@HelicoptersofDC

Tracking the military ghost helicopters of D.C.

Andrew Logan, HelicoptersofDC@ProtonMail.com
Welcome to Washington, D.C.

D.C. Guard misused helicopters in low-flying confrontation with George Floyd protesters, Army concludes

VERIFY: Yes, U.S. Park Police used a helicopter to chase ice hockey players off a frozen over Reflecting Pool

An internal investigation of the pilot's actions is underway
Department of @ENERGY nuke sniffing helicopter #N412DE has been putting in work today. You can follow it here: globe.adsbexchange.com/?icao=a4dbde
@DCist @PoPville
What's The Deal With Army Helicopters Flying A Secret New Mission Over The Capital?

Army aviators already provide vital support in the region, including being prepared to spirit senior government officials to safety in a crisis.

BY JOSEPH TREADWORTHY JUL 22, 2015 6:33 PM

THE WAR ZONE

C5ISR Center's Night Vision and Electronic Sensors Directorate researches and develops sensor and sensor suite technologies for air and ground intelligence, surveillance, reconnaissance and target acquisition under adverse battlefield conditions in day and night-time environments.

NIGHT VISION AND ELECTRONIC SENSORS DIRECTORATE

C5ISR Center's Night Vision and Electronic Sensors Directorate, located at Fort Belvoir, Va., is "The Army's Sensor Developer," conducting research and development that provides U.S. Soldiers with advanced sensor technology to dominate the 21st-century digital battlefield.

NVESD exploits sensor and sensor suite technologies to:

- See, acquire, and target opposing forces, day or night, under adverse battlefield environments
- Deny the enemy the same capabilities through electro-optic means and/or camouflage, concealment and deception
- Provide capabilities for night driving and piloting
- Detect, neutralize, clear and mark explosive hazards including minefields and unexploded ordnance
- Protect forward troops, fixed installations and rear echelons from enemy intrusion

C5ISR Center NVESD leverages its explosive hazard expertise in support of the critical U.S. Humanitarian Demining R&D Program.
Kept up late at night by helicopters

Flight tracking sites don’t offer historical for finding out what was over you a few hours ago

Large number of residents are on Twitter asking, very few people can identify

The Beginning of My Helicopter Obsession

Shaw resident keeps eye on city’s ‘helicopter highway’
Pythons of The World
proudly made with bad python
Tenets of Bad Python

Use outdated version (2.7)

Painstakingly edit in your choice of nano, vim, emacs, etc…

Leave old commented code strewn about

No consistent naming convention for functions and variables

API keys referenced in each file

Absolute minimum whitespace…
So I Can Debug on My Phone
Evolution of an ADS-B Bot

data from free OpenSky API, maps with Matplotlib

ADSBEExchange API, Google Maps-Static API, custom icons
About ADSBExchange

- Does not filter military that happen to have transponders on
- Does not filter private operators like Elon Musk for a fee/profit
- Globe.ADSBExchange.com on desktop or mobile
Required as of January 2020 In Class A, Class B, or Class C airspace areas;

**Automatic** - does not require pilot intervention

**Dependent** - relies on other sensors like GPS for geometry

**Surveillance** - Reports location

**Broadcast** - Transmits unencrypted over 978 or 1090Mhz

Received by “ground stations” like us with Raspberry Pi and RTL-SDR
HOMELAND DEFENSE

Urgent Need for DOD and FAA to Address Risks and Improve Planning for Technology That Tracks Military Aircraft
FAA Rule 14 CFR Section 91.225(f)

“ADS–B Out must operate this equipment in the transmit mode at all times unless otherwise authorized by the FAA when that aircraft is performing a sensitive government mission for national defense, homeland security, intelligence or law enforcement purposes, and transmitting would compromise the operations security of the mission or pose a safety risk to the aircraft, crew, or people and property in the air or on the ground.”

“In the rulemaking, FAA defers to the agency for the determination as to whether an operation is sensitive and requires exemption from the ADS-B requirements. As part of providing these exemptions, FAA has said it does not intend to coordinate ADS–B Out off authorizations on a dynamic, per flight, per mission, or per unit basis. Rather, FAA expects coordination for ADS–B Out off authorization to be handled at the highest possible agency organization level (such as the Army, Navy, or Air Force).” - U.S. GAO
Presidential (Marines)

Army National Guard

FBI

Air Force

Navy

DHS: Coast Guard, Customs and Border Protection

Accessible on ADS-B flight trackers:

Medical News Gathering
State and County Police
Park Police
def potus_check():
    currentday=date.today()
    currentdstr=currentday.strftime("%Y-%m-%d")
    @print(currentdstr)
    now = datetime.now(tz)
    currentdstr=now.strftime("%Y")
    http = urllib3.PoolManager()
    calendar = http.request('GET', 'https://media-cdn.factbae.ae/zas/csv/calendar.csv')
    f = open(calendar.csvfile, 'rb')
    f.write(calendar.data)
    f.close()
    savings=0
    for row in calread:
        if currentdstr==row["Date"]:
            print(str(row["Time"]))
            if row["Details"].find("departs the White House en route") != -1:
                print(row["Details"])
                cron = CronTab(user='andrew')
                job = cron.new(command='python potus_tweet.py >> cron.log 2>&1', comment='potus')
                job.hour = int(row["Time"][0:2]) + 4 + savings
                job.minute = int(row["Time"][3:5])
                job.second = 0
                job.start = now + timedelta(hours=4)
                job.write()
            if row["Details"].find("President arrives at the White House") != -1:
                print(row["Time"])
#MarineOne is an VH-3D Sea King expected at The White House shortly. [factba.se/topic/calendar](http://factba.se/topic/calendar)
Quality Data in The Public Interest

Don’t do things automatically

Provide proof of users specific interest

Source good data and link to primary sources


a person qualifies as a journalist for purposes of the qualified federal privilege: the intent to use material sought, gathered or received to disseminate information to the public and that such intent existed at the inception of the newsgathering process."

“Efforts to safeguard useful information that is readily available through open sources or observation are unlikely to reduce vulnerabilities.”

Reporting: What, When, Where and Why

Helicopters of DC
@HelicoptersofDC

Got up close to the Air Force UH-1N and DC Air National Guard UH-72 Saturday at @HowardU’s #WeFlyToo event promoting diversity in military aviation. As of 2019 86.4% of U.S. aircraft pilots & flight engineers are white, 94.2% male. datausa.io/profile/soc/ai...

Howard University's #WeFlyToo Promotes Diversity in Military Aviation Saturday @HowardU host @WeFlyToo, a one-day event focused on diversity in military aviation. Air Force UH-1N and DC National Guard UH-72 helicopters landed on the field of Howard's Greene Stadium.

Helicopters of DC @HelicoptersofDC · Oct 4, 2021

Last weekend I got a look inside Army's 12th Aviation Battalion UH-60 helicopter, callsign "PAT" at #LeesburgAirShow #avgeek citations for this video can be found at: hypothes.is/search?q=tag%3…

One of Army's 12th Aviation Battalion UH-60 'Black Hawks'
was at Leesburg Air Show 9/25

1,651 views
Data Problem?
Data Problem? or Ergonomics Problem?
October ‘20: Started #CopterSpotter

Here are the official rules for #CopterSpotter, our helicopter spotting game! If you do all 3 we will respond with a map and give you 1 point for the image and a bonus point for the type. There will be prizes! Share this with a friend who’s looking up! Happy Spotting!

How to play #CopterSpotter

- Send a picture or video to @HelicoptersofDC
- Tag a specific location using Twitter’s location pin (like a park or restaurant, not a neighborhood or city)
- Use the 🚁 emoji in your message followed by the type if you know it
Helicopters of DC @HelicoptersofDC · May 9

spotted an H60 and has 1735 points 🚁 #CopterSpotter

Probable operators: Army/National Guard/FBI/Possibly Presidential
twitter.com/a/status/15236...

@HelicoptersofDC 🚁 H60 with fuel tanks NE to land at Eagle’s Nest

Show this thread
How Twitter handles location tags now

Most people don't tag their precise location in Tweets, so we're removing this ability to simplify your Tweeting experience. You'll still be able to tag your precise location in Tweets through our updated camera. It's helpful when sharing on-the-ground moments.

1:47 PM - Jun 18, 2019 - Twitter Web Client

568 Retweets 1,642 Quote Tweets 1,698 Likes

{u'full_name': u'East Potomac Park, Washington', u'url': u'https://api.twitter.com/1.1/geo/id/30de3b6973cc6472.json', u'country': u'United States', u'place_type': u'neighborhood', u'bounding_box': {u'type': u'Polygon', u'coordinates': [[[-77.0529382, 38.856208], [-77.020218, 38.856208], [-77.020218, 38.8877594], [-77.0529382, 38.8877594]]], u'contained_within': [], u'country_code': u'US', u'attributes': {}, u'id': u'30de3b6973cc6472', u'name': u'East Potomac Park'}
The CopterSpotter Map
A project by @samuelcrees and @HelicopterSpotDC
Enable Data Range
start date: 06 / 27 / 2022
end date: 07 / 17 / 2022

Common Operators by Type:
- Air Force - UH-1H/H
- Army/Navy/NAS/Guard - H80 / UH-1H(2) / SH-60(N)
- Coast Guard - MH65
- POTUS - VH-3D / VH-60N / VH-60D / VH-60N
- Medical - EC135 / EC145 / A109(A)
- Local Police and Federal Law Enforcement - AS350 / MD521 / A129 / B412
- Park Police - B412 / B50
- News - B50 / H65
- News / Park Police - B50
- Other

CopterSpotter data is voluntarily submitted and is not a measured random sample of the full population of the events.

Map.CopterSpotter.com by @samuelcrees
Resident, lawmaker, even helicopter crew approved?

Don Beyer @DonBeyerVA

DC and NOVA residents deserve a solution to the constant helicopter noise and presence. I am working to create a centralized system that tracks helicopter noise in the area, but until then, some residents, like @HelicoptersofDC, are doing it themselves.

Cassie

You know what made me feel good? Not so much the points, but the feeling of belonging to a group. 😊😊😊

When u sent out that tweet regarding our standings....I felt included in some group that I didn’t even know existed. 😱😢😢

4:56 PM · 02 Nov 20 · Washington, DC · Twitter for iPhone
Not everyone was so psyched

@Washingtonian 4 Trump
@Justice4Matty

@HelicoptersofDC

This is some scary stuff the anarchists are using to track both the police in DC and flight movements. We need the real FBI to take note.

2:59 PM · 20 Oct 20 · Twitter Web App
As borrowed from the NASA Aviation Safety Reporting System:

All CopterSpotter reports are voluntarily submitted, and thus cannot be considered a measured random sample of the full population of like events. One thing that can be reasonably expected from CopterSpotter data is that the number of reports received represents the lower measure of the true number of such events that are occurring.
Human Vision Meets Computer Vision

These are new. @HelicoptersofDC

Helicopters of DC @HelicoptersofDC · 6h
RePLYING TO

V22 (73.9% vision.CopterSpotter.com) Probable operators:
Presidential fleet #GoodBots

"#CopterSpotterVision uses computer vision to programmatically identify the helicopters of DC. The last year and a half we have been logging a..."

#CopterSpotterVision
Posted by @HelicoptersofDC

patreon.com
#CopterSpotterVision @HelicoptersofDC on Patreon
Official Post from @HelicoptersofDC
@HelicoptersofDC 🎧 USCG headed W

Helicopters of DC @HelicoptersofDC - Jul 13

spotted an MH65 (83.8% vision.CopterSpotter.com) and has
1819 points 🦿 #CopterSpotter Probable operators: US Coast Guard
twitter.com/a/status/15473...

Jul 13

@HelicoptersofDC 🎧 USCG headed W
Roboflow

Requires no prior experience with computer vision

Web based annotation tool better than desktop alternatives

Can divide videos into frames

Allows for collaboration and division of labor

Automated augmentations, compiles into various formats

Can train and deploy your model, giving you API access to inference almost code-free

Roboflow Universe is a repository of open-source models you can use for rapid development, ours included
Capturing Helicopter Radio

Thought about pulling feed from LiveATC but separatebysilence in ffmpeg isn’t quite the same as squelch on a radio

Raspberry Pi + RTL-SDR

Audio via open source **RTLSDR-Airband**

screenshots ADSBExchange uploads audio to FTP and tweets

Publishes on a sub-account because there is an enormous amount of traffic

**FCC.gov:** What kinds of interception and divulgence of radio transmissions are legal?

The FCC and the Communications Act do not forbid certain types of interception and disclosure of radio communications, including:

- Mere interception of radio communications, such as overhearing your neighbor’s conversation over a cordless telephone, or listening to emergency service reports on a radio scanner
- Divulgence of broadcasts related to ships, aircraft, vehicles or persons in distress.
DCA Tower 134.350 14:29 reply with '[at]HelicoptersofDC aircraft, route, zone, etc...' to report! 50.6°C
radio.copterspotter.com/delta/2021/11/...
Remote Raspberry Pi Deployment

Don’t:
- Rely on Raspberry Pi Wifi, or even a dongle

Do:
- Use a GLI.net router, GoodCloud allows you remote access a layer above the Pi
  - Shelly switch can hard reset from router shell:

Since upgraded to an Airspy HF+

smileyantenna.com

GL.iNet GL-AR300M
What’s Next?

ADS-B DC Police helicopter after they tweet a geographic alert
Elevating various Police Helicopters on air-to-air helicopter radio
Interested in noise monitoring, or even machine learning to infer type by sound
Scrape news sites for aerial photos when news helicopters are overhead
How do we apply this to other public interest mysteries?
Go to @HelicoptersofLV this weekend
*videos include tower transmissions
Tweet your photos for automatic identification!

Twitter: @HelicoptersofDC, @UFOsofDC for radio
Annual Report: 2021.CopterSpotter.com has our 2021 user-redacted data set
HelicoptersofDC@ProtonMail.com

Our computer vision images and annotations are on Roboflow Universe