



KENT NISHIMURA Los Angeles Times

A CREW of space scientists, synthetic biologists, investors and entrepreneurs meets in the Mojave Desert for the Betaspace confab.

**COLUMN ONE**

## L.A. tech pioneers shoot for the moon

As Coachella raged, an eclectic crowd in the Mojave envisioned life on Mars

BY SAM DEAN  
SOMEWHERE IN THE MOJAVE DESERT

The only in-flight beverages on the 11-seat private jet were bottled water and a genetically modified bacterial slurry designed to prevent the worst effects of hangovers.

A handful of passengers on the short evening flight from Hawthorne to the edge of the Mojave — venture capitalists, a man with a mushroom-based manufacturing company and this reporter — downed the mixture. The pilot, along with

two senior SpaceX engineers, politely declined.

At the Apple Valley Airport, a helicopter waited to take us beyond a far ridge, farther from civilization. Miles from paved roads were two tents, a ring of shipping containers and an “H” painted on the dirt marking a makeshift helipad.

One hundred miles to the southeast, masses of festival heads were gathering in the desert for Coachella’s first April weekend. But this small crew of space scientists, synthetic biologists, investors, entrepreneurs and one partygoer with flamethrower had higher ambitions.

By jet, bus and more than a few Teslas, they came to this desolate valley for Betaspace: a one-night, invite-only confab for the not-quite-yet-burgeoning space settlement industry.

Through sheer force of festive networking, its organizers hoped to spawn the companies and concepts that could allow humanity to establish bases on Mars (or maybe the moon), or “terraform,” as they say, our nearest neighbors into habitable worlds and spin off technologies for us earthbound humans in the process.

To the brains behind the operation, this was also the first step on a new [See Mars, A7]

## COLLEGES ARE PRIME TURF FOR MEASLES

Close quarters and the age group least likely to be vaccinated leave campuses susceptible, health officials say.

BY SOUMYA KARLAMANGLA

Los Angeles County health officials warned this week that students and staff at UCLA and Cal State L.A. may be at risk of catching measles, an announcement that has raised questions about universities’ susceptibility to disease outbreaks.

Not only can cramped dorm rooms and crowded classrooms be breeding grounds for contagion, but young adults in California are less likely to be vaccinated than other age groups, experts say. One of the people infected in L.A.’s measles outbreak is a UCLA student, university officials confirmed Tuesday.

People who are now in their early 20s are part of what’s known as the “Wakefield generation,” because they were infants in 1998 when British scientist Andrew Wakefield published a now discredited paper claiming that vaccines cause autism. Scared of the side effects of vaccination, many parents chose to opt out.

California implemented one of country’s strictest immunization laws in 2016 to try to push up vaccination rates, but high school students and young adults who had already finished their schooling when the law took effect were not required to comply. That has left a large pool of young people especially vulnerable to infection [See Measles, A8]

### Top countries for U.S. visa ‘overstays’

Countries with the highest rate of people overstaying in the U.S. (fiscal year 2017)

	Total	Percentage rate of overstays
Djibouti	416	41.60%
Solomon Islands	102	29.82
Eritrea	757	23.87
Chad	140	22.91
Liberia	783	18.93
Somalia	22	14.67
Burkina Faso	669	14.05
Bhutan	51	13.67
South Sudan	28	13.53
Sudan	624	13.18

Countries with the most people overstaying in the U.S. (fiscal year 2017)

	Percentage rate	Total overstays
Canada	1.04%	90,707
Mexico	1.62	44,250
Brazil	1.77	31,912
Venezuela	5.46	29,419
Britain	0.49	23,231
Colombia	2.42	21,070
Nigeria	10.27	19,046
China	0.68	16,225
France	0.80	14,406
India	1.16	12,498

Data from the Homeland Security Department based on suspected in-country overstay rates and totals for foreign travel for business or pleasure via air and sea ports of entry, including Visa Waiver Program and non-VWP countries.

Source: U.S. Department of Homeland Security

Los Angeles Times

## Trump opens new front in the fight against migrants

He plans to target foreign travelers who overstay their visas.

BY MOLLY O’TOOLE

WASHINGTON — The White House says it plans to crack down on the hundreds of thousands of foreign visitors who overstay their U.S. visas, a vast challenge that has largely escaped notice as the Trump administration has focused chiefly on blocking migrants on the southern border.

Experts say so-called overstays by students, au pairs, tourists and others have far outpaced unauthorized border crossings in recent years and form a major portion of the estimated 10.7 million people in the country without permission.

President Trump signed a memorandum late Monday threatening to ultimately suspend travel from countries with high rates of overstays, and possibly require foreign travelers to

post “admission bonds” that would be repaid once they leave the country.

Visitors “who abuse the visa process and decline to abide by the terms and conditions of their visas, including their visa departure dates, undermine the integrity of our immigration system and harm the national interest,” Trump wrote.

He offered few immediate concrete steps beyond directing the secretaries of Homeland Security and State to identify ways to combat non-immigrant visa overstays within 120 days.

Nonetheless, the memo serves as a rare acknowledgment by the administration that many undocumented people in the country entered legally by ship or plane. Trump has chiefly focused his ire on Central Americans who crossed the border between ports of entry or entered to seek asylum.

The largest number of visa overstays are from Canada and Mexico, but 20 countries have overstay rates ranging from 10% to [See Visas, A4]

## L.A. students seek say at the ballot box

Board orders a study on lowering voting age to 16 for school district elections.

BY SONALI KOHLI

High schoolers this decade have stormed out of their classrooms after the 2016 election, demanding protection for immigrants. They have called for gun control in the wake of school shootings, spurring a

nationwide movement.

In L.A. this year, students picketed with their teachers in the largest teachers’ strike in recent history. Pockets of students throughout the city are constantly involved in advocacy for better learning conditions.

Now they want more than a voice — they want a vote.

Taking on an issue with potentially broad implications for the power dynamic in the nation’s second-largest school system, the Los Angeles Unified School District board voted unani-

mously Tuesday to approve a resolution directing the superintendent to report on the feasibility — including costs — of a 2020 ballot measure that would lower the voting age to 16 in school district elections. The resolution was written by Tyler Okeke, 17, the nonvoting student representative.

An estimated additional 60,500 residents would be eligible to vote if such a ballot measure passed, according to L.A. Unified spokeswoman Barbara Jones. Tuesday’s board action

was preliminary — in order to actually lower the voting age, Los Angeles city officials would have to put a measure on the ballot for voters in the district to approve. But the school board’s buy-in was an important first step.

Berkeley voters in 2016 approved lowering the voting age to 16 for school board elections and the district agreed to take on costs, said Luis Sanchez, executive director of Power California, a group advocating for youth [See Voting age, A8]

## Citizen question appears likely on census

Conservative justices seem friendly to the Trump plan to ask if household members are American.

BY DAVID G. SAVAGE

WASHINGTON — The Supreme Court’s conservative justices appeared ready on Tuesday to uphold the Trump administration’s plan to add a citizenship question to the 2020 census and deal a defeat to California and other states with large numbers of immigrants.

It is a politically charged dispute over how to conduct the once-a-decade count of the U.S. population, and the justices sounded sharply split along familiar ideological lines.

The five conservatives, all of whom are Republican appointees, expressed support for the administration plan.

The law “gives huge discretion to the Secretary [of Commerce Wilbur Ross] on what to put on the form,” said Justice Brett Kavanaugh. Agreeing with Justice Neil M. Gorsuch, he said that history and international practice are on the side of the administration. Through most of American history, the census asked all or some households about the citizenship of their residents, he said, and most leading countries in the world do the same.

The four liberals, all Democratic appointees, were even more vehement in describing the citizenship question as a scheme hatched by Trump’s advisors to drive down the population count in states and cities that favor Democrats.

None of the justices sounded torn or uncertain. By the argument’s end, it appeared the high court would hand down a 5-4 ruling for [See Census, A9]

### Islamic State claims bombings in Sri Lanka

The death toll rose to 321, in what would be one of the extremist group’s deadliest attacks outside its former strongholds of Iraq and Syria.

WORLD, A3



ZACH GIBSON Getty Images

### She’s captivated House speaker

Nancy Pelosi sees California Democratic Rep. Katie Hill as a younger version of herself, bringing opportunity for the Agua Dulce freshman, but also risks.

NATION, A9

### Former Guard members testify

A California Senate panel clears a hurdle in the path of a bill to protect whistleblowers after hearing accounts of recrimination.

CALIFORNIA, B1

### Weather

Mostly sunny. L.A. Basin: 79/57. B6

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**SPOCK VEGAS**, aka “Star Trek” impersonator Paul Forest, mills around the Mars-like encampment, which drew an eclectic crowd of about 180.



**GUESTS WAIT** to catch a helicopter ride. The one-night event is billed as a place where “Burning Man and the Consumer Electronics Show collide.”



Photographs by **KENT NISHIMURA** Los Angeles Times

**AS FANS** celebrated Coachella’s first weekend, Betaspace guests mingled at an invitation-only party in the Mojave Desert to explore the topic of space settlement.

## Where L.A. tech shoots for the moon

[Mars, from A1] path for the L.A. tech scene. Once a dominant player, back when tech and aerospace were synonymous, the Southland fell from prominence as silicon, software and start-ups concentrated in the Bay Area. Should space colonization actually become a thing, however, Southern California could capitalize thanks to its long history in rocketry and its lively biotech sector.

In another part of the same desert, companies such as SpaceX, Blue Origin and Virgin Galactic launch the rockets that could get us to other worlds. Betaspace aims to figure out how we live once we’re up there.

The invitation promised Betaspace would be the place where “Burning Man and the Consumer Electronics Show collide.” There was a lamb roast and an open bar with space-themed cocktails. And a laser show, projected on the unmistakably Mars-esque hills. At the end of the night, an ailing Honda Odyssey would be ritually incinerated. The man-made anti-hangover microbes flowed freely.

The crowd of about 180 — many from Silicon Valley, some from as far as Switzerland — was roughly split among entrepreneurs in tailored button-downs and business-casual fleeces, scientists in fieldwork-appropriate hiking boot and flannel combos, and Burning Man habitués looking like extras from the “Mad Max” movies.

Most had ignored the style suggestions in the event’s Pinterest look book, heavy on flowing robes, that had been emailed to participants in advance. Bryan Johnson, the man who made hundreds of millions selling Venmo to PayPal and now runs the neural interface company Kernel, rubbed elbows with Brian Armstrong, the chief executive of Coinbase, the world’s leading cryptocurrency exchange.

By the snack table, where legacy chips and salsa sat alongside bright blue cyanobacteria-dusted popcorn, a man in a knee-length fur coat sparked a conversation with a steampunk. One had sold a successful office-catering company and was now looking to invest in business models based on catastrophic change. The other worked on developing small nuclear reactors to power spaceships, planetary colonies and Canada.

“How do you keep that fur clean?” the nuclear engineer



**JOHN CUMBERS**, whose vision of settling the solar system sparked Betaspace, speaks in the main tent. Betaspace aims to figure out how humans will live once they rocket to other worlds.

asked.

“Four Burns in a row, never cleaned it,” the catastrophe investor replied.

A rep from DARPA, the military’s experimental research wing, wore a sequined blazer and horned top hat. A spindly Spock impersonator milled around the edges, looking sternly into the distance. As a DJ played soothing techno music, packs of younger men and women roamed about in full-body elastic silver jumpsuits.

But this crowd wasn’t here simply to look good. They were here to talk space.

At a typical tech conference, a “moonshot” is a metaphor for a new monetization plan or a bold marketing strategy. Here, shooting for the moon could mean just that.

“I’m going to put an institution of higher learning on the moon,” said Bruce Pittman, a NASA engineer at the agency’s Ames Research Center in Silicon Valley. He hoped it would serve “as a proving ground and as a talent pipeline for the expansion of human presence across the solar system.”

A sense of fast-arriving crisis — climate change, mass starvation and displacement, water wars, poisoned landscapes — drove much of the talk, paired with a hope that some salvation might lie in space, both as a release valve for

our pent-up humanity and a harsh proving ground for tech that could carry us earthlings through the hard times.

“Imagine if we live in a nature reserve — forests, meadows, lovely streams. We don’t go building an industrial plant in the middle of that forest,” said Jim Keravala, the chief executive of OffWorld, a Pasadena company that’s building industrial robots for space. “Earth is sitting in a nature reserve called the habitable zone of our star.”

He wants to zone the planet for “residential and light industry only,” and take the dirtiest industrial work into the asteroid belt that orbits the sun between Mars and Jupiter.

These kinds of moonshots don’t come cheap.

“I’m interested in figuring out whether I can get my money back in my lifetime,” said Eric Anschutz, an angel investor. “That probably distinctly means not investing in terraforming.”

His interests lie in the terrestrial byproducts of space expansion, such as how NASA technology led to LASIK surgery and high-efficiency solar panels, or how pharmaceutical companies today regularly buy berths on rocket launches to grow purer crystals in microgravity.

As the sun set and the stars began to show in the desert sky,

John Cumbers, the event’s impresario, gathered everyone into the main tent. His research into inducing temporary comas for long-distance space travel had earned him an opportunity at NASA, but he had moved away from space to build a networking business for the synthetic biotech business. He dreamed up Betaspace last year while gazing at the stars on a trip to Malaysia.

He reflected on how he was married, had two kids and a house in the Silicon Valley suburbs. And a realization hit him: “I’m going to be 40 next year. What the hell happened to my vision for settling the solar system?”

He came back to California, rented an RV and drove down to L.A. from his home to scout locations.

While he was in the area, he stopped by Mothership, the downtown Los Angeles biolab and prototyping warehouse run by Soylent founder Rob Rhinehart.

“John came to me and said he wanted to build a futuristic city in the desert,” Rhinehart said. As chance would have it, Rhinehart had purchased a 3-acre parcel of land in the high desert for \$3,000, sight unseen, thinking it might serve as a nice spot for stargazing. “When I got out there the first time, it felt like Mars — just being on that plain all alone with the

mountains around you and the stars above you, there’s a lot of good energy there. When John said he needed a site, I was like, ‘Oh, you can use mine for free.’”

A little more than a year later, Betaspace was born — and Cumbers sounded as if he was working for the chamber of commerce.

“The reason that there is no space settlement industry is because there is no market out there,” Cumbers said. “We all know that in a thousand years we’re going to have people living on the moon or Mars. In a hundred years, I put the probability at 75%. What about in 10 years? I put about 5%, maybe 10%, chance of that.

“We are going to create that market. We’re going to build this community, and this community is going to make the sustainable settlement of space a reality,” Cumbers said.

Chris McKay, a 30-year NASA veteran and one of the leading proponents within the agency for building permanent human settlements off Earth, was a little less bullish.

“When John invited me, I came without even knowing what this was,” he said. “And if I knew, I probably wouldn’t have come, because I’m representing the old guard, I’m representing NASA scientists.”

When McKay said he wasn’t interested in generating revenue from the moon or Mars, the crowd booed. They responded more favorably to his belief that private contractors should handle logistics and let NASA hew to its roots as a science organization, rotating researchers out of moon and Mars bases like researchers in Antarctica.

A senior SpaceX engineer took questions about the company’s Mars ambitions as the crowd grew increasingly rowdy.

The bar ran out of turmeric-carrot juice for its mezcal cocktail, and the privately jetted guests peeled off to catch their flights home.

As the DJ played “The Final Countdown,” the unlucky Honda Odyssey was set upon by the flamethrower. In seconds, flames engulfed the practical family car, and explosions — the air bags? — sent out ear-ringing shock waves.

The heat and caustic smoke pushed the crowd back. But even with a burning Odyssey in front of them, many were still looking up at the stars.