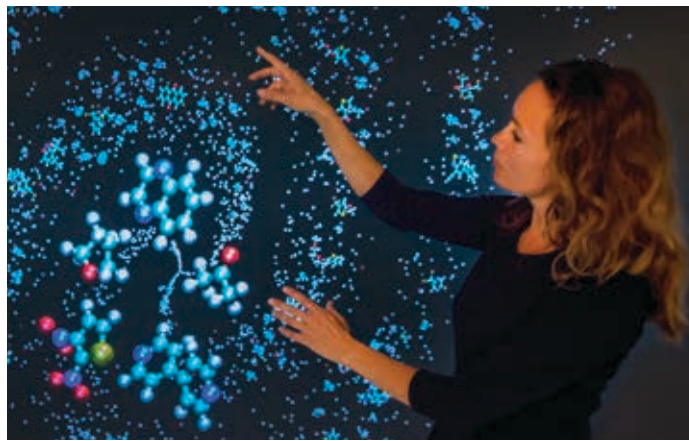
We often say that “technology progresses” as if technology were some kind of autonomous force. But in reality progress is the result of tireless experimentation and innovation by the scientists, engineers and entrepreneurs moving our world forward. There is nothing inevitable about the speed and direction of progress. Rather, it is our investment in the sciences that ratchets us toward a more connected, efficient and dynamic world. The East Bay is a leader both in research and with large, socially conscious initiatives in the sciences. It is a global hub for powerful, thoughtful progress and the people who make it happen.

The incremental and exponential

Progress is often benchmarked by game-changing technologies, such as the computer and automobile, but just as important as tomorrow's innovations is yesterday's technology getting better, faster and cheaper. A more efficient battery, for instance, would impact everything from cars to handheld devices, and that's why PolyPlus Battery Company, based in West Berkeley, has made that their cause. More efficient utilities, such as heating and cooling systems, could do wonders toward reducing energy use in a nearly invisible way. Vigilant in Oakland is using artificial intelligence technology to make that happen for data centers around the world. The way we eat has major effects on our climate and society, and new options that



Above: Berkeley Lab Workforce Development & Education intern Kirk Larsen and mentor Daniel Slaughter study chemical sciences.



Left: Berkeley Lab scientist Kristin Persson and her team are speeding up the search for next generation battery chemistry with their Electrolyte Genome project.

save energy and space could be the way of the future. Prime Roots, based in San Leandro, is one biotech business making that happen with its fungi-based food.

Then there are the eye-catching technologies that truly don't look like anything that came before: quantum computing, artificial intelligence, autonomous vehicles. These hallmarks of science fiction get closer to science fact each day. Often these big leaps are in fact the culmination of many smaller ones, such as improved sensors for cars (the focus of Pleasanton's

AEye), faster processing for computers, and new techniques in storing data. For every major breakthrough there are countless attempts and iterations that, whether successful or not, bring researchers closer to cracking the problem. The fellows at Cyclotron Road, based at the University of California, Berkeley, are given the resources and latitude to explore these sorts of groundbreaking ideas.

Progress for everyone

Finally, there are innovations that don't directly address technology but focus on the social structure around it. Women and minorities are underrepresented in the sciences, and this lack of diversity means fewer opportunities for those groups and fewer perspectives determining the path the sciences take. Organizations like Scientific Adventures for Girls and TechHire bring a needed challenge to the status quo in tech. After all, progress doesn't mean much if the benefits are reserved for a privileged few.

Buoyed by the presence of UC Berkeley and neighboring Silicon Valley, the East Bay is a unique hub for innovation and risk-taking. This year's East Bay Innovation Award finalists illustrate the impressive scope of the East Bay's contributions to the sciences. In a decade or two, when we look back on how the world has changed, we may see that these companies, nonprofits and initiatives played an integral role.

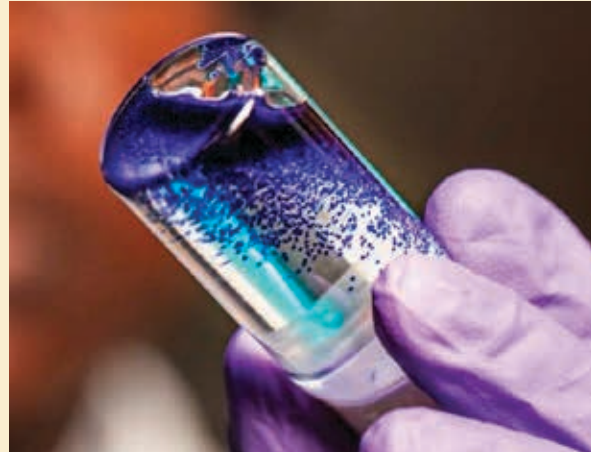


Scientist Cristina Castanha measures CO₂ soil flux at the UC Hopland Research and Extension Center.



Lawrence Livermore National Laboratory

Science and technology on a mission



Left: From these Lab developed microcapsules comes a large task – capturing carbon dioxide to reduce the amount of greenhouse gas.

BY SCOTT WILSON

Community and External Relations Officer, LLNL

Lawrence Livermore National Laboratory, a U.S. Department of Energy and National Nuclear Security Administration research and development facility, provides science and technology solutions for some of our nation's greatest challenges. From the security of the nation to the development and deployment of energy resources, from reducing the global threat of terrorism and weapons of mass destruction to delivering scientific discoveries, LLNL responds with vision, quality, integrity and technical excellence to address scientific issues of national importance.

LLNL is managed by Lawrence Livermore National Security, LLC, which includes the University of California, Bechtel National, BWX Technologies and AECOM.



Scott Wilson,
Community and External Relations Officer, LLNL

With an annual operating budget of more than \$2 billion and a workforce of nearly 7,000, LLNL continues to have a positive stimulating effect on the local,

regional and state economies. This manifests itself in a variety of ways, such as through the procurement of goods and services — \$730 million nationwide; \$248 million in California — the transfer of technologies to the marketplace, and the development of research-based public-private partnerships to improve business access to world-class scientific capabilities found only at a national laboratory.

LLNL's Innovation and Partnerships Office serves as a focal point for engagement with the private sector. Whether through technology commercialization, encouraging entrepreneurship, or business development activities, the Innovation and Partnership Office's primary mission is to grow the economy by advancing the development and commercialization of scientific discoveries. For



Above: STEM Day at the Lab provides the opportunity for under-represented students to learn about science and technology careers.

many years, LLNL has been a leader in technology commercialization for the U.S. Department of Energy, and it currently has more than 100 active commercial licenses with a variety of businesses, representing more than \$300 million in sales of products based on Lawrence Livermore technologies. LLNL licensed technologies have enabled the launch of numerous new businesses that are helping drive economic growth locally, regionally and beyond.

Along with its many economic contributions, LLNL also prides itself on being a good neighbor. From community science lectures and presentations to engagement with K-12, community college and undergraduate students, LLNL is working hard

to help promote science and technology educational opportunities that can maintain and grow the workforce necessary to continue the vital work of our science and technology institutions, regionally, statewide and across the country.

For more information, go to www.llnl.gov

Scott Wilson is the Community Relations Officer for the Lawrence Livermore National Laboratory (LLNL). LLNL was an East Bay Innovation Awards Finalist in the education category with Sandia National Laboratories in 2013 and 2015. LLNL's "Veterans to Technology" program in partnership with Los Positas College was the 2017 East Bay Innovation Education Awardee.



Catalyzing innovation in the East Bay

AWARDEE

Wareham Development/QB3 East Bay Innovation Center

warehamdevelopment.com

Innovation: Creating innovative spaces for Bay Area startups.

East Bay location: Berkeley, California

Partner: Chris Barlow

Regional significance: Investing in the region's innovation economy for more than 40 years.

East Bay favorite: "The diversity and commitment to excellence to be found in all the companies at our research campuses."

The QB3 East Bay Innovation Center is one of the more recent additions to the East Bay incubation market, having opened its doors in Berkeley in 2011. The incubator was created through a partnership between Wareham Development, the University of California, Berkeley and life sciences institute QB3.

"The public-private collaboration of Wareham Development, UCB and QB3 to find a solution to the problem of no laboratory space for startups was an innovative approach not seen before," says Wareham partner Chris Barlow.

The center represents a new model for research incubators: operated by the private sector, but working in collaboration with public sector biotech experts at QB3. Helping QB3 succeed is its location right in the heart of one of the largest life science and technology clusters in Northern California.

The QB3 East Bay Innovation Center offers 8,000 square feet of lab and office space in addition to a fully-equipped lab and a network of research tenants and potential collaborators for any of the startups working within Wareham's research campuses in Emeryville and Berkeley.

The Innovation Center benefits startups spinning off from UC Berkeley, Lawrence Berkeley National Laboratory and UC San Francisco who want to develop their companies within the Bay Area biotech community according to Barlow.



The QB3 East Bay Innovation Center helps biotech startups that want to develop their companies in the Bay Area.



"The public-private collaboration ... to find a solution to the problem of no laboratory space for startups was an innovative approach not seen before."

Chris Barlow, Partner, Wareham Development

Wareham has a long history of developing spaces for technological innovation in the East Bay, having established several similar sites, including nearby EmeryStation and EmeryStation West.

Gritstone Oncology, a finalist in the life sciences category for the 2019 East Bay Innovation Awards, is conducting their groundbreaking cancer research at the Wareham-developed EmeryStation

campus in Emeryville.

"Most importantly, the roster of 70 QB3 East Bay Innovation Center graduates, which span the life science, biotech and green tech spectrum, have stayed within the East Bay when they have grown to next stage status whether they remain a Wareham tenant or find space elsewhere in the East Bay," Barlow says.

Empowering inventors to follow their own paths

FINALIST

Cyclotron Road

cyclotronroad.com

Innovation: A unique fellowship program for science entrepreneurs.

Location: Berkeley, California

Founder: Ilan Gur

Regional significance: Top talent combines with world-class research resources to address some of the globe's most pressing problems.

Employees: 13

East Bay favorite: "The amazing people it brings together."

For any scientist and engineer with an idea that could change the world, there's a place in Berkeley that can turn their vision into reality.

Cyclotron Road is a two-year program, managed as a partnership between Lawrence Berkeley National Laboratory and Activation Energy, an independent nonprofit organization, that provides world-class scientific resources and business mentorship for people developing new products based on their research in physical or biological sciences. Cyclotron Road's fellows have access to the brain trust and research facilities at Lawrence Berkeley National Laboratory and UC Berkeley.

Founder Ilan Gur's experience launching a successful lithium battery startup showed him the uphill climb entrepreneurs in the physical sciences face. These entrepreneurs don't just need a laptop and internet access to do their work, they need a full lab and often years of R&D as well as millions in funding just to get to the prototype



"Without the support we provide, talented and driven scientists and engineers would lack a viable path to create real-world products from their research." Ilan Gur, Founder, Cyclotron Road

stage. So Gur created Cyclotron Road to give future generations the advantages that he and many others didn't have.

"Without the support we provide, talented and driven scientists and engineers would lack a viable path to create real-world products from their research," says Gur. "So they've had to choose between academia, where they're not going to be able to have that singular, focused experience of entrepreneurship, and taking an industry job, where they won't be empowered to follow their own path."

Cyclotron Road has already helped launch many groundbreaking clean en-

ergy companies, such as Opus 12, which developed a technology that captures carbon dioxide and turns it into useful chemicals and fuels. Their work has garnered the attention of *The New York Times*, *Rolling Stone* and *Fortune*.

Other fellows are introducing new tech for energy storage, bio-based chemicals and geothermal energy. Fellows in the microelectronics track are working toward turning once futuristic ideas, such as quantum computers and brain-computer interfaces, into reality.

Startups launched by Cyclotron Road fellows have attracted more than \$80 million in follow-on funding.



Soul band put Oakland music scene on the map

AWARDEE

Tower of Power

towerofpower.com

Founded: 1968; Oakland, California

Genre: Soul

Bandleader, Songwriter and Producer:
Emilio Castillo

Founding members:
Emilio Castillo and Stephen "Doc" Kupka

East Bay favorite:
"The soul is strong in Oakland. It never ceases to amaze me how soulful it is there compared to other cities."

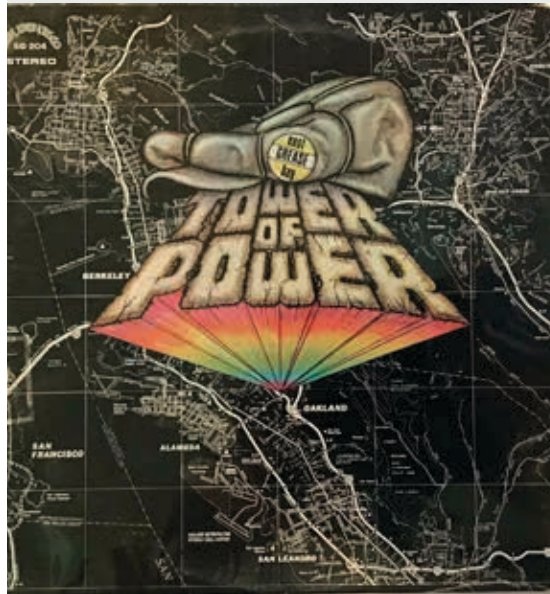
Emilio Castillo has never been one to chase trends.

Founded in 1968 in Oakland, California, his band, Tower of Power, started off playing covers of their favorite soul tracks. But at a time when most local acts were trying to emulate exactly what they heard on the record, Castillo and his co-founder, Stephen "Doc" Kupka, couldn't help but switch things up.

"We'd change up the horn parts, change up the rhythm, change up the background vocals," says Castillo, who serves as the band's leader, songwriter and producer. "But it took Doc to point out that to truly do our own thing that meant writing our own songs."

The result was the band's first album, "East Bay Grease," released in 1970. The album is a considered a milestone for the East Bay music scene, having helped put the region's signature sound — a distinct mixture of rock, soul, jazz and psychedelic influences — on the map. The biggest hit from the album, "Sparkling in the Sand," received national airplay.

The band's biggest hits would come later in the decade, with "So Very Hard to Go," "You're Still a Young Man" and "What Is Hip?" becoming enduring radio standards. But the band contin-



Tower of Power's 1970 album, "East Bay Grease," was a milestone for the East Bay music scene. The band's latest album, "Soul Side of Town," was released in 2018.

ues to attract and maintain a loyal fanbase. "We did get into the Top 10 a few times, but we're more respected and known for being a musician's musicians band," says Castillo. "We're very much a working band, and our fans appreciate that."

Trends have certainly come and gone in the band's more than 50 years of existence, but Tower of Power continues to dazzle fans with its horn-focused, soulful performances. The band's rotating coterie of members helps keep things fresh, as does their improvisatory nature, says Castillo. "No two performances is ever the same."

"We make our music to please ourselves," he explains. "We've never chased trends. We couldn't sound like other bands even if we tried. No matter what we do, we always sound like Tower of Power."

The East Bay has always figured in their music, and their new 50th anniversary album, "Soul Side of Town," continues that tradition, bookended by a set of funky grooves with a chant alluding to the East Bay. Tower of Power will be back in Oakland later this year, playing at the Fox Theater on August 24. Tickets and more information can be found at towerofpower.com/tour

Congratulations

MC HAMMER

**East Bay Innovative
Artist Awardee**

Billboard Diamond Award Winner

Eight-time American Music Award Winner

Three-time Grammy Award Winner

NAACP Image Award Winner

Community Activist

Technology Advisor

**Check out Hammer's House Party Tour
Summer 2019**



3D printing has come of age

PUSHING THE LIMITS OF MANUFACTURING WITH ADDITIVE TECHNOLOGIES

BY RICH STUMP, Co-Founder & Principal, FATHOM

While 3D printing is widely used for prototyping throughout product development, additive manufacturing has matured within the last 10 years as a serious means of production. Gartner, a leading research and advisory company, predicts that nearly 65 percent of discrete manufacturers expect to use 3D printers to produce components of the products they sell or service by 2020. They also forecast that additive metals and alloys will be critical for replacement part supply chains in commercial, military, and even some consumer markets.

FATHOM has spent the last decade working with companies big and small throughout the East Bay to adopt additive technologies in innovative ways to create better products at speeds not previously possible. Access to enterprise-grade 3D printing has never been more real for organizations in industries such as medicine, electronics, consumer goods, motor vehicles, aerospace and apparel.

The East Bay is home to many industry leaders and it is more critical than ever that this region further its investment in advanced manufacturing technologies.

Since 2008, the FATHOM team has been busy building a factory of the future, with an expertise in 3D printing and additive manufacturing. Strategically headquartered in the East Bay, FATHOM is honored to have earned recognition as one of the fastest growing private companies in America year-over-year by *Inc.*, the *San Francisco Business Times* and the Initiative for a Competitive Inner City (ICIC).

It is more critical than ever that the East Bay further its investment in advanced manufacturing technologies.

FATHOM is a 2015 East Bay Innovation awardee and the designer and fabricator of the East Bay Innovation Award trophies.



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Together we'll go far





Vigilent's quest to cool down data centers... and the planet



AWARDEE

Vigilent

vigilent.com

Innovation: Artificial intelligence and internet of things tech that optimizes energy efficiency in cooling systems.

Location: Oakland, California

CEO: Dave Hudson

Regional significance: Establishing Oakland as a clean-tech hub.

Employees: 38

East Bay favorite: "All the great places to work, eat and hang out."

We all know how important it is to save energy, but sometimes one's own individual impact can feel tiny. That's not the case with Vigilent — a small team operating out of Oakland that has a big impact on some of the world's largest energy consumers. Vigilent leverages artificial intelligence and internet of things technology to make cooling systems far more dynamic and efficient.

Every app and web page — whether it's for news, shopping or buying flights — depends on data centers to operate. The servers that are packed into these data centers work best below certain temperatures, and overheating can cause them — and the apps that use them — to fail. With this in mind, data center operators have a standard strategy for ensuring that their servers stay cool enough: overkill. When the consequences for failure are high, better to overshoot on cooling than to play it too close.



"We're huge fans of Oakland and its part of the company's history and story. It's definitely a clean tech hub."

Dave Hudson, CEO, Vigilent

As a result, data centers, some of the world's biggest consumers of energy, use nearly half of their energy on cooling. Vigilent uses machine learning technology and sensors placed around the data center to automatically optimize the usage of the data center's many cooling units. The result is a reduction of up to 40 percent in energy usage.

"Because we have sensors throughout the data centers, we can better understand how the cooling units influence the room, and influence each other," explains Dave Hudson, Vigilent's chief executive. Their software uses this information to adjust cooling units for

optimal efficiency.

Vigilent's impact has already been enormous: They have over 600 installations around the world, and save over 700 million pounds of carbon dioxide every year. Hudson has found that it's easy to find people in the East Bay who share the vision of leveraging technology for a cleaner future.

"We're huge fans of Oakland and its part of the company's history and story," says Hudson. "It's definitely a clean tech hub. People here care about clean technology and fighting climate change."

A small, impactful clean tech company, Vigilent is right at home in the East Bay.

On a quest to build a better battery

FINALIST

PolyPlus Battery Company

polyplus.com

Innovation: A smaller, lighter lithium-ion battery.

Location: Berkeley, California

Founder, CEO and CTO: Steve Visco

Regional significance: Developing globally impactful green technology.

Employees: 20

East Bay Favorite: "Everyone wants to live here."

What would a better battery mean for society? Batteries are central to everything from personal devices like smartphones and tablets to the next generation of cars and trucks. An upgrade to our batteries would effectively upgrade all the technology around us.

Steve Visco, founder, chief executive and CTO of PolyPlus, has been working to improve battery technology for decades, and recently his team has made some big strides. In the near-term, PolyPlus is developing a battery that works deep underwater by utilizing sea water. It has no toxic waste products and is impervious to pressure. Once manufactured, the battery could be a boon to government projects and corporations that operate 20,000 leagues (give or take) under the sea.

"Those companies [that operate underwater] have an exotic array of sensors and you need batteries that can withstand that pressure," says Visco.

PolyPlus' bigger goal is starting to



"A lot of people want to be in Berkeley. It's known throughout Asia and Europe, which makes it easy to attract talent."

Steve Visco, Founder, Chief Executive and CTO, PolyPlus Battery Company

appear on the horizon: a smaller, lighter, rechargeable lithium metal battery. Virtually any battery you might encounter today is lithium ion, and devices are limited by their size and weight. Phones, laptops and other personal devices, for example, lose potential slimmness and processing power due to the space they allot to the battery. Electric cars cede some of the distance they can travel on a single charge due to the weight of their huge batteries. The capability and capacity of drones — an early target market for PolyPlus — are very much limited by the need to carry around their batteries.

Through numerous innovations in-

cluding solid-state lithium glass laminate, PolyPlus has developed ultra-light metallic lithium anodes along with a pilot production line to produce them. This makes possible safer, smaller, lighter rechargeable batteries, useful for a wide range of applications, with twice the energy density of current lithium-ion batteries.

Starting with technology developed at Lawrence Berkeley National Laboratory, PolyPlus has found Berkeley to be a great location for the talent it needs. "A lot of people want to be in Berkeley," says Visco. "It's known throughout Asia and Europe, which makes it easy to attract talent. For us, it's the right spot."

Clean tech projects that could deliver big

TECHNOLOGIES BEING DEVELOPED AT BERKELEY LAB COULD LOWER ENERGY CONSUMPTION

BY ALIYAH KOVNER, Science Communications Specialist, Berkeley Lab

The East Bay is home to three Department of Energy national laboratories. Among them is Lawrence Berkeley National Laboratory, often shortened to Berkeley Lab, which addresses the biggest research challenges through team science. Here are three technologies under development at Berkeley Lab that could contribute to a greener future by lowering energy consumption across the board.

Building a “super window”

Berkeley Lab researchers are helping major glass manufacturers bring to market a new “super window” that insulates better than 99 percent of the windows currently on the market. As of now, Energy Star-rated windows feature two panels sandwiching a thin reservoir of argon gas and an outer film, known as low-e, that minimizes entry of UV and infrared light. The super window being developed at Berkeley Lab further reduces heat transfer by adding a second low-e coating, placing an ultra-thin third glass panel between the other two, and by swapping the argon for krypton.

Berkeley Lab addresses research challenges through team science

thin reservoir of argon gas and an outer film, known as low-e, that minimizes entry of UV and infrared light. The super window being developed at Berkeley Lab further reduces heat

Using machine learning to stop traffic jams

After training a first-of-its kind artificial intelligence framework to analyze traffic simulations, Berkeley Lab computer scientists have begun developing autonomous vehicle control algorithms that could help ease fuel-guzzling stop-and-go jams. The project was inspired by past observations that human driving habits cause backups to form even in the absence of accidents or obstacles, but that just a small percentage of autonomous vehicles on the road can prevent this phantom congestion. Field tests, using human drivers responding to the algorithm's commands, are slated to begin soon.

Pollution-free, plant-inspired fuel cells

Chemistry researchers at Berkeley Lab recently created a device that produces two energy sources – hydrogen fuel and electricity – through reactions that use sunlight to split the atoms in water molecules. Most existing artificial photosynthesis systems only produce hydrogen gas and have limited efficiency because most of the excited electrons in each cell are not harnessed. But in a significant breakthrough, the group's prototype has been engineered to wrangle the leftover electrons into a current that is extracted through an outlet on the back of the cell, boosting overall productivity more than three-fold.

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“We’re not ‘pinking’ it up. Girls relate to the material more ... when it’s helping someone – animals, people, the environment – anything rewarding like that makes them more engaged.”

Courtenay Carr Heuer, Co-Founder and Executive Director, Scientific Adventures for Girls

Closing the gender gap in STEM before it starts

AWARDEE

SCIENTIFIC ADVENTURES FOR GIRLS

scientificadventures.org

Innovation: Science programs that provide a nurturing, welcoming environment for girls and families.

Location: Oakland, California

Co-Founder and Executive Director: Courtenay Carr Heuer

Regional significance: Elementary school STEM programs for girls.

East Bay favorite: “The East Bay is very diverse and has a good sense of community and partnership.”

Everyone knows that women are underrepresented in science, technology, engineering and math (STEM), but we don’t always appreciate how early in life this gender separation starts. Courtenay Carr Heuer and Tiffany Sprague noticed that when they took their daughters to after-school science classes and workshops, there were very few girls, if any, in the classes. This inspired them to co-found Scientific Adventures, and its flagship programs Scientific Adventures for Girls and Scientific Adventures for Families.

“We really saw a need,” says Carr Heuer, who serves as the organization’s executive director. “There was so much research that showed children can start losing interest and get intimidated by math and science as early as five. There were also very few accessible, afterschool STEM programs for girls in early elementary.”

Starting with a pilot in 2014, Scientific Adventures has grown to include hands-on, after-school STEM programs at elementary schools around the East Bay, a free library drop-in program, family STEAM (including the “Arts”) nights, and a summer camp. These programs make science fun and welcoming for girls, and normalize the notion for their families, brothers and classmates that girls belong in STEM fields just as much as boys do. The program has grown each year of its existence and Carr Heuer expects it will continue to do so for the foreseeable future.

While the curriculum is geared toward girls, this does not



Scientific Adventures for Girls’ programs include after-school programs, summer camp and family nights.

mean making it stereotypically feminine.

“We’re not ‘pinking’ it up,” says Carr Heuer. “Collaboration is a big piece of what we do because girls like to work on teams. Girls relate to the material more when it’s something that relates to their lives, especially when it’s helping someone — animals, people, the environment — anything rewarding like that makes them more engaged.”

Recently, Scientific Adventures launched Project Catalyst, in which female scientists come into the classroom to talk about what they do, and even design part of the curriculum.

Now in its fifth year, Scientific Adventures plans to celebrate the milestone September 28 from 5 p.m. to 8 p.m. at the San Francisco Zoo.

Opening tech career doors to the underrepresented

FINALIST TECHHIRE OAKLAND

techhireoakland.org

Innovation: Career growth and talent development for people of color in the East Bay.

Location: Oakland, California

Director: Kirsten Lundgren

Regional significance: Connecting employers to underrepresented tech talent from one of the most racially diverse regions in the Bay Area

East Bay favorite: “Hiking, running and cycling in East Bay Regional Parks.”

One of the most elusive goals for many in the tech industry has been increasing opportunities for underrepresented people of color who come from local areas.

Enter TechHire Oakland.

Located uptown at the Kapor Center, TechHire Oakland’s vision is to help 1,000 underrepresented East Bay residents into paid internships, apprenticeships and jobs by 2020.

TechHire Oakland is helping to level the playing field for people of color in East Bay tech, supporting them with training, mentorship and job-based learning to become leading creators of emerging technology.

“We’re focused on access to high-paying, high-demand careers that will be less threatened by the forces of automation,” says Kirsten Lundgren, director of TechHire Oakland.

The TechHire movement has spread to cities nationwide seeking to expand opportunities in the tech industry by



“We’re lucky that the East Bay is a hub for so many organizations and companies committed to expanding opportunity to our amazing, overlooked talent pool.”

Kirsten Lundgren, Director, TechHire Oakland

promoting skills-based hiring over degree requirements, says Lundgren.

“TechHire Oakland functions as a coalition between training programs, local government and employers,” she says. “We’re only as strong as our network of partners and are lucky that the East Bay is a hub for so many organizations and companies committed to expanding opportunity to our amazing, overlooked talent pool.”

The TechHire Oakland program seeks to assist talent of color at all experience levels, with different programs aimed at “upskilling” via tech trainings with a va-

riety of companies in the Bay Area.

The program places talent into courses in software engineering, design, tech sales and cyber-security, among other pathways. It also connects talent to paid apprenticeships that convert to full time roles with Bay Area employers like Twilio, Github and LinkedIn.

“We have a great network of people, both on the talent side and the employer side, who are supportive of our mission and making sure that underserved residents of color have a bigger piece of the pie,” Lundgren says.

Early math education: Key to our innovation economy

INVESTMENT IN STEM IS ESSENTIAL FOR THE BAY AREA'S WORKFORCE

BY DR. LEROY MORISHITA, President, California State University East Bay

The Bay Area is one of the world's most productive centers of innovation in science, technology, engineering and mathematics, also known as STEM. Maintaining this standing means investing in a world-class STEM workforce, while making sure that STEM career opportunities are available to all.

According to the Organization for Economic Cooperation and Development, the U. S. ranks 41st worldwide in math preparation – behind China, Vietnam, Russia, Latvia, and many others. The problem starts early. A demonstrated math achievement gap leaves low-income children of color starting kindergarten 20 months behind their more fortunate peers. This gap only widens as students move through the grades.

As president of one of the nation's most diverse universities, I am here to tell you that our future workforce depends on actions we take now, with our youngest learners. The Institute for STEM

Education at Cal State East Bay has identified ways each of us can help.

- Families can count and sort with their children, and “talk math” on a walk or around the kitchen table. (For a booklet showing simple activities, go to bit.ly/EMBooklet)

- Business leaders can view the East Bay STEM Network's Early Math Policy recommendations: <http://bit.ly/EMPpolicy>. To add your signature, contact bruce.simon@csueastbay.edu.

- We can all educate policymakers – school board members, principals, state legislators – about the importance of early math education for young students and for their teachers (preschool and elementary teachers get woefully little training in math education).

Many of our new leaders in Sacramento have voiced their commitment to improving

public education. As we celebrate today's inspiring East Bay STEM innovators, let's each do our part to make sure the ambitions of our new law makers produce the workforce tomorrow's economy needs, and the equal opportunity all our citizens deserve.

The math achievement gap leaves low-income children of color starting kindergarten 20 months behind their more fortunate peers.



Proud to be *in the East Bay*

For more than 40 years, Bayer has partnered with our community to strengthen the local innovation ecosystem and bring advanced manufacturing capacity to our diverse economy.

Bayer's local employees include world class scientists, facilities engineers, members of ILWU Local 6, and many others – all working together to produce treatments for people with hemophilia A.

Bayer.us





X-ray technology empowering advanced analysis

AWARDEE SIGRAY INC.

sigray.com

Innovation: Patented x-ray optics technology for laboratory settings.

Location: Pacheco, California

Co-Founder and Vice President: Sylvia Lewis

Regional significance: Enabling breakthrough research at powerhouse West Coast universities and R&D centers.

Employees: 30

East Bay favorite: “The close proximity to top universities, the beautiful weather year-round, and the central location, accessible to both San Francisco and Napa Valley.”

What do researchers studying cancer, developing the next-generation semiconductor processors, and mining companies searching for the next mother lode have in common? They all use x-ray microscopes!

However, when it comes to x-rays, the best results are obtained using a synchrotron, a special kind of particle accelerator that produces intense x-ray beams enabling superior chemical analysis. The cost and logistics of using a synchrotron have so far limited the pace of advanced research. An award-winning researcher and veteran in the field of optics, Wenbing Yun wanted to use his expertise to empower smaller groups and industrial R&D labs to achieve the same research capabilities as a synchrotron.

Yun first came to California to work for Lawrence Berkeley National Laboratory. Inspired by the entrepreneurial atmosphere of the East Bay, he started an x-ray microscope company in 1999, which he then sold to the German optical systems manufacturer Zeiss in 2013. However, Yun felt that the challenges of conventional x-ray technology had not yet been fully addressed. Together with his eldest daughter Sylvia Lewis,



Father-daughter innovation team Wenbing Yun and Sylvia Lewis.

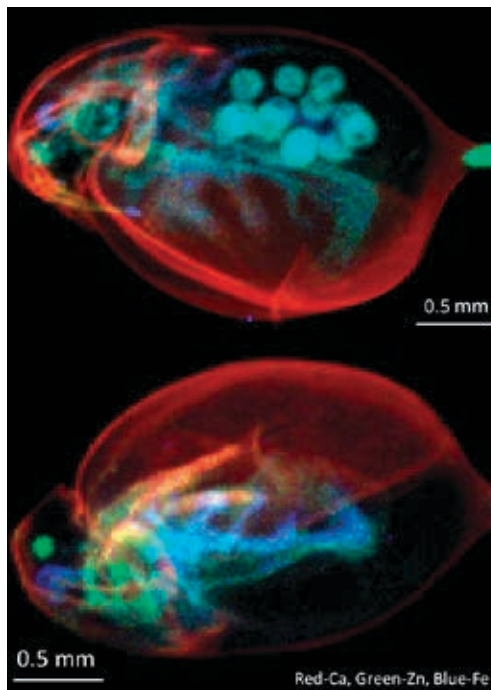


Image of a Daphnia water flea used to study bioaccumulation of toxic metals to determine environmental standards. Sigray’s x-ray microscope uses a synchrotron particle accelerator that enables superior chemical analysis.

“The East Bay already has a ton of very capable x-ray pioneers, including former synchrotron project leaders.”

Sylvia Lewis, Co-Founder and Vice President, Sigray

he founded Sigray with the mission of providing synchrotron-grade measurement systems to laboratories.

The father-daughter duo patented a method that takes advantage of the thermal properties of diamonds. “Using a diamond substrate filled with micron-sized metals as our x-ray source enables us to essentially shoot more electrons at the x-ray-producing target,” says Lewis, who also serves as vice president for the company. “That’s what allows us to create a brighter, more laser-like beam of x-rays within the laboratory source, which removes the major bottleneck of limited x-ray source brightness.”

With its inspiring scientific vision and broad applications, Yun and Lewis’ company has attracted talent from across the nation. However, Lewis — who was born and raised in the East Bay — says they have no trouble sourcing talent that already lives here. “The East Bay already has a ton of very capable x-ray pioneers, including former synchrotron project leaders, since we have two of the handful of synchrotron light sources around the world right here in Berkeley and in Stanford. The company feels privileged to collaborate with so many talented experts in the area.”

Better safety and precision for self-driving cars

FINALIST AEYE

aeye.ai

Innovation: iDAR intelligent data collection for autonomous vehicles.

Location: Pleasanton, California

Founder and CEO: Luis Dussan

Regional significance: Replicating human perception promises to make sensors smarter.

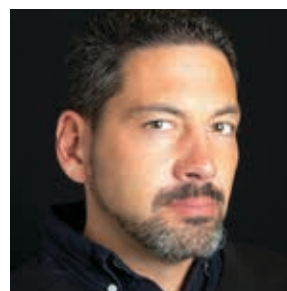
Employees: 60

East Bay favorite: “The mix of urban and rural environments.”

Anatural progression of technology is that first we build tools to perform a task in a simple way, then those tools get more nuanced and better adapted to their circumstances. The team at AEye is working to become that second stage for the visual processing tools that enable self-driving cars. The company, which will soon move from their current Pleasanton site to a larger space near the Dublin/Pleasanton BART station, could be a major piece of the puzzle in modernizing how people travel through the world.

The dominant visual technology in automated vehicles is LiDAR, which sends out pulses of light, and then forms a 3-D picture of the world from the reflections they create. AEye offers a more dynamic alternative: iDAR.

“LiDAR gathers a ton of data, most of which is useless,” explains AEye founder and chief executive Luis Dussan. “This wastes bandwidth and time. iDAR gets



“There’s an opportunity to save 40,000 lives per year in the U.S. alone.”

Luis Dussan, Founder and CEO, AEye

rid of useless data and reduces latency.”

The iDAR technology will be on the road in various trials later this year. One key innovation of iDAR is that it can identify objects and zero in on them, which makes it more efficient than a blanket approach. This allows AEye’s system to make better use of processing power.

“We collect less data, but much more information,” says Dussan. “You want data about the road and the obstacles and anything that moves extremely fast.”

Working on cutting-edge technology

is exciting, and it comes with the potential to do a tremendous amount of good for the world.

“One of the reasons we love the autonomous industry is that there’s an opportunity to save 40,000 lives per year in the U.S. alone,” says Dussan, referring primarily to traffic fatalities. The prospect of cars switching to autonomous operation could make for much safer roads, less stressful commutes and greatly reduced traffic. AEye is scaling the business to address the market, and plans to double its team of sixty in the next six to 12 months.

WELCOMING INNOVATORS SINCE 1852



Congratulations to our four Oakland finalists in the 2019 East Bay Innovation Awards:

- Elemeno Health
- Scientific Adventures for Girls
- TechHire Oakland
- Vigilant



Learn more about their hometown's central location, vibrant arts scene, abundant green spaces, and hopping bars and restaurants, along with details on our efforts to make Oakland an easy, efficient, and prosperous place to do business at Business2Oakland.com.

Congratulations to all 2019 Innovation Award Winners



Photo: Deane Little



Ours to Protect

For 85 years, the East Bay Regional Park District's mission continues to preserve, restore and provide public access to beautiful open spaces in Alameda and Contra Costa counties. Discover your 73 regional parks and be inspired!

Briones Regional Park, Lafayette and Martinez



A sustainable food source from fungi

AWARDEE Prime Roots

primeroots.com

Innovation: Turning fungi into an alternative for meat.

Location: San Leandro, California

CEO: Kimberlie Le

Regional significance: Fungi-based meat alternative that could help eliminate pollution from global factory farming.

Employees: 10

East Bay favorite: "There's a lot of great authentic ethnic food. The foodie community is strong."

Producing, processing and distributing meat can be harmful to the environment. It requires the use of fertilizer, water, pesticides and feed — all of which lead to the production of greenhouse gas emissions. And as the global population grows, so does the demand for meat.

By eating plant-based alternatives, consumers can still get their protein without causing as much harm to the environment. That's where East Bay native Kimberlie Le, Co-Founder and CEO of Prime Roots, comes in. In 2017, she spun the company out of research completed at the University of California, Berkeley in its Alternative Meats Lab.

"Basically, scientists and entrepreneurs get together to make sustainable, delicious alternatives to meat," she explains. "For us, that meant fungi. It's a super-protein, so it's more sustainable and nutritious than the vast majority of plant and animal sources of protein. Plus, we can turn it into any form factor we want, it's truly a new natural ingredient."

Fungi are more similar to meat than vegetables, she adds. "Using the age-old process of fermentation, the roots of the fungi grow similar to muscle fibers and the texture is similar to meat. Fungi also contain one of the five basic tastes: umami."

Le says the company is initially targeting various meats and seafoods with their products because the spaces are currently underserved by alternative meats vendors. "Particularly with sea-



"It's a super-protein, so it's more sustainable and nutritious than the vast majority of plant and animal sources of protein."

Kimberlie Le, Co-Founder and CEO, Prime Roots

food, mimicking these flavors is just as important, if not more, than chicken and burgers. Overfishing is a huge problem. Farmed shrimp can actually be worse for the environment than beef. A lot of people don't know that. But we want to get that message out there."

Prime Roots is still in the development stage and hasn't yet sold its products commercially. Right now, the company is focused on making the highest

quality product, finding out what customers want, and getting their feedback on what's produced.

The company is currently holding tasting dinners and other events for its members. Membership is free for now, while the company is still in its early stages. "We do hold public events. But being a member is the best way to try our products and to get involved with our mission," she says.

Startup leads next wave in medicinal cannabis

FINALIST Kikoko

kikoko.com

Innovation: Organic cannabis-infused herbal teas for everyday wellness.

Location: Emeryville, California

Co-Founder and Co-CEO: Jennifer Chapin

Regional significance: Helping to alleviate the nation's overdependence on alcohol and pharmaceuticals.

Employees: 30 employees plus contractors

East Bay favorite: "The sunsets, the restaurants and Tilden Park."

Awomen-owned medicinal cannabis business, Kikoko was the first company to create organic cannabis teas designed to help treat illnesses, addiction and other medical conditions.

At the heart of Kikoko's success is the company's culture of care, says Jennifer Chapin, Co-Founder and Co-CEO. "What drives us is our desire to assist people in alleviating their reliance on alcohol or pharmaceutical drugs. We're passionate about creating beneficial and impactful products."

Located in Emeryville, Kikoko was launched in January 2015 by Chapin and her Co-CEO, Amanda Jones. The two have complementary skill sets: Chapin heads up operations; Jones leads product development, branding and design.

The history of Chapin and Jones' friendship is just as unique as their business. They've been friends for 25 years and previously founded a nonprofit together called Cynthia's Sisters, which supports young Congolese women aspiring to get into law school.



"The Emeryville City Council has also been sincere in welcoming cannabis operators, particularly a women-owned startup."

Jennifer Chapin, Co-Founder and Co-CEO, Kikoko

The idea of Kikoko first surfaced when a friend was dying of cancer and told Chapin and Jones she wished for a cannabis product that she could trust and didn't involve smoking. Before long, the two left their professional careers to found Kikoko.

Chapin and Jones approached their business methodically. They surveyed local women about their views, concluding that there was an untapped market for low dose cannabis-infused herbal teas. Kikoko has since launched four teas which can help with sleep, pain, libido and mood, as well as two infused honey products.

There are huge layers of science, complexity and due diligence involved in creating cannabis wellness drinks,

Chapin says. Kikoko's teas are rigorously tested at least five times to ensure the cannabinoid ratios are right before they're approved for sale. The company also works closely with the State of California licensing agency and the Bureau of Cannabis Control, and was among the first cannabis companies to be fully compliant with state regulations.

Kikoko finds its East Bay location convenient, as most of its employees live in the area. "The Emeryville City Council has also been sincere in welcoming cannabis operators, particularly a women-owned startup," says Chapin. "We appreciate the incredible support from our local community."

INNOVATION AWARDS JUDGES

Carol Cherkis
BioInfoStrategies

Narsai David
Narsai's Specialty Foods

Patrick Dempsey
Lawrence Livermore National Laboratory

Mark Duesler
PG&E Food Service Technology Center

Kenneth Epstein
NewCap Partners, Inc.

Michael Fernald
San Francisco Business Times

Debrah Giles
East Bay Community Foundation

Chris Glenn
Langan

Sybil Gurney
Alameda County, ITD

Demian Hardman
Contra Costa County

Stephanie Hu
Contra Costa Transportation Authority

Sandy Hunter
Hunter Hawk Inc.

Roberta Klugman
Roberta Klugman & Associates

Jon Coffman
Boehringer Ingelheim, Fremont, Inc.

James "Buck" Koonce
Lawrence Livermore National Laboratory (formerly)

Megan Lehtonen
OSIsoft

Ruben Lizardo
University of California, Berkeley

Mark Martin
California Community Colleges

Hon. L. Karen Monroe
Alameda County Office of Education

Michelle Nemits
Biocom Bay Area

Tina Neuhausel
Sustainable Contra Costa

Patience Ofodu
Workforce Development Board of Contra Costa County

Robert Ogilvie
SPUR Oakland

Elsie Quaite-Randall
Lawrence Berkeley National Laboratory

Michael Rose
Semifreddi's

Gene Russell
Manex

Wendy Sommer
StopWaste

Cathleen Sullivan
Alameda County Transportation Commission

Gregory Theyel
Biomedical Manufacturing Network

Judith Wetterer
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Gary Craft
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Kot Hordynski
ICA Fund Good Jobs

Hon. Jody London
Contra Costa County

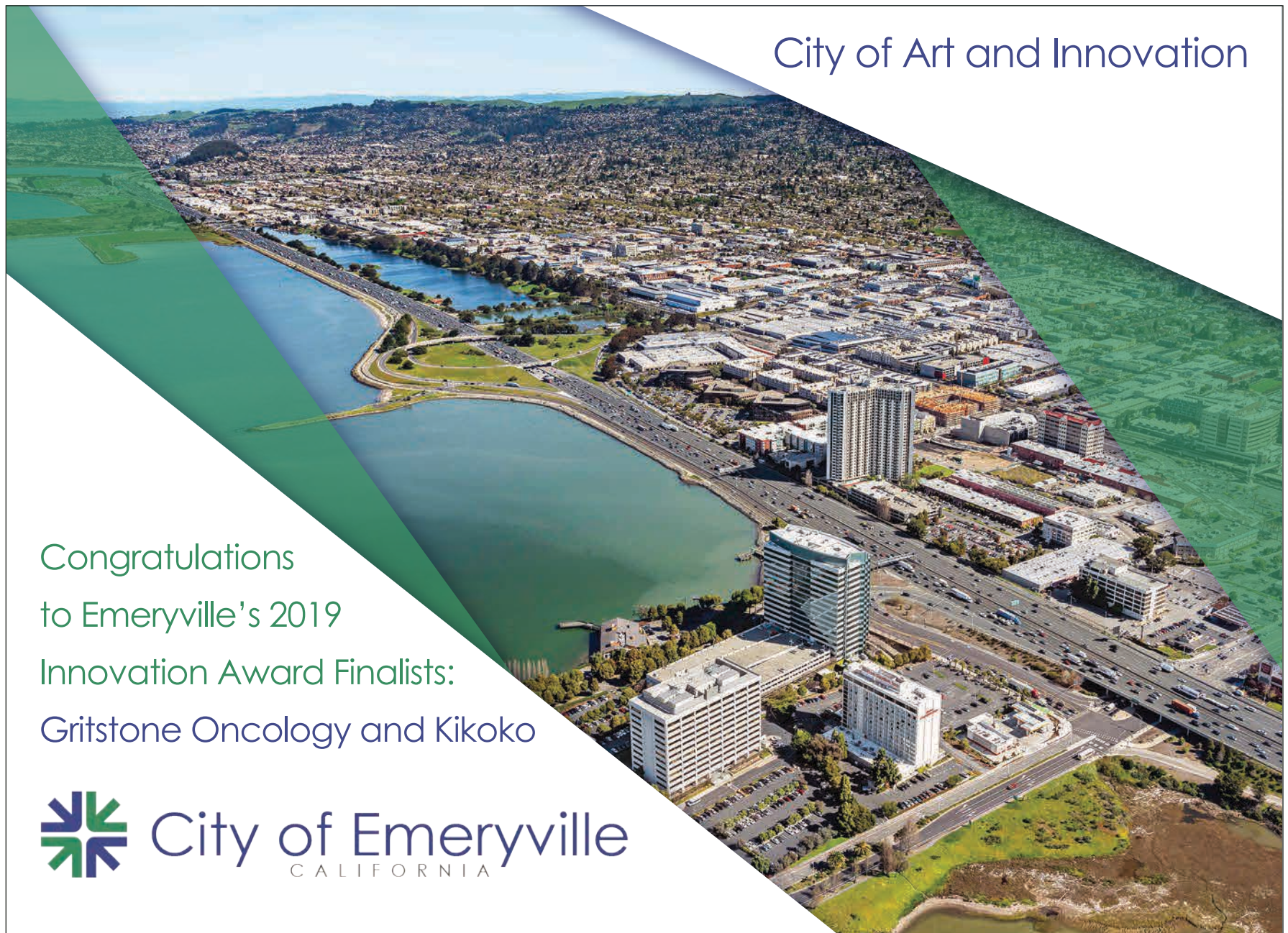
Steve Low
Port of Oakland

Vince Stewart
California STEM Network

John Tessman
Aduro Biotech

City of Art and Innovation

Congratulations
to Emeryville's 2019
Innovation Award Finalists:
Gritstone Oncology and Kikoko





Building a more powerful computer

AWARDEE RIGETTI COMPUTING

rigetti.com

Innovation: Cloud-based quantum computing platform.

Location: Berkeley and Fremont, California

Chief Operating Officer: Madhav Thattai

Regional significance: Giving researchers access to quantum computing power to help solve major problems in today's industries.

Employees: 100 employees across two locations

East Bay favorite: "The diversity of talent and experience in the East Bay has made it an incredible place to build a business. The fact that it's a great place to live with beautiful outdoors is something our team really enjoys."

Madhav Thattai, COO of Rigetti, reassures us that quantum computers will not eclipse the need for current devices. Rigetti creates computing solutions that optimize various industries by providing a way for existing technology to interface with a quantum computer, to solve highly complex business problems faster and affordably.

Rigetti was created originally by Chad Rigetti, a Yale University Ph.D. graduate. After studying experimental quantum computing, he launched his own computing company in 2013 aimed at bringing together the benefits of classical and quantum computing. Within five years, his company expanded to its current size.

This company's mission is to build powerful computers that maintain performance as they scale. "We do everything from the design and manufacturing of quantum integrated circuits, the actual quantum chips," Thattai explains. "Our product is called 'Quantum Cloud Services,' which is a cloud-access model allowing people to learn how to program quantum computers and also experiment and develop applications that run on computers.



"We think that Quantum Advantage is a milestone."

Madhav Thattai, Chief Operating Officer, Rigetti

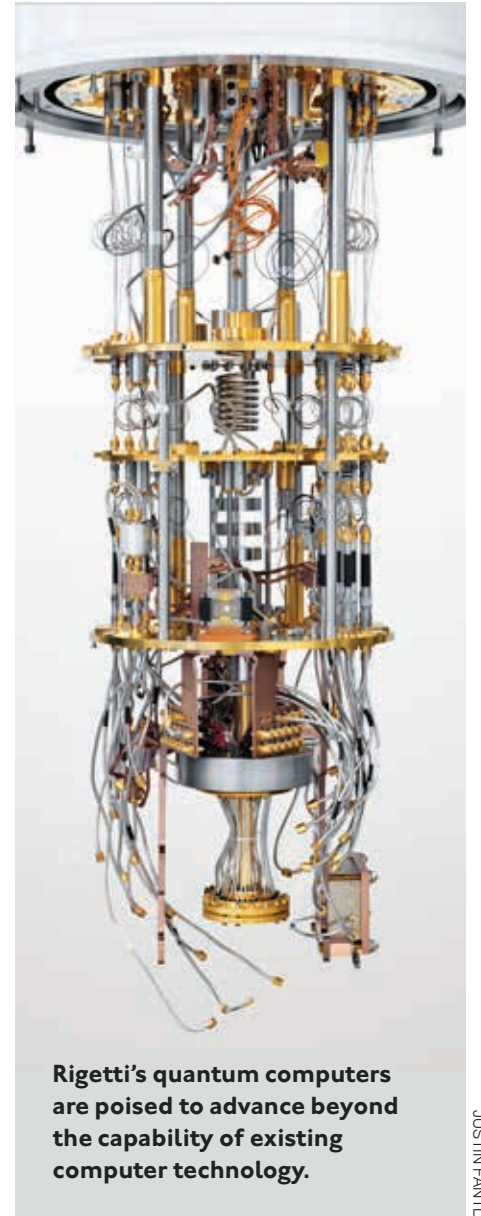
"Classic examples of its potential uses are in a supply chain, or solving logistics problems," adds Thattai. "Imagine FedEx, that has incredibly complex logistics using quantum computers to solve very difficult optimization problems to increase the efficiency of their routes, or reduce the cost involved in delivery."

But these are just a few applications of the technology. For instance, it's notoriously difficult for computers to simulate molecules, but a quantum computer can make calculations in ways current scientific methods cannot. "You can also imagine problems in the financial industry, where banks attempt to optimize portfolios or manage assets differently."

Thattai is proud to add that Rigetti Computing is the second company after IBM to provide public access to working quantum computers. This interconnection with the public has inspired Rigetti to launch their Quantum Advantage Prize of \$1 million. Using a real-world problem, a team has

to demonstrate that an algorithm running on their platform has either computed its solution faster, more efficiently or more cost-effectively.

"We think that Quantum Advantage is a milestone that this industry is going to achieve in the next five years," says Thattai. "We bet that Rigetti is going to make it happen in the next three years."



Rigetti's quantum computers are poised to advance beyond the capability of existing computer technology.

JUSTIN FANTL

Atomizing insurance, and giving consumers agency

FINALIST Trov

trov.com

Innovation: Personalized, granular, on-demand insurance.

Location: Danville, California

Founder, CEO and Chairman: Scott Walchek

Regional significance: Changing the insurance landscape for millennial consumers.

East Bay favorite: "Work-life balance for professionals and families."

Millennials and their interaction with technology have transformed industries from software development to food preparation, to the delight — and dismay — of many. With Trov, Scott Walchek is bringing those changes to one of the most monolithic industries on the planet: insurance.

Walchek founded Trov in 2012 when he saw an opportunity for a new kind of engagement with personal insurance.

"We had a modest insurance background, (but) we had a consumer engagement background, and so we decided to focus first on the user," Walchek said. "We asked ourselves what would happen if we could atomize the experience? What if we disassembled the core components of how insurance works and rebuilt it with smart technology from the ground up? When we did this, it unearthed a remarkable simplicity. We could give people the ability to protect what they want, when they want, for whatever duration they need."

The Trov app implements a unique,



"What if we disassembled the core components of how insurance works and rebuilt it with smart technology from the ground up?"

Scott Walchek, Founder, CEO and Chairman, Trov

Tinder-like swiping system to give users this ability for many of their registered possessions, including photo equipment, skis and other valuables. Users see their "trove" of covered items, swipe right on anything from their guitar to their game console, and self-select their price per day with another simple slider. After that, one more tap seals the deal.

If a user assesses that the item is no longer at risk, they simply swipe left on it in their Trov app and protection is removed. If they want to file a claim, they swipe right on an item that already has protection.

Walchek and his co-founders knew and understood millennial customers needed

more flexibility and transparency—propositions traditional insurance models weren't offering.

That philosophy drove the development of the Trov app that Walchek says brings much-needed "digital transformation" to the insurance space.

Trov launched its services in the U.S. last year, but a significant part of their primary team has been based in Danville since the company was founded.

"There's a lot of amazing talent out in the East Bay that doesn't just reside in the city and we get to come to those folks and say 'hey, we can save you 15 hours a week in your commute,'" said Walchek.

How to build an engine for innovation

PILOT CITY CONNECTS SCHOOL PROGRAMS TO WORKPLACE EXPERIENCES

BY DERICK LEE, Founder, PilotCity

Ninety-eight percent of all cities in the United States have under 100,000 people. Alameda County cities average 75,000 in population and Contra Costa County cities average 19,500. The majority of these cities do not have the robust innovation ecosystem or economic development engine to compare to their nearest metropolitan center, let alone a magnet for talent to have others build it for them. This prompts the question, how do we build an engine for innovation for cities, counties and regions powered by local talent and citizens in an increasingly global society?

While we determine the future of work as a society, classrooms are teaching a curriculum irrelevant to the problems of today's rapidly transforming industries. We continue to direct students toward potentially obsolescent opportunities, resulting in a loss of productive talent for employers during a transformative time in history when talent matters most.

PilotCity connects teachers with employers to deliver in-classroom work experiences for students. These connections generate talent for employers and lead directly to at-workplace internships, entrepreneurial fellowships and entry-level jobs. PilotCity supercharg-

es curricula with the relevance of rapidly transforming industries through project-based work experiences driven by the challenges of our employers in the innovation economy. This model enables access to local, pre-vetted talent pools, scalability of quality work-based learning, and production of sustaining industry-designed curricula.

Since launching in Fall 2017, PilotCity has grown by 200 percent each semester. From five employers, 10 teachers, and 250-plus students across 16 classrooms in the first semester to 20 employers, 30 teachers, and over 1,750 students across 120 classrooms in their third semester. The first school year led to more than 110 internship applications with a 30 percent employment rate. After their second school year, PilotCity anticipates around 400 applicants at the same employment rate resulting in up to 120 internship placements this summer.

Participating employers have included past East Bay Innovation Awards awardees and finalists such as Velodyne LiDAR, Tech Exchange and OSIsoft. Students have come from Oakland, Richmond, Fremont, Antioch, Hayward, Pittsburgh, Berkeley, San Leandro, Alameda, San Lorenzo and Emeryville classrooms.

If you're an employer, teacher or government official interested in investing in our future workforce, partner with PilotCity: derick-lee@pilotcity.com or (510) 676-5861.

PilotCity was the 2018 East Bay Innovation Awards awardee in the education category. PilotCity students served as youth award presenters at the 2019 East Bay Innovation Awards.

SAN LEANDRO

WE MAKE THINGS!

San Leandro is building on its deep manufacturing history, transforming into an innovation and advanced manufacturing hub. With a business friendly climate, easy transportation access, ultra high speed internet, and a diverse housing and employment base, San Leandro is the place to grow your business.



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BUILDING AN INNOVATION ECOSYSTEM

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(510) 577-3311





Consumer technology enabling better patient care

AWARDEE Elemeno Health

elemenohealth.com

Innovation: Providing intuitive, efficient knowledge and skill-sharing for front-line workers in the healthcare industry.

Location: Oakland, California

CEO and Co-Founder: Arup Roy-Burman, M.D.

Regional significance: Promotes better communication, training and collaboration among health professionals.

East Bay favorite: "Eat! The East Bay is the intersection of cultures, cuisines, artisans and innovators."

As a longtime pediatrician, Dr. Arup Roy-Burman witnessed countless historic advances in the practice of medicine. What he strongly believed the health care industry lacked, however, was a platform that could be accessed in real time by front-line medical professionals to immediately access best practices, surgical breakthroughs, and other standards to strengthen and enhance patient care and safety.

Four years after he formulated a vision and made a pitch to leading video game designer Ed Nanale while chaperoning their children's school camping trip, Elemeno Health has become one of the leading cloud-based platforms now utilized in county health systems and academic medical centers throughout the United States.

"I've seen an explosion of best practices and institutional knowledge," Roy-Burman said. "It has far outpaced the capacity of any one of the folks on the frontline to master all of the things that they're responsible for."

Developed in collaboration with UCSF



ELEMENO HEALTH



"We transform ... best practices into digestible micro-learning, making it easy for the folks on the front line to do the right thing."

Arup Roy-Burman, M.D.,
Co-Founder, and CEO, Elemeno Health

Medical Center, the Elemeno platform provides "just-in-time" training, which includes interactive guidelines, smart checklists, how-to videos and other "digestible micro-learning" to benefit doctors, nurses, key staff and other practitioners, according to Roy-Burman. In addition, Nanale developed social and "gamification" elements that allow medical teams to hold competitions and provide managers with a platform to recognize and motivate employees.

"In our consumer lives technology is an enabler, it helps us to close that information gap," Roy-Burman said. "So why don't we have the convenience of consumer technology in the healthcare space, where

the stakes are so much higher?"

Using gamification and a shared library of best practices allows Elemeno to "democratize knowledge-sharing" according to Roy-Burman, and give healthcare applications the convenience of consumer technology. Users can find intuitive directions for every procedure they need.

"We transform these best practices into digestible micro-learning, making it easy for the folks on the front line to do the right thing," Roy-Burman said.

Oakland-based since its founding, Elemeno Health's promise has been recognized by recently being named one of the "Fierce 15" by FierceHealthcare.

Potential breakthrough against cancer

FINALIST Gritstone Oncology

gritstoneoncology.com

Innovation: Personalized immunotherapies.

Location: Emeryville, California

CEO and Co-Founder: Andrew Allen, M.D., Ph.D.

Regional significance: Individualized approach could enhance the benefits of immunotherapy.

East Bay favorite: "The high-caliber employee base."

Cancer treatment is one of the most compelling scientific challenges of our time, having absorbed years of research focused on fighting to rid the body of the potentially deadly disease. Emeryville's Gritstone Oncology is a clinical-stage biotechnology company developing the next generation of cancer immunotherapies to fight multiple cancer types.

Co-Founder and Chief Executive Officer Andrew Allen envisions major breakthrough possibilities. "We're about to dose our first patient very soon now that we have FDA clearance for the trial," he says.

Allen believes that a patient's own immune system is the best tool that scientists have to combat the disease, explaining that "the notion is that you're harnessing the power of the patient's own immune system to try and destroy their cancer and eliminate the cancer cells. Nature invented this extremely clever defense mechanism comprising an immune system that has the ability to recognize essentially anything foreign to your body."

The trouble with cancer, Allen says,



"You're harnessing the power of the patient's own immune system to try and destroy their cancer."

Andrew Allen, M.D., Co-Founder and CEO, Gritstone Oncology

is that cancer is made up of one's own cells that have merely undergone mutations and are thus harder to recognize as dangerous. But those mutations can also lead to what Allen calls "foreign proteins," which can allow the immune system to identify cancer cells and destroy them.

"We believe we can help the patient if we can do two things," says Allen. "For each patient, identify what their foreign proteins are. Then introduce those foreign proteins to the patient in vaccine form with the goal of inducing a strong immune response."

Gritstone Oncology's unique product involves a deep learning model of their own design that sequences the DNA and

RNA in a tumor to identify the mutations that make the best targets for an immune system response. Simply put, "we take a piece of the patient's tumor, we characterize it with DNA sequencing, and we create a very targeted and potentially potent vaccine," says Allen.

The East Bay has been a good area for the company to grow due to the pool of high caliber professionals that are based locally.

"A primary benefit is that we have a lot of people who live here who now don't need to commute across the Bay Bridge. We have a lot of sophisticated and highly educated workers... and they don't need to destroy hours of their day," Allen says.

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