

SYSTEM AIMS TO RECREATE MOUNTAIN CLIMBS IN GYM

HANOVER: After spending time in Switzerland studying and hiking in the Alps, Dartmouth assistant professor Emily Whiting wanted to relive those climbs back home. Upon her return to the United States, she and a group of colleagues contemplated how they might recreate the climbs indoors. Using 3-D modeling and digital fabrication, the team developed a system that replicates the hardest stretches of climb, so that it can be practiced on indoor climbing walls.

In a presentation at a human computer interaction conference last month, the team demonstrated how they replicated a climb in Rumney, New Hampshire, and a sandstone crag near St. George in Utah. Fellow postdoctoral scholar Ladislav Kavan, who is now at the University of Utah, did the work out of Utah while Whiting was in New Hampshire. The two, along with their team, also wanted to address problems that vex many seasoned climbers - the challenges of mastering a route that might be a world away or one that might be too fragile to practice on.

"What if you could take the experience of climbing places like these monuments but not climb the physical thing, actually bring it home to your local gym," Whiting said. "You would

still have the physical experience of climbing it without causing the erosion and damage to the location. There is also the aspect of accessibility, like if this is some place in Thailand or some remote location and you want to train for the route."

3-D reconstruction

Whiting and her colleagues first did a 3-D reconstruction of a wall using hundreds of photos at different angles. Then, they combined that with video showing the climber's movements. That data helped the researchers identify the key parts of the climb, allowing them to create fabricated holds which were then attached to a climbing wall. "When you are climbing it, you're grasping onto small portions of it and so we wanted to determine where rock climbers actually grabbing onto the rock face," she said.

There are plenty of tools in climbing gyms to practice, including the campus board, a series of slats that hang on a wall at various angles so that climbers can practice strength training. And a few years back, Matyas Luzan replicated a tough stretch of a climb in Germany - he crafted the holds from wood and varnished them to feel like the rocks. The system that Whiting and Kavan, now at the University of Utah, came up

with might be seen as an extension of Luzan's efforts.

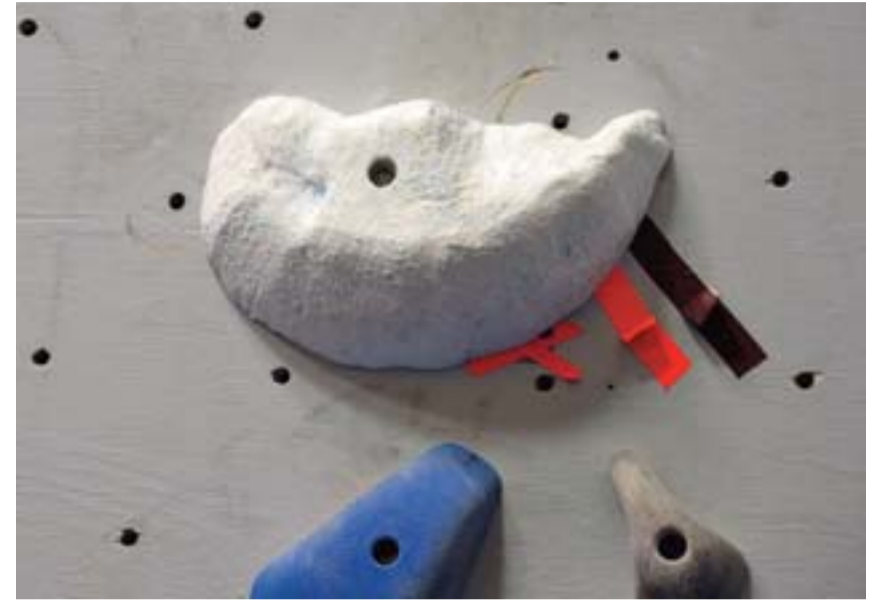
Eventually, the researchers envision a system that could one day ingest photos and video. A database of outdoor climbs could then be created, from which holds could be manufactured and available to climbing gyms. They also want to improve the texture of the holds so they feel more like the actual rocks. And there is the visual component - which Whiting hopes one day could be solved by adding virtual reality or projecting images of the climb to a wall.

The climbers that have given the new system a try say their outdoor ascent matched their experience indoors. "I was kind of blown away at just how precisely the body movements on the indoor climb recreated the outdoor movements," said Billy Braasch, a Dartmouth grad student and climber who participated in the study. But while Braasch said this could serve as a good practice tool, he acknowledged it might not be for everyone.

"One aspect of climbing that I really love is traveling to a new place and exploring new terrain," he said. "There is something special about being in a new place and testing yourself against a new climb." Mike Morin, the Northeast

regional director of the climbing group Access Fund, who was not involved in the study, also said the system has potential. Climbers might find it "novel" to challenge themselves on iconic routes - or even those closer to home. "If

you're a climber in Boston working on the route at Rumney mentioned in the study, you'd probably be pretty psyched to be able work on the movements of the climb during a training session at your local climbing gym," he said.—AP



NEW HAMPSHIRE: This photo provided by Dartmouth College shows fabricated holds mounted on a climbing wall in Hanover, New Hampshire.—AP

NEW SMART SPEAKER EXPECTED AS APPLE KICKS OFF CONFERENCE

SPEAKER TO SERVE AS A BUTLER AND FOR LISTENING TO MUSIC

SAN FRANCISCO: Apple appears poised to unveil a voice-activated, internet-connected speaker that would create a new digital pipeline into people's homes. Tapping Apple's Siri digital assistant, such a speaker is expected to serve as a butler as well as an outlet for listening to music. If the speculation pans out, the speaker would be Apple's first new product since its smartwatch in 2015. And it would mark an effort by Apple to catch up with Amazon and Google.

An early glimpse at updates to iPhone and Mac software has become a tradition at Apple's annual conference for app developers, which began yesterday in San Jose, California. But Apple occasionally also uses the event to introduce new devices and services and upgrades to existing products. Amazon introduced the Echo speaker, featuring its Alexa assistant, in 2015. Google followed with its Home speaker, featuring its plain-named Assistant, last year.

Both speakers can respond to voice requests for the news, weather and tasks such as turning on the lights. More than 35 million people in the US are expected to use a voice-activated speaker at least once a month this year, more than doubling from last year, according to the research firm eMarketer. "There is so much momentum building around these speakers that it would be difficult for Apple not to come out with one," said industry analyst Patrick Moorhead of Moor Insights & Strategy.

Lack of breakthrough device

Amazon just unveiled a version of Echo with a camera, touch-screen display and video-calling capabilities. The new Echo Show goes on sale on June 28 for \$230. Google, meanwhile, previewed new speaker features such as hands-free phone calling during its software conference last month. Microsoft also has announced its own speaker with Samsung's Harman business; it will use

Microsoft's Cortana digital assistant. That leaves Apple. Although it was the first smartphone maker to come out with a digital assistant when Siri debuted in 2011, it hasn't had a stand-alone assistant.

For Apple, having one would further broaden the role that its software, services and gadgets play in people's lives. It wouldn't be the first time that Apple hopped on the bandwagon of a technology product popularized by a competitor. For instance, Apple initially resisted enlarging the size of iPhone's screen despite strong sales for larger-display phones made by Samsung and other rivals. But the company relented, and Apple's larger phones have become hot commodities as more people have embraced having a bigger display to look

at pictures and watch video on the devices. Although Siri would likely be centerpiece of a smart speaker from Apple, Moorhead said the device's design, colors and acoustics will also likely be focal points because the company has a long history of making elegantly designed products. The lack of a breakthrough device has periodically raised concerns that Apple has become too dependent on the iPhone and supported the theory that the company lost its knack for innovation when its co-founder Steve Jobs died of cancer in 2011. Although Apple Watch has emerged as the leader in its technological niche, it hasn't become a smash hit like the iPhone or the iPad - at least until tablet sales started declining.

On the software front, RBC Capital

analyst Amit Daryanani expects the iOS 11 - the next operating system for Apple's iPhones and iPads - to get an overhaul that will accommodate the anticipated removal of the home button from the 10th anniversary model of the iPhone due out later this year. The next iOS may also have new features designed for artificial intelligence, the application of computers that learn and understand things like humans. Apple also may introduce its next Mac computer, along with the next operating system powering the machine. Software updates are also expected for Apple's smartwatch and TV box for streaming online video. Daryanani said Apple may also announce an iPad Pro with a faster processor in an attempt to revive its long-slumping tablet sales.—AP



NEW YORK: In this file photo, a person stands near the Apple logo at the company's store in Grand Central Terminal, in New York.—AP



WARSAW: Taxi drivers block the streets of Warsaw to protest against ride sharing app Uber and competitors in Warsaw yesterday. Traditional cab operators argue that the app represents unfair competition because Uber drivers can dodge the rules and restrictions that regulate professionals.—AFP

POLISH TAXI DRIVERS PROTEST AGAINST UBER

WARSAW: Two thousand Polish taxi drivers yesterday snarled traffic in the capital Warsaw by driving at a snail's pace to protest against competitors including the controversial ride-sharing app Uber. Traditional cab operators argue that the app represents unfair competition because Uber drivers can dodge the rules and restrictions that regulate professionals. Blaring horns and flying small red-and-white national flags, the taxis inched through Warsaw at around 10 kilometers an hour blocking the city centre and major thoroughfares.

Organizers said that around 2,000 drivers took part in Warsaw and hundreds joined in several other cities across the country. Uber began operating in Poland in 2014. "We want the government to respond to the illegal activities of some in the transport sector," said Jaroslaw Iglowski, a representative of the Warsaw taxi union.

Iglowski insists that Uber and other drivers fail to comply with laws requiring

taxi drivers to use cash registers and undergo psychological tests to obtain licenses. Poland's competition authority UOKiK said last month that it found no grounds to sanction Uber and other operators for alleged breaches of competition rules or consumer rights. Uber has become one of Silicon Valley's biggest venture-funded startups and has expanded its ride-sharing services to dozens of countries.

It does not employ drivers or own vehicles, but instead relies on private contractors with their own cars, allowing them to run their own businesses. The app claims it is a service provider, connecting passengers with these freelance drivers directly and cheaply. But critics and competitors around the globe say this allows it to flout costly regulations such as stringent licensing requirements for taxi drivers, who undergo hundreds of hours of training. Thousands of Spanish taxis went on strike in Madrid and Barcelona last week to protest against Uber and similar ride-hailing company Cabify.—AFP

INTERNET EXTREMISM AND HOW TO COMBAT IT

DETROIT: In the wake of Britain's third major attack in three months, Prime Minister Theresa May called on governments to form international agreements to prevent the spread of extremism online. Here's a look at extremism on the web, what's being done to stop it and what could come next.

Q. What are technology companies doing to make sure extremist videos and other terrorist content doesn't spread across the internet?

A. Internet companies use technology plus teams of human reviewers to flag and remove posts from people who engage in extremist activity or express support for terrorism. Google, for example, says it employs thousands of people to fight abuse on its platforms. Google's YouTube service removes any video that has hateful content or incites violence, and its software prevents the video from ever being reposted.

YouTube says it removed 92 million videos in 2015; 1 percent were removed for terrorism or hate speech violations. Facebook, Microsoft, Google and Twitter teamed up late last year to create a shared industry database of unique digital fingerprints for images and videos that are produced by or support extremist organizations. Those fingerprints help the companies identify and remove extremist content. After the attack on Westminster Bridge in London in March, tech companies also agreed to form a joint group to accelerate anti-terrorism efforts.

Twitter says in the last six months of 2016, it suspended a total of 376,890 accounts for violations related to the promotion of extremism. Three-quarters of those were found through

Twitter's internal tools; just 2 percent were taken down because of government requests, the company says. Facebook says it alerts law enforcement if it sees a threat of an imminent attack or harm to someone. It also seeks out potential extremist accounts by tracing the "friends" of an account that has been removed for terrorism.

Q. Why are technology companies clashing with governments over extremist communications?

A. Since Edward Snowden's 2013 disclosures about National Security Agency surveillance, several tech companies have started encrypting - that is, scrambling them to thwart spies - instant messages and other data so tightly that even the companies can't read them. Governments are not happy about that. After the 2015 mass shooting in San Bernardino, California, and again after the Westminster Bridge attack, the US and UK governments sought access to encrypted messages exchanged by extremists who carried out the attacks.

Apple and Facebook's WhatsApp refused, noting that they didn't hold the keys needed to unscramble such messages. Both governments eventually found other ways to get the information they wanted. Some in government - including former FBI Director James Comey and Democratic Sen. Dianne Feinstein of California - have argued that the inability to access encrypted data is a threat to security. Feinstein has introduced a bill to force companies to give the government so-called "backdoor" access to encrypted data so that investigators could read messages on these services.—AP

ISOLATION BY THE WEST FUELS A TECH STARTUP BOOM IN IRAN

TEHRAN: Mostafa Meisami has given up on the farming life, trading his old job raising cattle for a better-paying gig ferrying commuters through the notoriously traffic-clogged streets of the Iranian capital Tehran. The 38-year-old father-to-be plies his trade in a brand-new, locally assembled Chinese hatchback, scrolling for fares using an app on his Samsung smartphone. Yes, even in Iran, there's an app for that - and quite a few other things too.

The Islamic Republic remains in many ways cut off economically from the rest of the world. Big-name Western brands shun the market for fear of violating sanctions that remain in place even after the country's landmark 2015 nuclear deal with world powers. That means no KFC - just local upstarts like "Iran Fried Chicken" - or credit and ATM cards connected to global banking networks. Visitors to the country must carry in thick wads of dollars.

Many popular social-networking sites like Facebook are blocked by government censors. Order from Amazon or call an Uber? Forget about it. In their place, a surprisingly active tech startup scene has sprung up. It's driven by a growing number of Iranian millennials who see their country of 80 million people not as an isolated outcast but as a market ripe with opportunity. Among the fastest-growing companies in the digital transformation is Snapp, the ride-hailing app Meisami uses.

Premium car rides

He estimates he makes more than \$900 working in a good month, pulling in a much larger cut per fare than he would driving for a traditional taxi-style car service. His hours are long - 12 hours a day most days a week - but he likes being able to pick when and where he works. "This opened a door to people like me who had financial problems," he said.

Launched in 2014, Snapp operates a sleek Uber-like app that runs off of Google Maps and has a launch page featuring the Tehran skyline.

It boasts 100,000 drivers and has carried more than 5 million passengers on some 50 million rides, according to its enthusiastic CEO, Sharam Shahkar, 32. He's among the older employees in the company's northern Tehran headquarters, where bearded hipsters and fashionable young women in loose-fitting hijabs squeeze their laptops into a cramped workspace while builders across the hall rush to double the office space. It looks like a tech startup anywhere in the world, except for the Iranian flag in the corner. Shahkar speaks in tech buzzwords like "onboarding" for the process of running background checks and training new drivers, and sees the company as a long-term solution for Tehran's nightmare traffic and parking woes. "Our vision is to make it so convenient, so affordable that people will no longer have incentive to own a personal vehicle," he said. In addition to its basic service, Snapp offers premium rides in nicer cars as well as female-driven vehicles for women and families. It recently expanded to the nearby suburb of Karaj and the central city of Isfahan, and is considering rolling out a motorcycle delivery service.

The company says it undercuts taxi prices by 30 to 50 percent - a consumer-friendly move that has rankled the old guard. In February, dozens of local taxi drivers angry over the competition gathered outside parliament and chanted "American Snapp should be destroyed" in an effort to link it wrongly to Iran's arch enemy, the US. A formal request by the taxi association that authorities shut down Snapp and a smaller competitor known as Tap30 were ultimately rejected. The taxi federation has responded by launching a ride-hailing app of its own.

Snapp

Snapp is owned by the Iran Internet Group, which has emerged as one of the leaders in the country's startup scene. It is backed by telecom IranCell, which state-linked investors have stakes in, as well as South African telecom MTN. Its other businesses include a food-ordering app called Zoodfood and a hotel booking site known as Pintapin - a useful service in a country that most booking portals don't touch. The company's online shopping site Bamilo competes against Iran's biggest e-commerce site, Digikala, which ranks behind only Google and a local sports portal as Iran's third most-visited website, according to web traffic data site Alexa.

Like Amazon, the sites sell everything from laptops and cellphones to clothes, kitchen supplies and cosmetics. But there are subtle differences too. Both sites are currently running promotions for the Islamic holy month of Ramadan, for example. Digikala even sells cars, including a 2017 Lexus hybrid SUV on offer for more than \$90,000. And Iranians would not accept having their purchases left unceremoniously on the doorstep like in the US. They expect hand-to-hand delivery, said Afshan Samani, Bamilo's chief product officer.

Samani did graduate work in Sweden and Canada, but decided to return to her native Iran because she said she loves a challenge - and smelled opportunity. "I noticed how kind of cultivated the environment is. It's ready," she said. "The huge difference I see right now is people say that I want to do something." Figures released by Iran's central bank last month showed that online shopping jumped 34 percent and accounted for sales of more than \$370 billion during the last Persian year, which ends in March.—AP