

11Feb17

From the editor: Look! Up in the sky! It's The Pilot Feb 10, 2017, Steve Gunn

Stephen Katz flies an Unmanned Aircraft System, also known as a drone, at Jeff Robertson Park in Norfolk. Katz, a staff photographer at The Virginian-Pilot, has his remote pilot license from the FAA, allowing him to legally fly the drone.

Seeing the world from a different perspective is something we all enjoy, and now it's part of the mission of staff visual journalist Stephen Katz's mission. He's in charge of The Pilot's new drone video and photo efforts. With this column, you'll see some recent examples of his work. Keep an eye out for more as the year unfolds. I hope this will give you a new way to see our region, both in print with still photos and online with videos.

The word "drone" has a bit of an image problem, so people in the field call them UAS devices – unmanned aircraft systems. Drone, of course, is a lot simpler to say. If you watched Lady Gaga at the Super Bowl, you saw an amazing use of drones when 300 of them lit up to form the American flag. Drones are revolutionizing aerial photography, since the work can be done at low cost.

In our case, we sent Katz to a special school for journalists to learn how to operate a drone in a safe and appropriate manner. He is now licensed by the Federal Aviation Administration to operate a UAS. Among the rules we'll be following: Flying no higher than 400 feet. Not flying at night. Not flying over crowds of people or in any other manner that could cause harm. Not going near the airport or military installations without permission. In addition to the safety standards, we'll also follow our normal newsroom practices of good journalism. So, no, we won't intrude on your privacy in your backyard.

And, we're definitely learning as we go – our first drone ended up in the Chesapeake Bay.

http://pilotonline.com/news/local/from-pilot/from-the-editor-look-up-in-the-sky-its/article_49bfa80f-f89b-5ef4-89c1-0dbd3780f867.html

As bee populations dwindle, robot bees may pick up some of their pollination slack By Amina Khan, Los Angeles Times

One day, gardeners might not just hear the buzz of bees among their flowers, but the whirr of robots, too. Scientists in Japan say they've managed to turn an unassuming drone into a remote-controlled pollinator by attaching horsehairs coated with a special, sticky gel to its underbelly. The system, described in the journal *Chem*, is nowhere near ready to be sent to agricultural fields, but it could pave the way to developing automated pollination techniques at a time when bee colonies are suffering precipitous declines.

<http://digital.olivesoftware.com/olive/odn/virginianpilot/>

13Feb17

Facebook Preparing To Fly Stratospheric UAV After First-Flight Incident.

[Aviation Week](#) (2/13) reports that Facebook is readying its Aquila stratospheric UAV for a second test flight after the unmanned aircraft experienced structural failure during its first test flight on June 28. The NTSB continues to investigate that incident.

SCO Official Details Perdix Mini-UAVs.

[Scout](#) (2/11) reported that DOD Strategic Capabilities Office (SCO) Director William Roper provided details about the military's "Perdix" mini-UAVs, which have already been tested in launches from the flare dispensers of aircraft including F-16s and F-18s. Roper explained that the inexpensive, expendable UAVs are built with commercial off-the-shelf elements and are capable of swarming into a "saturation approach" for surveillance or other potential applications. Roper explained that the SCO's role is to develop the "risky concept...to a point when we can hand it over" to another developer.

Significant Regulatory Rollback May Affect UAV Operations.

The [Washington Post](#) (2/12) reports that commercial UAV manufacturers are concerned that the changes to FAA regulations based on President Trump's January 30 Executive Order could affect them, after they waited four years for the FAA "to issue its first rule integrating drones into public airspace." Association for Unmanned Vehicle Systems International President Brian Wynne worries that delays to the FAA's rule on allowing UAVs to fly long distances or travel over people could prevent UAV "operations, such as news reporting, disaster relief and public safety, from becoming a reality."

Virginia Bill Allocates Up To \$20M For Mid-Atlantic Regional Spaceport Upgrades.

[Defense Daily](#) (2/10) reported that a bill passed recently by the Virginia General Assembly "could provide as much as \$20 million to the Virginia Commercial Spaceflight Authority (VCSFA) for improvements at the Mid-Atlantic Regional Spaceport (MARS)," located at NASA's Wallops Island Flight Facility. The bill, an amendment to existing appropriations legislation, passed both chambers on Thursday and is now in conference. The spaceport hosts "mostly Orbital ATK launches, specifically Antares and sometimes Minotaur," and the upgrades could include "a new payload processing facility and hangars, according to a staffer for the Virginia Senate Finance Committee." VCSFA Executive Director Dale Nash said that a study currently underway is assessing whether reusable rockets could return to the MARS launch pad.

Cargo Drones Deliver in the Amazon Rainforest

The Amazon is home to thousands of local indigenous communities spread across very remote areas. As a result, these sparsely populated communities rarely have reliable access to essential medicines and public health services. Local doctors in the region of Contamana report an average of 45 snakebites per month and no rapid access to antivenom, for example. We recently traveled to the rainforest to learn more about these challenges, and to explore whether cargo drones (UAVs) could realistically be used to overcome some of these problems in a sustainable manner. We're excited to share the results of our field tests in this new report (PDF); Spanish version here. For high-resolution photos of the field tests, please follow this link. Videos below.

Our cargo drone flights were carried out in collaboration with the Peruvian Ministry of Health and local doctors. The field-tests themselves were coordinated by our local WeRobotics lab: Peru Flying Labs. Anti-venom was flown from the town of Contamana to the more remote village of Pampa Hermosa about 40 kilometers away. A regular boat (canoe) takes up to 6 hours to complete the journey. Our drone took around 35 minutes.

At night, we flew the drone back to Contamana with blood samples. While cargo drone projects typically use very expensive technology, WeRobotics prefers to use affordable and locally repairable solutions instead. Behind the scenes footage of the actual cargo drone flown in the Amazon is available in the video below.

Thanks to the success of our first drone deliveries, we've been invited back by the Ministry of Health and local doctors to carry out additional field tests. This explains why our Peru Flying Labs team is back in the Amazon this very week to carry out additional drone deliveries. We're also gearing up to carry out deliveries across a distance of more than 100km using affordable drones. In parallel, we're also working on this innovative Zika-control project with our Peru Flying Labs; drawing on lessons learned from our work in the Amazon Rainforest.

<http://werobotics.org/blog/2017/02/13/cargo-drones-amazon-rainforest/>

14Feb17

Up, up and away: Passenger-carrying drone to fly in Dubai By JON

GAMBRELL Associated Press Feb 13, 2017

DUBAI, United Arab Emirates (AP) — Up, up and away: Dubai hopes to have a passenger-carrying drone regularly buzzing through the skyline of this futuristic city-state in July. The arrival of the Chinese-made EHang 184 — which already has had its flying debut over Dubai's iconic, sail-shaped Burj al-Arab skyscraper hotel — comes as the Emirati city also has partnered with other cutting-edge technology companies, including Hyperloop One.

The question is whether the egg-shaped, four-legged craft will really take off as a transportation alternative in this car-clogged city already home to the world's longest driverless metro line. Mattar al-Tayer, the head of Dubai's Roads & Transportation Agency, announced plans to have the craft regularly flying at the World Government Summit. Before his remarks on Monday, most treated the four-legged, eight-propeller craft as just another curiosity at an event that views itself as a desert Davos.

"This is not only a model," al-Tayer said. "We have actually experimented with this vehicle flying in Dubai's skies." The craft can carry a passenger weighing up to 100 kilograms (220 pounds) and a small suitcase. After buckling into its race-car-style seat, the craft's sole passenger selects a destination on a touch-screen pad in front of the seat and the drone flies there automatically.

The drone, which has a battery allowing for a half-hour flight time and a range of up to 50 kilometers (31 miles), will be monitored remotely by a control room on the ground. It has a top

speed of 160 kph (100 mph), but authorities say it will be operated typically at 100 kph (62 mph). Al-Tayer said the drone would begin regular operations in July. He did not elaborate.

EHang did not respond to a request for comment. **In May, authorities in Nevada announced they would partner with EHang to test the 184 to possibly be cleared by the U.S. Federal Aviation Administration.**

The drone may be a techno curiosity for now but Dubai — the commercial capital of the oil-rich UAE and home to the long-haul carrier Emirates — has bold visions for the future and the 184 fits right into its plans.

http://pilotonline.com/business/up-up-and-away-passenger-carrying-drone-to-fly-in/article_f24c1398-69ab-5b84-9dad-b6781bda995a.html

Northrop Grumman Challenges Students To Develop UAV Countermeasures.

[Alabama Live](#) (2/13) reports that a scenario from Northrop Grumman challenging a University of Alabama in Huntsville senior design class to develop UAV countermeasures has led to a campus-wide collaboration. The company posed a scenario – which it has worked to solve itself – for the electronic capture or disabling of a UAV. Northrop Grumman, which serves as “the primary driver and the customer of the project,” has provided three employees as advisers, and hopes that the program helps interest students in pursuing related careers. Bob McCaleb, Northrop Grumman corporate lead executive, said, “it is vital that NGC enable the best and brightest” STEM workforce. Northrop Grumman will review the results in May.

Iowa Lawmakers Considering Additional Regulations On UAS Use.

[Government Technology](#) (2/13) reports that Iowa lawmakers are considering passing a bill that would establish state standards alongside existing FAA regulations in hopes of balancing the legitimate use of unmanned aircraft systems with privacy concerns associated with the practice. Government Technology reports that the bill, named House Study Bill 88, will set “parameters for the use of unmanned aircraft systems employed by farmers, engineers, surveyors, utilities railroads, photographers, hobbyists, law enforcement and other government agencies and sets penalties for the misuse of aerial vehicles in photographing or gathering data on private property without permission.”

15Feb17

India Launches Record 104 Satellites Into Orbit.

[Bloomberg News](#) (2/14) reports that on Wednesday morning, India’s space agency delivered a record 104 satellites into orbit in a single launch as the country “looks to cement its position as the dominant destination for low-cost launches.” The Polar Satellite Launch Vehicle (PSLV) carried nanosatellites from seven countries, including 88 from US-based Planet Labs. Earth2Orbit COO Susmita Mohanty said that the launch represents a “further consolidation of the already well known technological prowess of the Indian space program.” David Todd, head of space content at UK-based Seradata Ltd., explained that nanosat multilaunches “might be a way in to the US launch market” for the Indian Space Research Organisation (ISRO) and its commercial arm Antrix.

Planet’s Constellation To Image Entirety Of Earth’s Landmass Daily. Detailing Planet’s 88 satellites, [Wired](#) (2/14) reports that “the largest sat fleet ever,” composed of 11-pound devices called “Doves,” will form a constellation that the company said will image “the entire Earth daily.” The article

clarifies that the imaging can capture only an area equivalent to the Earth's landmasses each day. Bolstering Planet's existing network and that of its recent acquisition Terra Bella, the constellation will "track much more of the Earth than massive satellites from military-industrial juggernauts like DigitalGlobe." [The SmallSat industry is booming.](#)

Amazon Files Patent For Dropping Parcels From Moving UAVs.

[Business Insider](#) (2/14) reports that Amazon has made a patent filing for a system designed to drop parcels from moving UAVs. Published Tuesday, the filing explains that the system would "forcefully propel a package from a [UAV] while the UAV is in motion," preventing the UAV from having to land, saving "time and energy resource inefficiencies." According to the filing, the force for establishing the vertical descent path, controlled via an RF module, could be achieved in four ways: pneumatic actuators, electromagnets, spring coils, and parachutes.

Hartsfield-Jackson's UAV Use Could Foreshadow New FAA-Approved Flights.

[USA Today](#) (2/14) reports that UAV flights at Hartsfield-Jackson Atlanta International Airport "marked a milestone for the development of commercial" UAVs, and experts said that the flights' approval "indicates that as the drone market matures, the FAA is more willing to consider broader applications for the new technology."

senseFly Becomes First Company to be Granted BVLOS UAS Operations in Switzerland

By AUVSI News posted 5 days ago

Switzerland's Federal Office of Civil Aviation (FOCA) has granted senseFly permission to conduct anytime beyond visual line of sight (BVLOS) flights in the country, allowing the company to fly any of its eBee-branded mapping UAS beyond the visual line of sight of an operator, using observers, without the need to establish a flight operation 'Danger Area' before a flight.

senseFly is the first UAS operator to be granted such permission in Switzerland.

"This country-wide, anytime BVLOS authorization is a first for Switzerland and we are delighted to be working closely with FOCA to pioneer this kind of flexible, extended use," says senseFly's CEO Jean-Christophe Zufferey through press release.

Through this authorization, senseFly will have to follow some strict guidelines when conducting BVLOS flights. Aircraft cannot be flown higher than 500 feet above ground level (or 1,000 feet over urban areas), and visual observers must be present during flights, so that they can each monitor a section of the airspace—with a radius of 2 kilometers—for other aircraft. The observers must also be able to communicate instantly with a UAS operator, in the event that issues arise.

Even with the guidelines though, this authorization is a major step forward for senseFly, and UAS operations in Switzerland as a whole, according to Zufferey.

<http://www.auvsi.org/blogs/auvsi-news/2017/02/09/sensefly-becomes-first-company-to-be-granted-bvlos-uas-operations-in-switzerland>

Measure to Provide UAS to AES Corporation Through New Partnership by [AUVSI News](#)

Measure, a Washington D.C.-based drone services provider, will look to help the AES Corporation cut more than 30,000 hours of hazardous work per year, through a new partnership

announced on February 7.

Through the partnership, Measure will supply its UAS to AES, allowing AES to use unmanned systems during inspections at AES' energy infrastructure in 17 countries, and take AES workers out of certain harmful scenarios.

"We are excited to be chosen as their strategic partner to 'make drones work' at scale across their global portfolio of energy infrastructure, and to improve safety and increase availability of their energy solutions in the United States and abroad," [says Measure's CEO Brandon Torres Declet through Electric Light & Power](#).

AES has used drones in 10 different countries for more than 3,000 flights, conducting various types of inspections, including ones on tower and transmission lines, as well as ones on solar panels.

By working with Measure, AES will now be able to obtain newer, and more, UAS on short notice. AES will also have access to Measure's licensed pilots to help conduct the flights.

<http://www.auvsi.org/blogs/auvsi-news/2017/02/07/measure-to-provide-uas-to-aes-corporation-through-new-partnership>

Uber Hires Former NASA Engineer to Help With Creation of Autonomous Flying Vehicles by [AUVSI News](#)

Uber has hired Mark Moore, a former advanced aircraft engineer at [NASA's Langley Research Center](#), to help the ride-hailing company in its goal to develop autonomous, flying vehicles. Moore, who was with NASA for 30 years, will serve as the director of engineering for aviation at Uber Elevate. "I can't think of another company in a stronger position to be the leader for this new ecosystem and make the urban electric VTOL market real," [Moore says via Bloomberg](#).

Back in 2010, Moore published a white paper on the feasibility of vehicles with vertical takeoff and landing (VTOL) capabilities. Six years later, Uber published its own white paper on the subject, culminating with the creation of the Uber Elevate initiative. In Uber's white paper, which Moore consulted on, the company spoke about its desire to not only develop these vehicles, but also to help the industry solve certain key issues surrounding this technology, including noise pollution, vehicle efficiency and limited battery life.

With this in mind, Uber Elevate will work towards creating flying cars that can take off from 'vertiports' throughout a city. Operating in ranges between 50-100 miles, the vehicles would transport commuters from their city offices to their homes.

<http://www.auvsi.org/blogs/auvsi-news/2017/02/07/uber-hires-former-nasa-engineer-to-help-with-creation-of-autonomous-flying-vehicles>

Sensofusion Upgrades AIRFENCE Drone Countermeasure Platform

Published: 11 Feb 2017

Sensofusion Airfence logo Sensofusion has announced increased functionalities and in-demand service features for the company's AIRFENCE drone countermeasure platform. The new upgrades will be unveiled during the 2017 International Defence Exhibition and Conference (IDEX) in Abu Dhabi, UAE.

Included in the AIRFENCE 4.0 platform is new radar system hardware, which incorporates new features including the ability to become a phased array radar or LTE cell tower. Additionally, AIRFENCE 4.0 is capable of time-of-flight triangulation and MIMO antenna setups, and its external detection capabilities allow the hardware to collect evidence immediately and transmit to fleet learning platforms. This allows for future detection of the rogue UAV.

<http://www.unmannedsystemstechnology.com/2017/02/sensofusion-announces-upgrades-airfence-drone-countermeasure-platform/>

16Feb17

Tiny Tech Will Help Drones Stay Safe in the National Airspace By Tim

Wright AIRSPACEMAG.COM FEBRUARY 15, 2017

If we want piloted airplanes and drones to share the skies, we need to figure out how to keep them apart. One of the biggest barriers to bringing drones into common use is the threat of collision. Small ones are especially hard to see from a distance, and are sometimes operated by well-meaning but clueless amateurs. A company called uAvionix thinks it has the answer: a tiny Automatic Dependent Surveillance-Broadcast, or ADS-B, small enough to fit even on small, personal drones.

So uAvionix has just introduced a prototype ADS-B transceiver they call The Tiny UAT (Universal Access Transceiver). Smaller than a dime and weighing only 1 gram, or ¼ the weight of a typical piece of 8.5 x 11 paper, the device is designed to be built into small drones, just as car manufacturers include radios in cars.

The Tiny UAT transmits only .01 to .25 watts. According to Ryan Reed of uAvionix, those power levels have a negligible impact on quadcopter battery life but are strong enough to alert ADS-B-capable airplanes up to 10 miles away. And they can easily transmit using cellphone batteries.

<http://www.airspacemag.com/daily-planet/small-drones-small-transmitters-180962154/#FtfIJOLPbPIOKSDP.99>

These Mushroom-Based Drones Eat Themselves at Mission's End

By Tim Wright AIRSPACEMAG.COM JANUARY 31, 2017

How do you make a drone vanish after a one-way delivery flight? One answer is to have it eat itself. A DARPA program called Inbound, Controlled, Air-Releasable, Unrecoverable Systems, or ICARUS, is exploring ways to make expendable drones disappear. The name is a nod to a character from Greek mythology who dies when he flies too close to the sun with wings of wax.

DARPA “seeks proposals for the design and prototyping of vanishing air delivery vehicles capable of precise, gentle drops of small payloads. These precision vehicles must be guaranteed to rapidly physically disappear following safe payload delivery. Proposed efforts must integrate engineered vanishing materials into advanced aerodynamic designs to produce an autonomously vanishing, field-testable prototype vehicle.”

Responding to DARPA's call, the San Francisco-based R&D firm Otherlab developed a glider prototype with an 8:1 glide ratio, capable of delivering one kilogram of payload using onboard navigation and guidance. By using a glider the design eliminates motors and batteries, which allows more space and weight for cargo. The firm recently released a photograph of a cardboard prototype they call APSARA (for Aerial Platform Supporting Autonomous Resupply Actions). According to Star Simpson, Otherlab's APSARA project engineer, “we used cardboard as a prototyping material because it is easy to work with and resembled mycelium, the mushroom-based material that we intend for the future product.” That's right. This drone will be made of mushrooms.

<http://www.airspacemag.com/daily-planet/vanishing-drones-180961990/#I7EpxDC3ulctK6C6.99>

17Feb17

Florida City Considers Ordinance That Would Restrict UAV Flights.

[Aero-News Network](#) (2/16) reports that the Flagler Beach City Commission is considering a proposed ordinance that would restrict UAV flights in the municipality. The measure, which “is nearly an exact copy of the ordinance recently passed by the City of Orlando,” would “prohibit flying a UAV within 500 feet” of schools, parks, health care facilities, and any buildings owned or operated by the city, but also contains language saying that the city “wishes to increase the ability of hobbyists and commercial users to operate unmanned aircraft.” At a meeting, Commission Chairman Jane Mealy “said she has ‘no idea’ how the ordinance would be enforced.”