

SPACEWALKING COSMONAUTS RELEASE 3-D-PRINTED SATELLITE

CAPE CANAVERAL: Spacewalking cosmonauts set free the world's first satellite made almost entirely with a 3-D printer on Thursday. In total, Russians Fyodor Yurchikhin and Sergey Ryazanskiy ended up releasing five nanosatellites by hand. One by one, the tiny craft - no more than 1 to 2 feet in size - tumbled safely away from the International Space Station. The exterior casing of the first one tossed overboard was made with a 3-D printer. So were the battery packs inside. Researchers want to see how 3-D-made parts weather the space environment.

The 3-D satellite contains regular electronics. It also holds greetings to planet Earth in a variety of languages, courtesy of students at Siberia's Tomsk

Polytechnic University, where the satellite was made. The other satellites deployed Thursday have traditional spacecraft parts. Each weighs just 10 to 24 pounds. They're expected to orbit for five to six months. One commemorates the 60th anniversary of the world's first satellite, Sputnik 1, launched Oct 4, 1957, by the Soviet Union.

Another pays tribute to Russia's father of rocketry, Konstantin Tsiolkovsky. He was born 160 years ago next month. The remaining two small satellites involve navigation and other experiments. Yurchikhin and Ryazanskiy completed the satellite releases within an hour of venturing outside. Barely a minute passed between a few of the

launches. The rest of their work took longer than expected, however, and Russia's Mission Control outside Moscow sent the planned six-hour spacewalk into overtime.

It ended up lasting 7 1/2 hours, and the cosmonauts said their hands were tired. All but one task got done. "We will have actually some grounds to get drunk today, I think," one of the cosmonauts joked in Russian. A flight controller replied that he'd do it for them. The cosmonauts collected science experiments from outside their 250-mile-high home, and wiped thruster residue from various surfaces for analysis. Three Americans and one Italian also live on the space station.—AP



IN SPACE: In this image made from video provided by NASA, Russian cosmonaut Sergei Ryazanskiy holds a mini satellite before launching it by hand from the International Space Station. —AP

HOLLYWOOD'S HACKING PAINS ARE BIGGER THAN MOVIE LEAKS

CYBERCRIMINALS PUT COMPANY SECRETS AT RISK

NEW YORK: Piracy is a long-running and even routine issue for Hollywood, whether it's street vendors hawking bootleg DVDs on street corners or video uploaded to file-sharing sites like Pirate Bay. Now cybercriminals are also putting embarrassing chatter and other company secrets at risk. The reputational risk from leaked email is much more difficult to calculate than any financial risk from piracy. "In some ways, that risk can be higher because you have no way of knowing what's in those emails," said Erik Rasmussen of Kroll Cyber Security.

The cataclysmic event in the back of everyone's mind is the Sony hack in 2014. While unreleased movies were leaked, what's remembered is the chaos unleashed amid a network shutdown and the disclosure of derisive comments about such well-known actors as Angelina Jolie and Leonardo DiCaprio and racially insensitive remarks about then-President Barack Obama. Although the recent HBO leaks so far have fallen well short of the damage inflicted on Sony, there were concerns early on that hackers were setting the stage for an embarrassing sequel for Hollywood.

Piracy still a problem

While the attention is on leaked emails, that's not to say Hollywood isn't worried about piracy. On online forums where criminals "advertise their ill-gotten gains," there is now entertainment content "popping up as basically sections of these websites," Rasmussen said. Some people believe that video leaks can help gin up media and viewer attention for a show or movie, but leaking shows and movies does hurt Hollywood's take, especially if it happens before the official release, Carnegie Mellon professor Michael Smith said.

In a 2014 analysis, Smith and his co-authors concluded that a movie's box-office revenue dropped 19 percent, on average, when it was leaked ahead of the theatrical release, compared with a leak after the movie hit theaters. The research was part of a Carnegie Mellon initiative funded by the Motion Picture Association of America, Hollywood's lobbying group. One way to overcome pirates is to make programs widely and cheaply available. Netflix has many shows and movies that are easily accessible around the world for a single monthly price.

In April, hackers leaked most new episodes of Netflix's "Orange is the New Black" before their official release in early June. That doesn't

seem to have driven customers away. Netflix added more than 5 million subscribers in the April-to-June period, the largest increase ever for that quarter. Separate from HBO's recent run-ins with hackers, upcoming "Game of Thrones" episodes have leaked several times, and it is TV's most pirated show. The show is still a massive hit for HBO, with high viewership and critical acclaim. As for the recent hacks, episodes of "Curb Your Enthusiasm," "Insecure," "Ballers" and several other shows leaked. It helped that entire seasons weren't released,

\$250,000 as part of a negotiation over data swiped from HBO's servers. Whether or not HBO ever intended to follow through with the offer, the email raised questions among security professionals about the importance of the data. Besides upcoming episodes, the HBO data dumps included what appeared to be contact information of Hollywood actors, a month's worth of emails of one employee, sensitive internal documents like job offer letters and scripts for future episodes.

A person familiar with the situa-

tion, including sensitive information such as employees' salary information and Social Security numbers. Racially insensitive comments made by the former co-chair of Sony Pictures Entertainment, Amy Pascal, paved the way for her exit a few months later.

Michael Lynton, who left as Sony Pictures' head in January, said that press coverage of the emails hurt the studio's standing in Hollywood and that the public airing of employees' private information and conversations "took a long time to deal with," the trade publication



CALIFORNIA: This file photo shows an exterior view of the Sony Pictures Plaza building in Culver City, California. —AP

forcing viewers to subscribe to view the whole show.

The fallout at HBO

HBO's hackers demanded a multi-million dollar ransom payment, something HBO refused. Because piracy is already prevalent, the leak of several scattered TV episodes might not have been enough to force such a payment, said Alex Heid, chief research officer at risk management firm SecurityScorecard. "Pirated content ends up on Pirate Bay within 24 hours of airing. Any show on HBO, any movie, the moment it's released, on the first day, you see it on pirated internet streams."

But hackers released an email from HBO in which the company expressed willingness to pay them

anonymity because the person wasn't authorized to speak publicly, said HBO was proactive in communicating with actors ahead of their personal information being released to the public. That may be helping mitigate the impact of what leaks did occur. Companies that do get hacked should be up front with customers, employees and other affected parties as soon as possible, said Richard Levick, the head of crisis-management firm Levick. "You can't sweep it under the rug," he said. "You can't be opaque about it."

Comparisons with Sony

In the Sony case, hackers crippled Sony's network, wiped the company's data and dumped thousands of internal emails and docu-

Variety reported. The movie studio said in April 2015 that "investigation and remediation expenses" related to the hack cost it \$41 million, or about 8 percent of the film and TV division's profit that fiscal year. It later reached an \$8 million settlement with current and former employees.

Studios are learning to be cautious. "I know people in the industry that now don't do deals over email," Smith said. "They do deals over the phone because it's not archived." Lynton told Recode in 2016 that instead of email, "my fax machine is in great use at this point." Sony declined comment on Lynton's remarks. Rasmussen said companies are also sharing information with law enforcement in an effort to protect the whole industry - and stave off another sequel.—AP

NEW RESEARCH COULD HELP REVEAL WHO IS BUYING ONLINE TRAFFICKING ADS

NEW YORK: A US researcher says she has developed automated ways to identify links between online sex trafficking ads and the digital currency Bitcoin, techniques that may help locate children being sold for sex. Law enforcement and anti-trafficking groups could use the methods to investigate backpage.com, an online classified advertising site where sex ads can be found, said a statement by the University of California Berkeley, where the research was based.

Some 1.5 million people in the United States are victims of trafficking, mostly for sexual exploitation, according to anti-trafficking groups. Most sex trafficking victims are children, and most are advertised or sold online, according to a US Senate subcommittee report released this year. The new research uses an algorithm that analyzes writing styles to identify authors and could be applied to online trafficking ads, Rebecca Portnoff, its lead author, said on Thursday.

A second algorithm can use time stamps to trace ad payments to accounts, known as wallets, at Bitcoin, a web-based digital currency that allows money to move quickly and anonymously. Comparing time stamps of ad purchases on Bitcoin and time stamps and information on Backpage ads could help identify who is paying for them, said

Portnoff, a UC Berkeley doctoral candidate in computer science who developed the techniques as part of her dissertation.

"Where previously you might have five

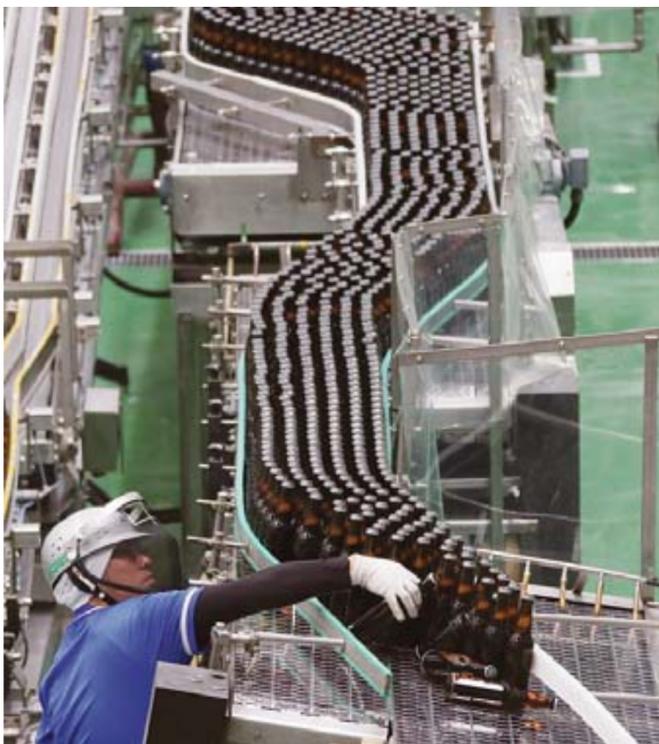


different phone numbers that you had no idea were connected, when you can see that they all came from the same wallets, that the same person paid for them, that's a concrete

sign that these five phone numbers are all related to each other," she said. "I knew this was an issue that law enforcement was especially interested in."

Having automated style and time stamp analyses to identify sex ads by authors and Bitcoin owners is significant, said Damon McCoy, a New York University Tandon School of Engineering assistant professor of computer science and engineering and a co-author of the research. "Any technique that can surface commonalities between ads and potentially shed light on the owners is a big boost for those working to curb exploitation," McCoy said in a statement.

The National Center for Missing and Exploited Children has said more than 70 percent of the reports it gets of trafficked children involve Backpage, based in Dallas, Texas. Backpage did not respond to a request for comment. The findings will be published by the Association for Computing Machinery's Conference on Knowledge Discovery and Data Mining, UC Berkeley said. It said the work was funded by the Amazon Web Services Cloud Credits for Research Program, the technology and security firm Giant Oak, Google, the National Science Foundation and the US Department of Education.—Reuters



MORIYA: In this photo, an Asahi Breweries employee works on the production line at a factory in Moriya near Tokyo. —AP photos

REVERENCE FOR ROBOTS: JAPANESE WORKERS TREASURE AUTOMATION

MORIYA, Japan: Thousands upon thousands of cans are filled with beverages, capped and washed, wrapped into six-packs, and boxed at dizzying speeds - 1,500 a minute, to be exact - on humming conveyor belts that zip and wind in a sprawling factory near Tokyo. Nary a soul is in sight in this picture-perfect image of Japanese automation. The machines do all the heavy lifting at this plant run by Asahi Breweries, Japan's top brewer. The human job is to make sure the machines do the work right, and to check on the quality the sensors are monitoring.

"Basically, nothing goes wrong. The lines are up and running 96 percent," said Shinichi Uno, a manager at the plant. "Although machines make things, human beings oversee the machines." The debate over machines snatching jobs from people is muted in Japan, where birth rates have been sinking for decades, raising fears of a labor shortage. It would be hard to find a culture that celebrates robots more, evident in the popularity of companion robots for consumers, sold by the internet company SoftBank and Toyota Motor Corp, among others.

Japan, which forged a big push toward robotics starting in the 1990s, leads the world in robots per 10,000 workers in the automobile sector - 1,562, compared with 1,091 in the US and 1,133 in Germany, according to a White House report submitted to Congress last year. Japan was also ahead in sectors outside automobiles at 219 robots per 10,000 workers, compared with 76 for the US and 147 for Germany.

Lifetime employment

One factor in Japan's different take on automation is the "lifetime employment" system. Major Japanese companies generally retain workers, even if their abilities become outdated, and retrain them for other tasks, said Koichi Iwamoto, a senior fellow at the Research Institute of Economy, Trade and Industry. That system is starting to fray as Japan globalizes, but it's still largely in use, Iwamoto said.

Although data from the Organization for Economic Cooperation and Development show digitalization reduces demand for mid-level routine tasks - such as running assembly lines - while boosting demand for low- and high-

skilled jobs, that trend has been less pronounced in Japan than in the US. The OECD data, which studied shifts from 2002 to 2014, showed employment trends remained almost unchanged for Japan.

That means companies in Japan weren't resorting as aggressively as those in the US to robots to replace humans. Clerical workers, for instance, were keeping their jobs, although their jobs could be done better, in theory, by computers. That kind of resistance to adopting digital technology for services also is reflected in how Japanese society has so far opted to keep taxis instead of shifting to online ride hailing and shuttle services.

Harmony with machines

Still, automation has progressed in Japan to the extent the nation has now entered what Iwamoto called a "reflective stage," in which "human harmony with machines" is being pursued, he said. "Some tasks may be better performed by people, after all," said Iwamoto. Kiyoshi Sakai, who has worked at Asahi for 29 years, recalls how, in the past, can caps had to be placed into machines by hand, a repetitive task that was hard not just on the body, but also the mind.

And so he is grateful for automation's helping hand. Machines at the plant have become more than 50 percent smaller over the years. They are faster and more precise than three decades ago. Gone are the days things used to go wrong all the time and human intervention was needed to get machines running properly again. Every 10 to 15 minutes, people used to have to go check on the products; there were no sensors back then. Glitches are so few these days there is barely any reason to work up a sweat, he added with a smile.

Like many workers in Japan, Sakai doesn't seem worried about his job disappearing. As the need for plant workers nose-dived with the advance of automation, he was promoted to the general affairs section, a common administrative department at Japanese companies. "I remember the work being so hard. But when I think back, and it was all about delivering great beer to everyone, it makes me so proud," said Sakai, who drinks beer every day. "I have no regrets. This is a stable job." —AP



MORIYA: In this photo, Asahi Breweries employees work at the central control room at a factory in Moriya near Tokyo.