

# Business

## MARKETS

▼ 119.70 **Dow** 28,583.68  
 ▼ 2.88 **Nasdaq** 9,068.58  
 ▼ 9.10 **S&P 500** 3,237.18  
 ▲ 0.01 **10-yr. T-note** 1.82%  
 ▼ \$0.57 **Oil** \$62.70  
 ▲ \$5.60 **Gold** \$1,571.80  
 ▲ \$0.22 **Silver** \$18.32

**Euro** 0.8973 • **Peso** 18.8758

## U.S. STOCK INDEXES

**SLIP:** U.S. stocks mostly fell on Tuesday, but the big rush for safety that coursed through global markets after the United States killed a top Iranian general on Friday slowed. Gold's momentum eased a day after touching its highest price in nearly seven years, and benchmark U.S. crude dropped for the first time in four days. The S&P 500 dipped but remains within 0.6 percent of its record.

## BRIEFLY

**SONOS SUES GOOGLE OVER SPEAKERS:** Sonos alleged in two federal lawsuits Tuesday that Google swiped technology used in its speakers to create its own, seeking a halt to further sales of the devices as well as financial penalties. In the suits, filed with U.S. District Court in Los Angeles and the U.S. International Trade Commission, Sonos claims Google co-opted patented technology that allows for its speakers to work in multiple rooms and put it to use in its own speakers, including the Google Home and Pixel devices and the discontinued Chromecast Audio. Google gained access to Sonos' technology through a partnership begun in 2013 allowing Sonos' speakers to work with Google Play Music, according to the suits.

**UNITED TO TAKE \$90M CHARGE:** United Airlines said Tuesday it will take a \$90 million charge against fourth-quarter earnings because of a drop in value of its routes to Hong Kong, the scene of anti-government protests in recent months. United said lower demand for travel to Hong Kong reduced its revenue for each seat flown one mile, a measure that airline investors watch closely. The company said that led to its calculation of the non-cash impairment charge.

**BOEING SUPPLIER MAY SHED WORKERS:** The looming production shutdown of Boeing 737 Max jets is taking a toll on a key supplier. Spirit AeroSystems Holdings Inc. is asking employees if they will take voluntarily buyouts. Spirit suspended production of fuselages and other parts for the Max on Jan. 1, after Boeing told the Wichita, Kan., company to suspend shipments. Spirit employees learned about the buyout offer, with terms depending on union contracts, in a memo from CEO Tom Gentile, who said the company still has no clear idea of when Max production will resume.

**SERVICES FIRMS GROW AT FASTER PACE:** U.S. services companies grew more quickly in December than the previous month, a sign that the economy's steady expansion should continue. The Institute for Supply Management said Tuesday that its service-sector index rose to 55, from 53.9 in November. Any reading above 50 signals an expansion.

## DIGITS

**\$3.60**

Average price of a gallon of unleaded gasoline in San Diego County, down from \$3.75 a month ago.

U-T NEWS SERVICES

## FORMER DIRECTOR SAYS GRID SECURE

State's power system seen as equipped to handle possible hacks from Iran

BY ROB NIKOLEWSKI

The electrical grid may likely represent a prime target after Iran has vowed "crushing revenge" on the United States after a drone strike that killed its top general, Qassem Soleimani.

But the former director of the organization that oversees the power system for the bulk California says

he's not overly worried about a major disruption.

"We spend a lot of time, money and energy to harden the system so this doesn't happen," said Jim McIntosh, who was director of grid operations from 2000 to 2009 at the California Independent System Operator. "And the system is broken up into a lot of pieces. We can isolate areas very readily and keep control of the system. So it's a very difficult task to take the grid down — very difficult."

Based in Folsom, the California ISO manages the flow of electricity across the high-voltage and long-

distance power lines that make up 80 percent of California's grid, as well as a small part of Nevada's power system. The ISO not only balances the flow of electricity in the state but also makes power purchases to match demand and avoid power outages.

"I would say we are adequately protected against anything Iran has done in the past and could do at this point," said McIntosh, who spent 13 years at the ISO. "They have proven over time that they can't break through the firewalls" put in place to protect the system.

Critical infrastructure such as

the power grid has come under more intense focus since tensions between the U.S. and Iran have escalated.

On Saturday, the U.S. Department of Homeland Security issued an updated threat bulletin that warned "Iran maintains a robust cyber program" and "is capable, at a minimum, of carrying out attacks with temporary disruptive effects against critical infrastructure in the United States."

But attempts to disrupt California's power grid are not new.

Last summer, the manager in

SEE GRID • C4



A collage of AI-generated faces offered for sale by Icons8, a design firm that sells digital illustrations and stock photos.

ICONS8

## AI COMPANIES OFFER FAKE FIX TO REAL DIVERSITY

Software scans real faces to replicate features, but there's fear of images being used for abuse

BY DREW HARWELL

Artificial intelligence startups are selling images of computer-generated faces that look like the real thing, offering companies a chance to create imaginary models and "increase diversity" in their ads without actually needing human beings.

One firm is offering to sell diverse photos for marketing brochures and has already signed up clients, including a dating app that intends to use the images in a chatbot. Another company says it's moving past AI-generat-

ed headshots and into the generation of full, fake human bodies as early as this month.

The AI software used to create such faces is freely available and improving rapidly, allowing small startups to easily create fakes that are so convincing they can fool the human eye. The systems train on massive databases of actual faces, then attempt to replicate their features in new designs.

But AI experts worry that the fakes will empower a new generation of scammers, bots and spies, who could use the photos to build imaginary online personas, mask bias in hir-

ing and damage efforts to bring real diversity to industries. The fact that such software now has a business model could also fuel a greater erosion of trust across an Internet already under assault by disinformation campaigns, "deepfake" videos and other deceptive techniques.

Elana Zeide, a fellow in artificial intelligence, law and policy at UCLA's law school, said the technology "showcases how little power and knowledge users have in terms of the reality of what they see online."

SEE FAKE • C4

## WHITE HOUSE PROPOSES GUIDELINES FOR REGULATING THE USE OF AI

BY MATT O'BRIEN

The Trump administration is proposing new rules to guide future federal regulation of artificial intelligence used in medicine, transportation and other industries.

But the vagueness of the principles announced by the White House is unlikely to satisfy AI watchdogs who have warned of a lack of accountability as computer systems are deployed to take on human roles in high-risk social settings, such as mortgage lending or job recruitment.

The White House said that in deciding regulatory action,



**A metal head made of motor parts symbolizes artificial intelligence at motor show in Germany in November. The Trump administration's proposed rules to guide regulation of artificial intelligence are limited to the private sector.**

MARTIN MEISSNER AP

U.S. agencies "must consider fairness, non-discrimination, openness, transparency, safety, and security." But federal agencies must also avoid setting up restrictions that "needlessly hamper AI innovation and growth," reads a memo being sent to U.S. agency chiefs from Russell Vought, acting director of the Office of Management and Budget.

"Agencies must avoid a precautionary approach that holds AI systems to such an impossibly high standard that society cannot enjoy their benefits," the memo says.

SEE GUIDELINES • C4

## PRICEY MIXED-USE PROJECT OPENS IN SOLANA BEACH

Eight apartments, office and retail space overlook Cedros Avenue district

BY JENNIFER VAN GROVE

A small, coastal development in Solana Beach's Cedros Avenue Design District with 26,407 square feet of high-end housing, retail and office space is ready for occupancy.

Encinitas-based developer RAF Pacifica Group recently completed construction on 330 Cedros, a \$25 million mixed-use beach community project, where future residents of the two-story building's eight luxury rentals can walk downstairs to partake in the latest fitness craze or dine at the neighborhood's hip,

new eatery. They may even be able to work on site in one of the four, fully decked-out office suites — Kegerators and barbecues included.

Such is the live-work-play-in-style vibe that RAF Pacifica believes will appeal to affluent renters who can afford \$4,675 per month for a 1,100-square-foot, one-bedroom unit and as much as \$7,650 for a two-bedroom abode.

"We were basically given a project that was already approved by the city, so there wasn't a lot of value engineering we could put into it," said Adam Robinson, president of the real estate investment group that in 2017 acquired the Cedros Avenue property and inherited the site plan. "Because the project was

SEE CEDROS • C4

## EVANS HOTELS LOSES COURT BATTLE WITH LABOR UNIONS

BY LORI WEISBERG

In a much-anticipated ruling, a federal court judge on Tuesday dismissed a lawsuit by San Diego-based Evans Hotels accusing local labor unions of extortion and bribery in their efforts to unionize the hospitality industry.

The ruling by U.S. District Judge William Q. Hayes marks a crucial victory for organized labor, which has pushed hard for using union labor not only in the operation of hotels but also in their construction. Hayes' decision comes more than a year after Evans Hotels, which operates three longtime San Diego resorts, filed suit in an effort to break what it claims is a union-engineered stranglehold on development.

Evans' lawsuit grew out of an on-

going fight it had with the unions over its plans to redevelop and expand its decades-old Bahia resort hotel on Mission Bay. Unite Here and the San Diego County Building and Construction Trades Council had opposed the \$150 million development proposal because of plans to eliminate Gleason Road, which they argued is a local roadway that provides needed access to the beach on Bahia Point.

"We are gratified that the judge recognized Evans Hotel's lawsuit as an attempt to stifle our union's First Amendment speech and political participation," said Brigitte Browning, president of Unite Here Local 30, which represents local hospitality workers. "San Diegans should be able to tell the truth about

SEE EVANS • C2

# FACEBOOK BANS DEEPFAKES IN FIGHT AGAINST DECEPTION

Company attempting to head off rising problem with new video policy

BY KELVIN CHAN

Facebook says it is banning deepfake videos, the false but realistic clips created with artificial intelligence and sophisticated tools, as it steps up efforts to fight online manipulation. But the policy leaves plenty of loopholes.

The social network said late Monday that it's beefing up its policies for removing videos edited or synthesized in ways that aren't apparent to the average person, and which could dupe someone into thinking the video's subject said something he or she

didn't actually say.

Created by artificial intelligence or machine learning, deepfakes combine or replace content to create images that can be almost impossible to tell are not authentic.

"While these videos are still rare on the internet, they present a significant challenge for our industry and society as their use increases," Facebook's vice president of global policy management, Monika Bickert, said in a blog post.

However, she said the new rules won't include parody or satire, or clips edited just to change the order of words. The exceptions underscore the balancing act Facebook and other social media services face in their struggle to stop the spread of online misinformation and "fake news," while also re-



**Facebook is banning deepfake videos as it steps up efforts to fight online manipulation. It can be nearly impossible for the average user to identify a deepfake video.**  
RICHARD DREW AP

specting free speech and fending off allegations of censorship.

The U.S. tech company has been grappling with how to handle the rise of deepfakes after facing criticism last year for refusing to remove a doctored video of House Speaker Nancy Pelosi slurring her

words, which was viewed more than 3 million times. Experts said the crudely edited clip was more of a "cheap fake" than a deepfake.

Then, a pair of artists posted fake footage of Facebook CEO Mark Zuckerberg showing him gloating over his one-man domina-

tion of the world. Facebook also left that clip online. The company said at the time that neither video violated its policies.

The problem of altered videos is taking on increasing urgency as experts and lawmakers try to figure out how to prevent deepfakes from being used to interfere with the U.S. presidential election in November.

The new policy is a "strong starting point," but doesn't address broader problems, said Sam Gregory, program director at Witness, a nonprofit working on using video technology for human rights.

"The reality is there aren't that many political deepfakes at the moment," he said. "They're mainly nonconsensual sexual images."

Chan writes for Associated Press.

## FAKE Images can't be traced to source

FROM C1

"There's no objective reality to compare these photos against," she said. "We're used to physical worlds with sensory input ... but with this, we don't have any instinctive or taught responses on how to detect what's real and what isn't. It's exhausting."

Icons8, an Argentina-based design firm that sells digital illustrations and stock photos, launched its website last month, offering "worry-free, diverse models on-demand using AI."

The site allows anyone to filter fake photos based on age (from "Infant" to "Elderly"), ethnicity (including "White," "Latino," "Asian" and "Black") and emotion ("Joy," "Neutral," "Surprise"), as well as gender, eye color and hair length. The system, however, shows a number of odd gaps and biases: For instance, the only available skin color for infants is white.

The company says its faces could be useful for clients needing to jazz up promotional materials, fill out prototypes or illustrate concepts too touchy for a human model, such as "embarrassing situations" and "criminal proceedings." Its online guide also promises clients they can "increase diversity" and "reduce bias" by including "many different ethnic backgrounds in your projects."

Companies infamously have embarrassed themselves through haphazard diversity-boosting attempts, photoshopping a black man into an all-white crowd, as the University of Wisconsin-Madison did on an undergraduate booklet, or superimposing women into group photos of men.

But while the AI startups boast a simple fix — offering companies the illusion of diversity, without actually working with a diverse set of people — their systems have a crucial flaw: They only mimic the likenesses they've already seen. Valerie Emanuel, a Los Angeles-based co-founder of the talent agency Role Models Management, said she worried that these kinds of fake photos could turn the medium into a monoculture, where most faces look the same.

"We want to create more diversity and show unique faces in advertising going forward," Emanuel said. "This is homogenizing one look."

Icons8 created its faces first by taking tens of thousands of photos of about 70 models in studios around the world, said Ivan Braun, the company's founder. Braun's colleagues — who work remotely across the United States, Italy, Israel, Russia and Ukraine — then spent several months preparing a database, cleaning the images, labeling data and organizing the photos to the computer's precise specifications.

With those images at the ready, engineers then used an AI system known as StyleGAN to output a flood of new photos, generating 1 million images in a single day. His team then selected the 100,000 most convincing images, which were made available for public use. More will be generated in the coming months.

The company, Braun said, signed three clients in its first week: an American university, a dating app and a human-resources planning firm. Braun declined to name the clients.

Clients can download up to 10,000 photos a month starting at \$100. The models will not be paid residuals for any of the new AI-generated images built from their photo shoots, Braun said.

Another firm, the San Francisco-based startup Rosebud AI, offers clients a chance at 25,000 photos of "AI-customized models of different ethnicities." Company founder Lisha Li — who named it after an infinite-money cheat code she loved as a kid for the people-simulator game "The Sims" — said she first marketed the photos as a way for small businesses on online-shopping sites to invent stylish models without the need for pricey photography.

Her company's source images came from online databases of free and uncopyrighted photos, and the system allows clients to easily superimpose different faces on a shifting set of bodies. She promotes the system as a powerful tool to augment photographers' abilities, letting them easily tailor the models for a fashion shoot to the nationality or ethnicity of the viewer. "Face is a pain point that the technology can solve," she said.

The system is offered only to a limited group of clients, whom she said the company assesses individually in hopes of blocking bad actors. About 2,000 prospective clients are on the waiting list.

Both companies rely on an AI breakthrough known as "generative adversarial networks," which use dueling algorithms to refine their work: A creator system out-

puts a new image, which a critic system then compares to the original, informing the creator's next design. Each iteration tends to beget a better copy than the last.

But the systems are imperfect artists, untrained in the basics of human anatomy, and can only attempt to match the patterns of all the faces they've processed before. Along the way, the AI creates an army of what Braun calls "monsters." Nightmarish faces pocked with inhuman deformities and surreal mutations. Common examples include overly fingered hands, featureless faces and people with mouths for eyes.

The software has in recent months become one of AI researchers' flashiest and most viral breakthroughs, vastly reducing the time and effort it takes for artists and researchers to create dreamy landscapes and fictional people. A seemingly infinite stream of fakes can be seen at thispersondoesnotexist.com, as well as a companion AI system trained on images of cats, called thiscatdoesnotexist.com. To test whether people can tell the difference between a generated fake and the real thing, AI researchers at the University of Washington also built the side-by-side website whichfaceisreal.com.

The machine-learning techniques are "open source," allowing virtually anyone to use and build on them. And the software is improving all the time: A newer version of StyleGAN, unveiled last month by AI researchers at Nvidia, promises quicker generation methods, higher-quality images and fewer of the glitches and artifacts that gave old fakes away.

Researchers say the images are a gift to purveyors of disinformation, because unlike real photos taken from elsewhere, they cannot be easily traced. Such forgeries are already in use, including on Facebook, where fact-checkers have found the images used to create fake profiles to promote pre-selected pages or political ideas.

In another case, the LinkedIn profile of a young woman supposedly named Katie Jones, which made connections with top officials around Washington, was found earlier this year to use an AI-generated image. Counterintelligence experts told the Associated Press that it carried the signatures of foreign espionage.

The technology is also the foundation for the face-swapping videos known as deepfakes, used for both parodies and fake pornography. The systems once required mountains of "facial data" to gen-

erate one convincing fake. But researchers this year have published details showing "few-shot" techniques that require only a couple of images to produce a convincing mimicry.

Creating AI-generated images at this volume could be prohibitively expensive, because the process requires extraordinary computing power in the form of costly servers and graphics cards. But Braun's company, like others, benefits from the cloud-computing competition between Google and Amazon, which both offer "credits" that startups can use for heavy AI work at steeply discounted rates.

Braun said there is a reasonable fear of AI-generated images being used for disinformation or abuse, adding, "We have to worry about it. The technology is already here, and there's nowhere to go." But the solution for that problem, he said, is not the responsibility of companies like his: Instead, it will require a "combination of social change, technological change and policy." (The company does not use any authentication measures, like watermarks, to help people verify whether they're real or fake.)

Two models who worked with Icons8 said they were told only after the photo shoot that their portraits would be used for AI-generated imagery. Braun said the first shoots were intended for stock photography and that the idea of an AI application came later, adding, "I never thought of it as a problem."

Estefanía Massera, a 29-year-old model in Argentina, said her photo shoot involved facially expressing various emotions. She was asked to look hungry, angry, tired and as if she had been diagnosed with cancer. Looking at some of the AI-generated faces, she said, she can see some similarities to her eyes.

She compared the face-creating software to "designer baby" systems in which parents can choose the features of their children. But she's less worried about how the technology could affect her work: The world still needs real models, she said. "Today the trends in general and for companies and brands is to be as real as possible," she added.

Simón Lanza, a 20-year-old student who also sat for an Icons8 shoot, said he could see why people in the business might be alarmed.

"As a model, I think it would take the job from people," he said. "But you can't stop the future."

Harwell writes for The Washington Post.

## GUIDELINES

FROM C1

The rules won't affect how federal agencies such as law enforcement use facial recognition and other forms of AI. They are specifically limited to how federal agencies devise new AI regulations for the private sector. There's a 60-day public comment period before the rules take effect.

"These principles are intentionally high-level," said Lynne Parker, U.S. deputy chief technology officer at the White House's Office of Science and Technology Policy. "We purposely wanted to avoid top-down, one-size-fits-all, blanket regulations."

The White House said the proposals unveiled Tuesday are meant to promote private sector applications of AI that are safe and fair, while also pushing back against stricter regulations favored by some lawmakers and activists.

Federal agencies such as the Food and Drug Administration and the Federal Aviation Administration will be bound to follow the new AI principles, which makes the rules "the first of their kind from any government," Michael Kratsios, the U.S. chief technology officer, said in a call with reporters Monday.

Rapid advancements in AI technology have raised fresh concern as computers increasingly take on jobs such as diagnosing medical conditions, driving cars, recommending stock investments, judging credit risk and recognizing individual faces in video footage. It's often not clear how AI systems make their decisions, leading to questions of how far to trust them and when to keep humans in the loop.

Terah Lyons, executive director of the tech industry-backed nonprofit Partnership on AI, said the White House principles won't likely have sweeping or immediate effects. But she said she was encouraged that they detailed a U.S. approach centered on values such as trustworthiness and fairness.

"The AI developer community may see that as a positive step in the right direction," said Lyons, who previously worked for the White House science and technology office during the Obama administration. "It's a little bit hard to see what the actual impact will be."

What's missing, she added, are clear mechanisms for holding AI systems accountable.

O'Brien writes for Associated Press.

## GRID Energy sector a prime target

FROM C1

charge of ensuring the state's power system remains safe from cyberattacks told the San Diego Union-Tribune the ISO fends off "several millions" of hacking attempts each month.

Spokeswoman Vonette Fontaine said in a statement the California ISO's systems "have not experienced any major cyber incidents" since the Iranian government promised to retaliate, and the ISO coordinates "diligently and proactively with federal and state law enforcement agencies to stay in front of potential issues."

Fontaine would not say whether the ISO has stepped up its efforts in recent days to prevent any potential attacks on its information technology systems

or physical assets.

Similarly, a spokeswoman for San Diego Gas & Electric did not go into specifics.

"We are aware of the recent events involving Iran and the heightened concerns of a cybersecurity threat," said SDG&E communications manager Sara Prince in an email. "Our cyber and physical security operations teams are in routine contact with our local, state and federal law enforcement partners to stay informed about the latest potential threats and respond quickly to evolving situations."

McIntosh said unless a specific threat shows up, "I don't think (the state's investor-owned utilities) would be doing much more than they always do. ... They have a large group of folks that watch this stuff on a daily basis and would be able to protect their systems. (Southern California) Edison, San Diego (Gas & Electric) and (Pacific Gas & Electric) each have staffs



The California Independent System Operator in Folsom manages most of the state's flow of electricity.

that do this for a living, all the time."

At the same time, McIntosh recalled how the ISO had to interrupt electrical loads 13 times during the California energy crisis in 2000 and 2001 that led to rolling blackouts across the state.

"One of the things that people realized real quick was that if you don't have energy, things go downhill rapidly," McIntosh said in a tele-

phone interview. "So if anybody would go and successfully knock out the grid, it would create havoc for California."

In 2013, snipers opened fire at a PG&E substation in San Jose and knocked out 17 transformers that supplied electricity to the Silicon Valley. Grid officials avoided a blackout by rerouting power, but as the Wall Street Journal reported, it took 27 days to make the necessary

repairs to bring the substation back online. No arrests have every been made.

McIntosh said utilities have increased security at physical sites since then.

"They used to concentrate on 'inside the fence,' and now they actually look out and have the same type of ground detection movement (technology) that (the government has) put on the border, so that anybody approaching is detected and alarms go off," McIntosh said. "They've spent millions and millions of dollars."

Nationally, the energy sector has become a prime target for cyberattacks in the past decade, according to a report by the U.S. Department of Energy detailing its multiyear security plans.

Energy infrastructure and sites experienced more cyber incidents than any other sector between 2013 and 2015, accounting for 35 percent of the 796 incidents reported by sectors accounting for critical infrastruc-

ture, according to the Industrial Control Systems Cyber Emergency Response Team at the Department of Homeland Security.

Attempts to penetrate the U.S. grid have been attributed to Russia and China, and hackers from Iran also targeted at least one American billionaire who is politically active.

In October 2013, casino magnate and conservative political donor Sheldon Adelson said while appearing on a panel in New York that the U.S. could counter Iran's nuclear ambitions by exploding a warhead in a deserted area of the country.

The comments enraged Iran's Supreme Leader, and four months later, hackers disabled the IT systems of one of Adelson's casinos in Las Vegas and caused \$40 million in damages. U.S. intelligence officials traced the attack to Iran.

rob.nikolewski@sduniontribune.com (619) 293-1251  
Twitter: @rbnikolewski

## CEDROS One-bedrooms run nearly \$5K

FROM C1

so expensive to build, we built (the units) as if they were for-sale condos." That means each apartment comes with a washer and dryer, balcony and 16- to 18-foot ceilings. They also feature high-end fixtures and appliances such as concrete tile floors, quartz waterfall counter tops, floating fireplaces and ceramic tiled



RAF Pacifica Group has recently completed construction of 330 Cedros, a mixed-use project in the heart of the Cedros Avenue Design District.

backsplash. And two units come already furnished with West Elm decor, at an extra

cost.

The in-unit amenities should work for profession-

als who want to live by the beach but don't want to maintain a house, or older

couples who want to experience coastal living before buying into it more fully, Robinson said.

Surrounded by furniture stores and art studios, 330 Cedros will eventually introduce a new dining option to the neighborhood, although Robinson said he's still looking for the perfect tenant to take over the project's 3,200-square-foot, bar-ready venue.

Meanwhile, functional fitness franchise F45 is set to open a new studio in late February, taking up around half of the building's retail footprint on the ground

floor. And a boutique interior design firm has also leased a space, leaving one retail unit left on the market, the developer said.

Otherwise, RAF Pacifica is still working to secure office tenants. It's in the process of finalizing interior improvements to the 8,800-square-foot office area, which is divided into four, turnkey suites with their own kitchens and restrooms. Asking rent is \$5.15 per square foot.

jennifer.vangrove@sduniontribune.com (619) 293-1840