AAE1001 - Introduction to Artificial Intelligence and Data Analytics in Aerospace and Aviation Engineering

Week 7 – What's GitHub?

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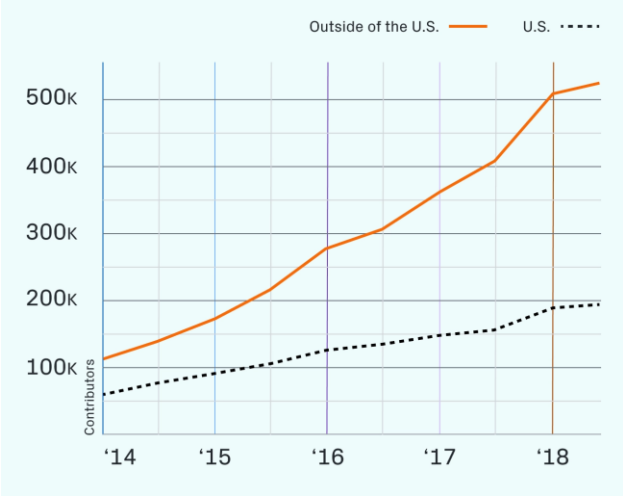
What is Github?

- A social network and platform for software developers
- Over 65 million users
- A place to Share, Communicate, Collaborate with others, especially programmers

What's on GitHub

- Over 100 million live Projects
- New projects increasing over the years
- Showing the trend of using GitHub for Software development



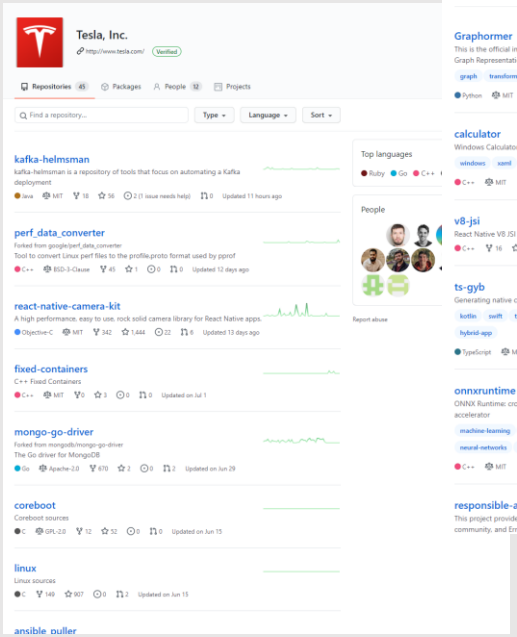
Variety of GitHub

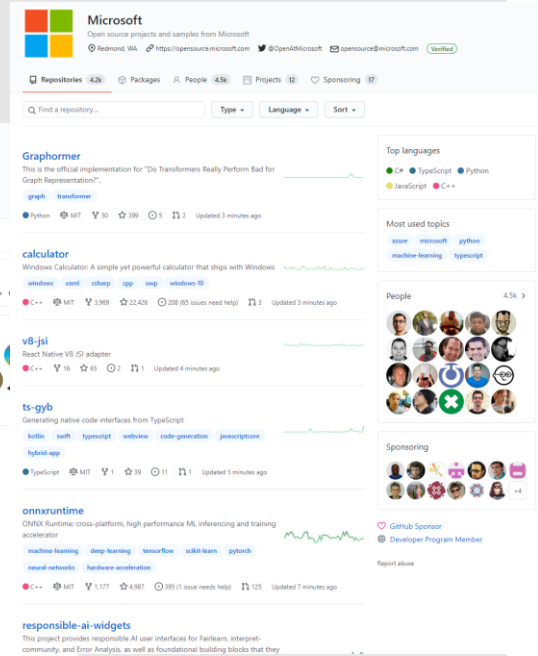
- Countless topics and projects available for the public
- Encompassing most popular topics nowadays

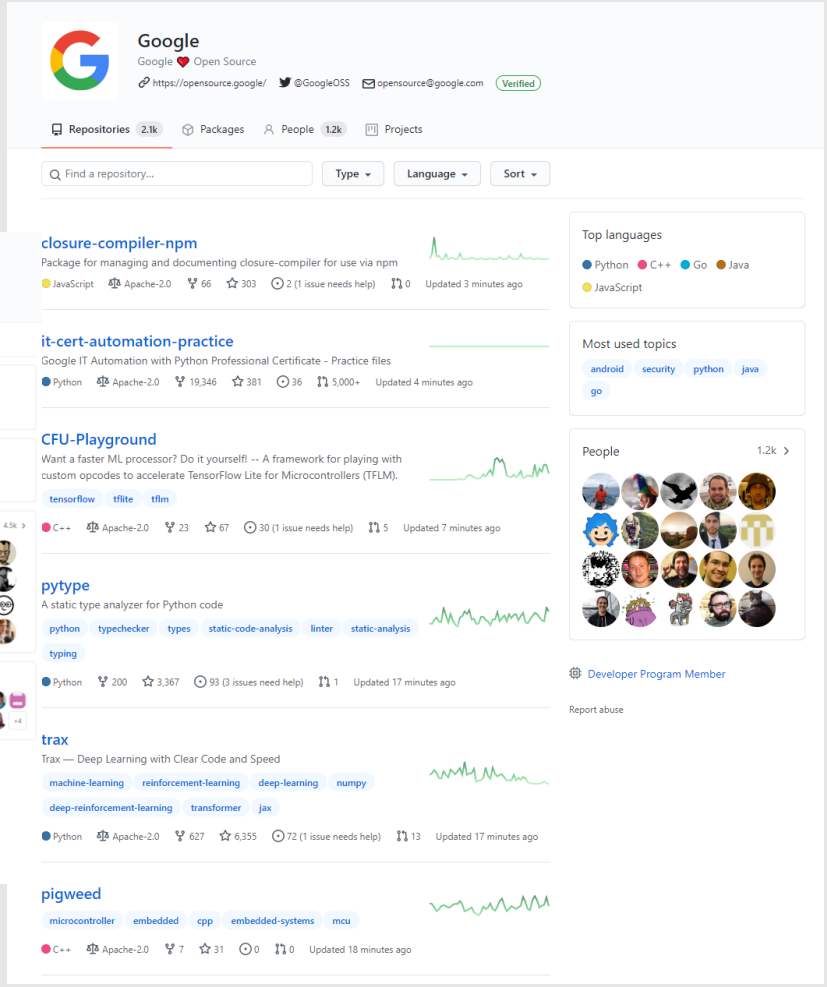
		Contributors
1	Microsoft/vscode	19K
2	facebook/react-native	10K
3	tensorflow/tensorflow	9.3K
4	angular/angular-cli	8.8K
5	MicrosoftDocs/azure-docs	7.8K
6	angular/angular	7.6K
7	ansible/ansible	7.5K
8	kubernetes/kubernetes	6.5K
9	npm/npm	6.1K
10	DefinitelyTyped/DefinitelyTyped	6.0K

1	React
2	Android
3	Node.js
4	Docker
5	iOS
6	Linux
7	Angular
8	Machine-learning
9	Electron
10	API

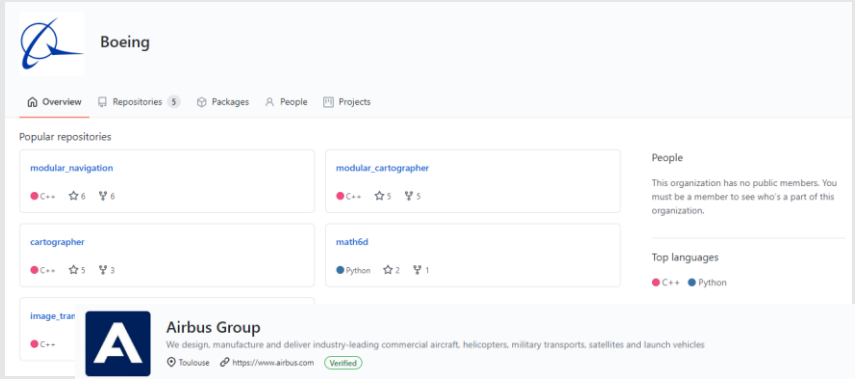
BIG GitHub Pages

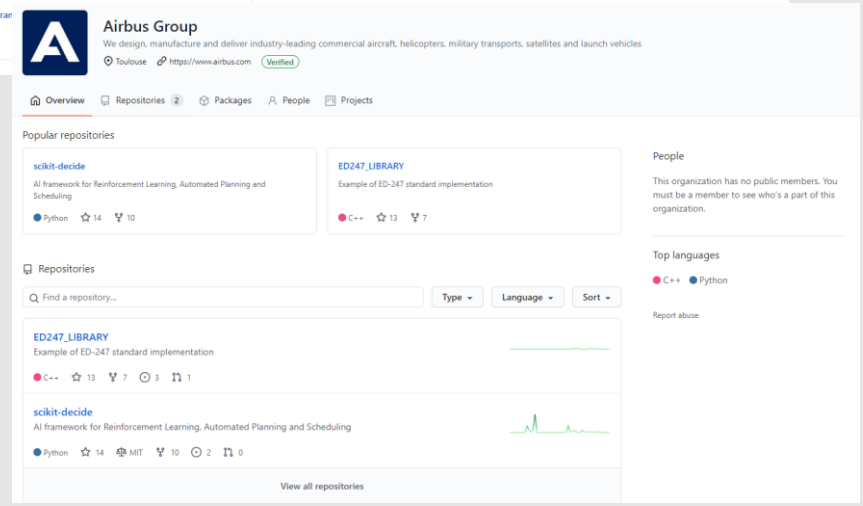


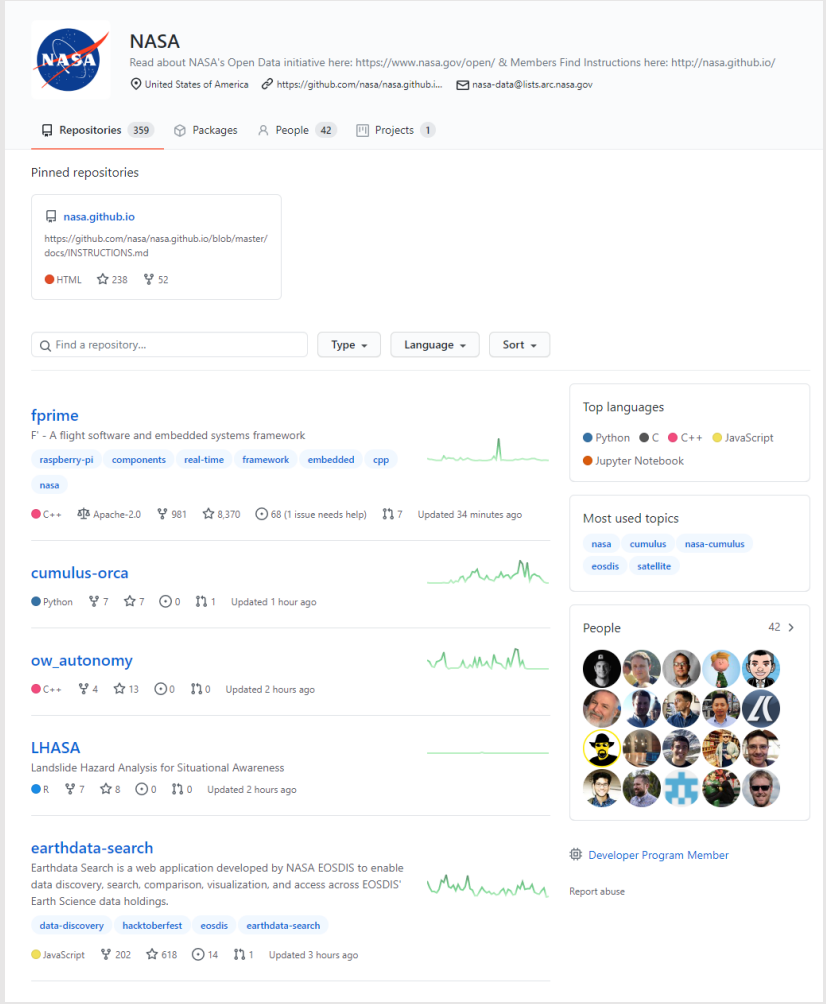




BIG GitHub Pages

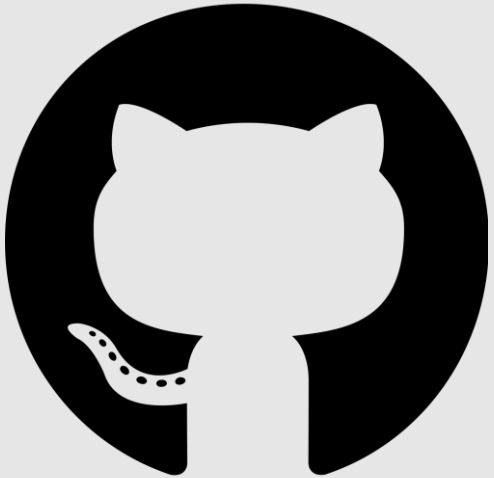






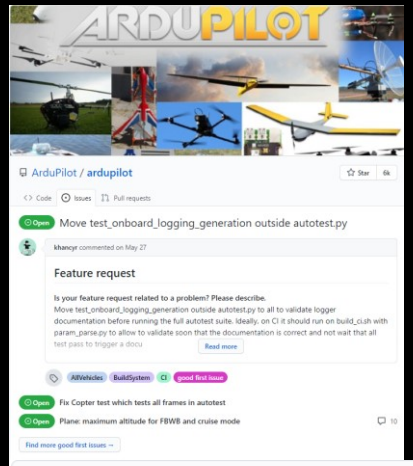
What’s on GitHub?

How is it related to AAE?



Flight control softwares for UAV

Ardupilot, PX4 and more



PX4 / PX4-Autopilot — Star 4.7k

Code | Issues | Pull requests

PX4 Autopilot Software

uav drone ros px4 pixhawk uas dronecode autopilot mavlink autonomous drones dds hacktoberfest ugv mavros multicopter qgroundcontrol fixed-wing fast-rtps avoidance

Updated 19 minutes ago C++

mavlink / qgroundcontrol — Star 1.9k

Code | Issues | Pull requests

Cross-platform ground control station for drones (Android, iOS, Mac OS, Linux, Windows)

qt uav drone px4 pixhawk uas mavlink ardupilot

Updated 23 hours ago C++

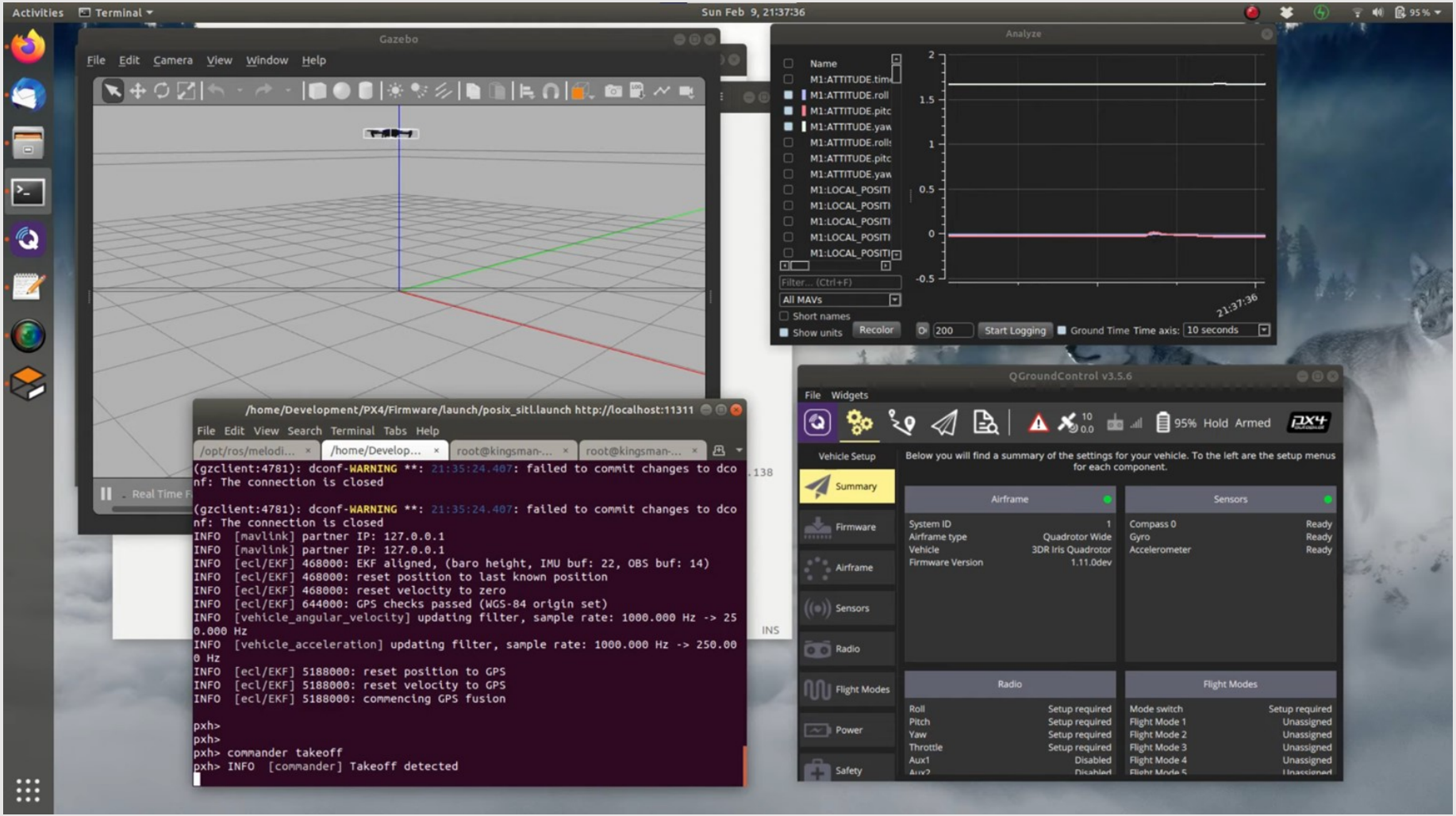
About These Softwares

Ardupilot:

- Open source software suite
- Quadcopters, VTOL and more
- Cross platform
- Over 10 years of development and improvement

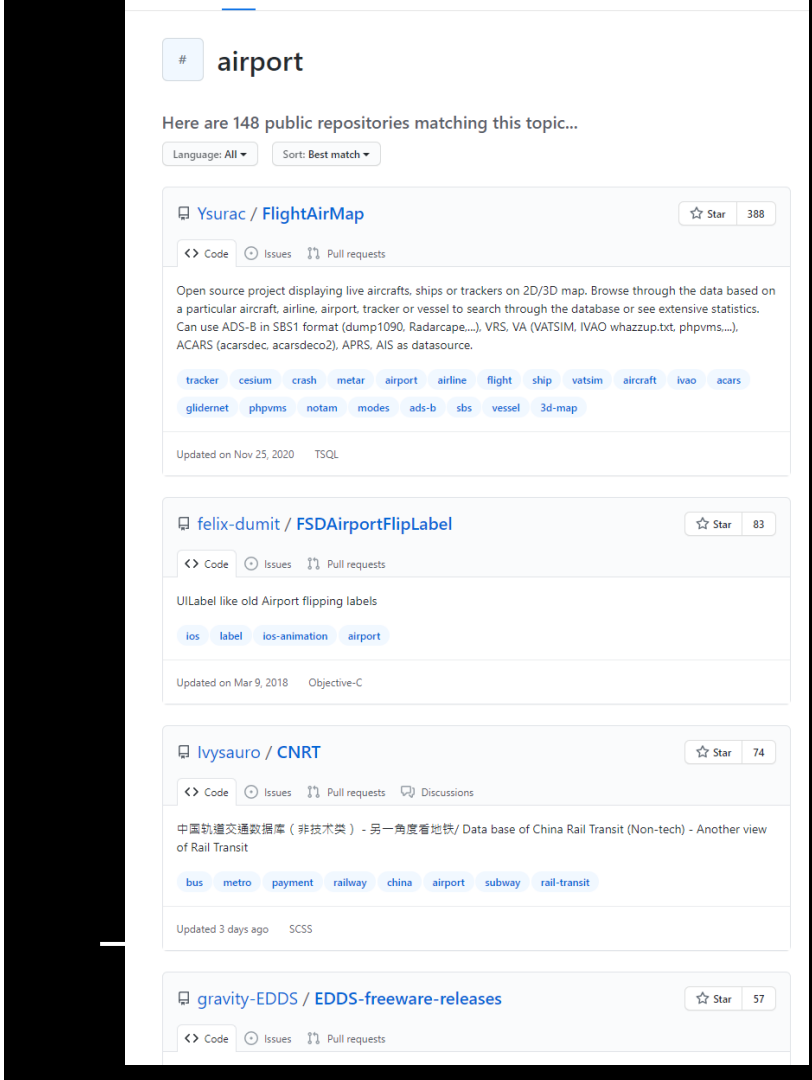
PX4:

- Also open source
- Works with QGC and MAVLink (Also available in GitHub)


Activities
Terminal
Sun Feb 9, 21:37:36
Gazebo
File Edit Camera View Window Help
Real Time F
Analyze
Name
M1:ATTITUDE.time
M1:ATTITUDE.roll
M1:ATTITUDE.pitc
M1:ATTITUDE.yaw
M1:ATTITUDE.rolls
M1:ATTITUDE.pitc
M1:ATTITUDE.yaw
M1:LOCAL_POSITI
M1:LOCAL_POSITI
M1:LOCAL_POSITI
M1:LOCAL_POSITI
M1:LOCAL_POSITI
Filter... (Ctrl+F)
All MAVs
Short names
Show units
Recolor
200
Start Logging
Ground Time
Time axis:
10 seconds
2
1.5
1
0.5
0
-0.5
21:37:36
/home/Development/PX4/Firmware/launch/posix_sitl.launch http://localhost:11311
File Edit View Search Terminal Tabs Help
/opt/ros/melodi...
/home/Develop...
root@kingsman-...
root@kingsman-...
(gzclient:4781): dconf-WARNING **: 21:35:24.407: failed to commit changes to dconf: The connection is closed
(gzclient:4781): dconf-WARNING **: 21:35:24.407: failed to commit changes to dconf: The connection is closed
INFO [mavlink] partner IP: 127.0.0.1
INFO [mavlink] partner IP: 127.0.0.1
INFO [ecl/EKF] 468000: EKF aligned, (baro height, IMU buf: 22, OBS buf: 14)
INFO [ecl/EKF] 468000: reset position to last known position
INFO [ecl/EKF] 468000: reset velocity to zero
INFO [ecl/EKF] 644000: GPS checks passed (WGS-84 origin set)
INFO [vehicle_angular_velocity] updating filter, sample rate: 1000.000 Hz -> 250.000 Hz
INFO [vehicle_acceleration] updating filter, sample rate: 1000.000 Hz -> 250.000 Hz
INFO [ecl/EKF] 5188000: reset position to GPS
INFO [ecl/EKF] 5188000: reset velocity to GPS
INFO [ecl/EKF] 5188000: commencing GPS fusion
pxh>
pxh>
pxh> commander takeoff
pxh> INFO [commander] Takeoff detected
QGroundControl v3.5.6
File Widgets
95% Hold Armed
Vehicle Setup
Summary
Firmware
Airframe
Sensors
Radio
Flight Modes
Power
Safety
Below you will find a summary of the settings for your vehicle. To the left are the setup menus for each component.
Airframe
System ID 1
Airframe type Quadrotor Wide
Vehicle 3DR Iris Quadrotor
Firmware Version 1.11.0dev
Sensors
Compass 0 Ready
Gyro Ready
Accelerometer Ready
Radio
Roll Setup required
Pitch Setup required
Yaw Setup required
Throttle Setup required
Aux1 Disabled
Flight Modes
Mode switch Setup required
Flight Mode 1 Unassigned
Flight Mode 2 Unassigned
Flight Mode 3 Unassigned
Flight Mode 4 Unassigned

Aviation Services Engineering

Logistics and Facility Management and more



airport

Here are 148 public repositories matching this topic...

Language: All ▾ Sort: Best match ▾

Ysurac / FlightAirMap ☆ Star 388

Code Issues Pull requests

Open source project displaying live aircrafts, ships or trackers on 2D/3D map. Browse through the data based on a particular aircraft, airline, airport, tracker or vessel to search through the database or see extensive statistics. Can use ADS-B in SBS1 format (dump1090, Radarcape,...), VRS, VA (VATSIM, IVAO whazzup.txt, phpvms,...), ACARS (acarsdec, acarsdeco2), APRS, AIS as datasource.

tracker cesium crash metar airport airline flight ship vatsim aircraft ivao acars glidernet phpvms notam modes ads-b sbs vessel 3d-map

Updated on Nov 25, 2020 TSQL

felix-dumit / FSDAirportFlipLabel ☆ Star 83

Code Issues Pull requests

UILabel like old Airport flipping labels

ios label ios-animation airport

Updated on Mar 9, 2018 Objective-C

lvysauro / CNRT ☆ Star 74

Code Issues Pull requests Discussions

中国轨道交通数据库（非技术类）- 另一角度看地铁/ Data base of China Rail Transit (Non-tech) - Another view of Rail Transit

bus metro payment railway china airport subway rail-transit

Updated 3 days ago SCSS

gravity-EDDS / EDDS-freeware-releases ☆ Star 57

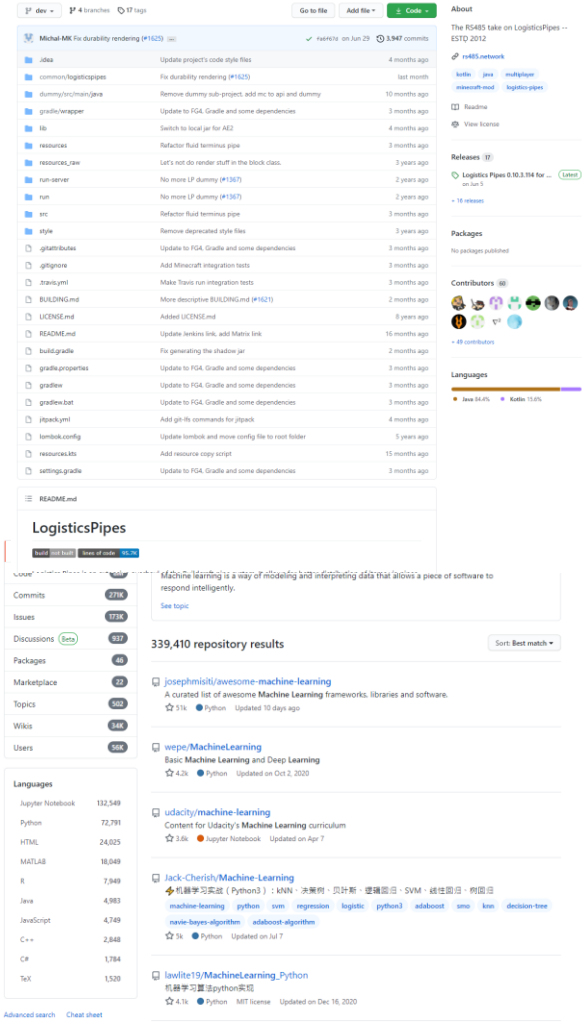
Code Issues Pull requests

Logistics and Facility Management

- Data analysis resources
- System modelling and simulations
- Logistical models

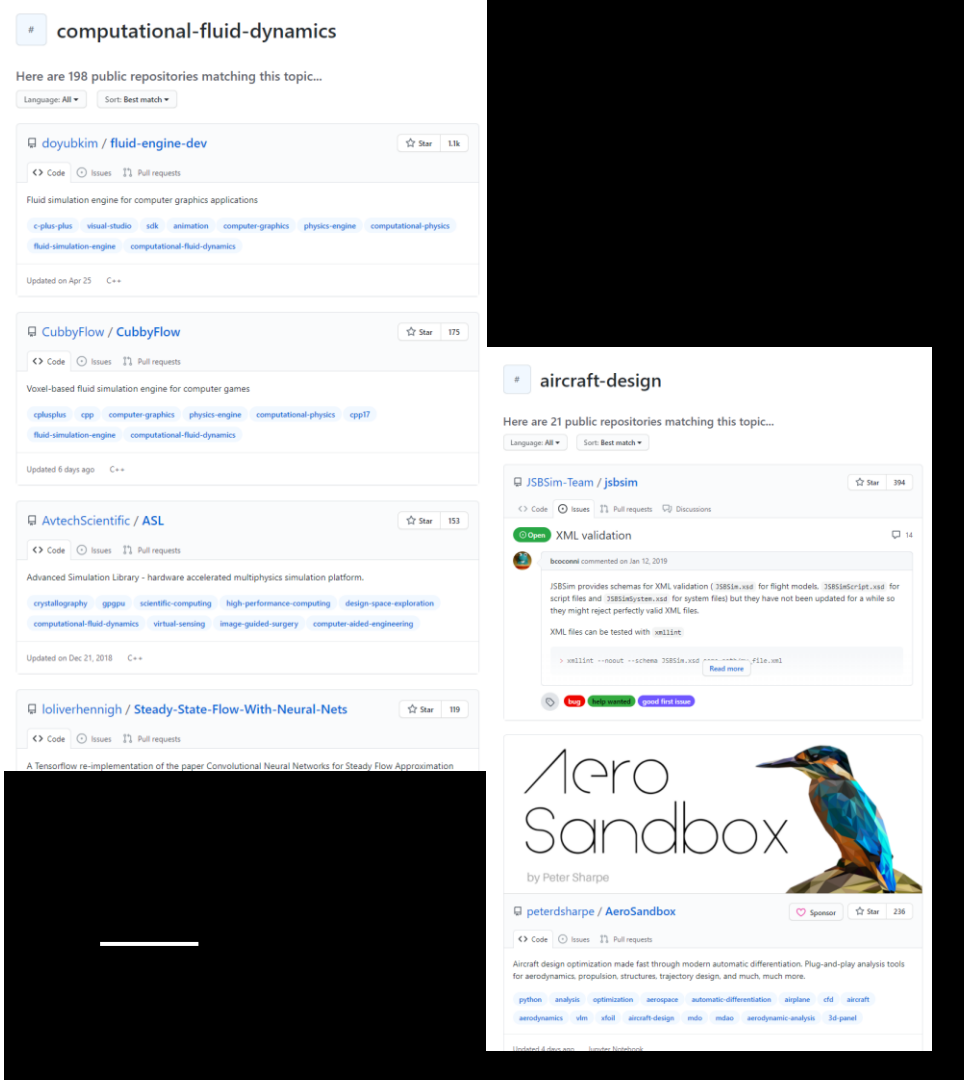
Machine learning for data analysis

- Faster analysis
- Potential extra self-learning for students
- Extremely beneficial to their careers



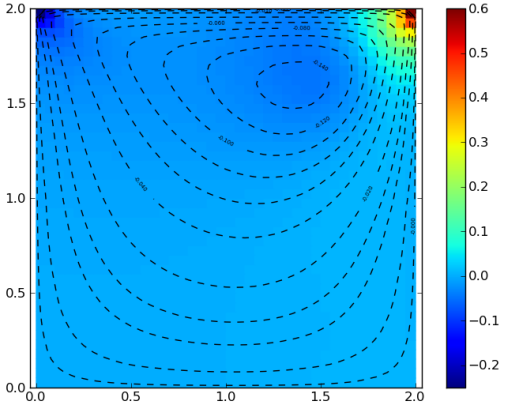
Aeronautical Engineering

Material, aircraft designs, CFD and more



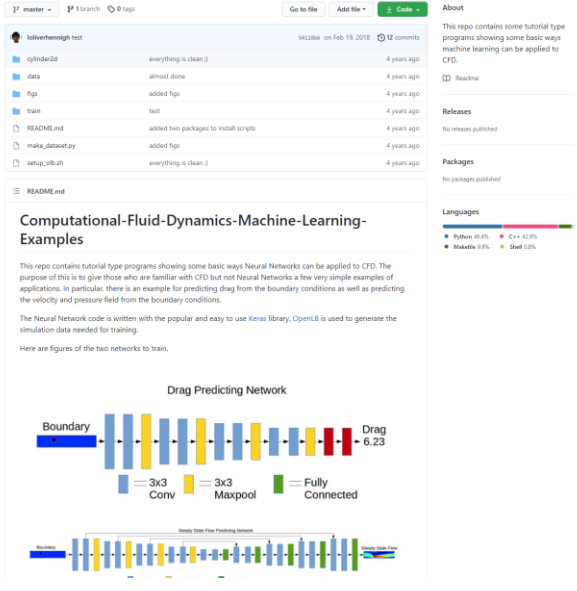
CFD Python

- Full course for CFD Python
- Course Materials (Lectures and videos)
- Software resources



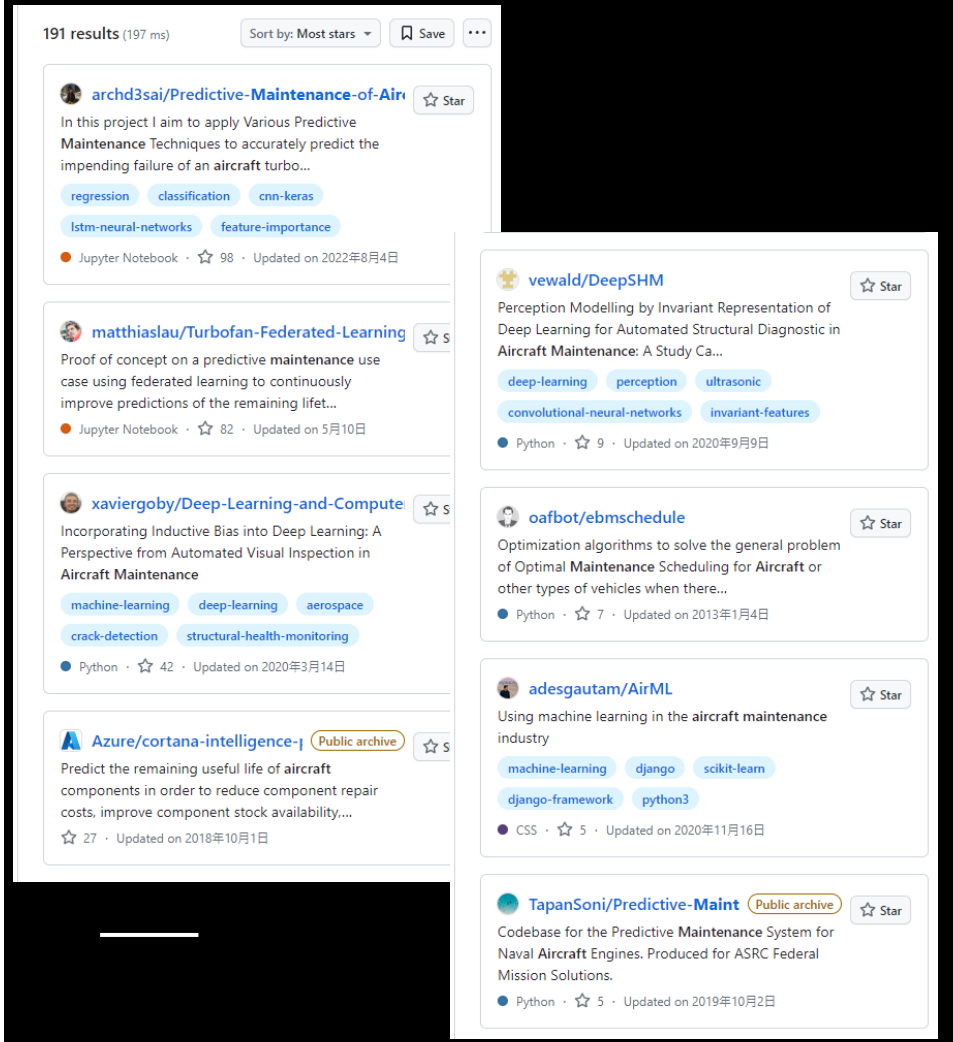
CFD and Machine Learning

- Making use of ML
- Showing how neural networks can be applied to CFD



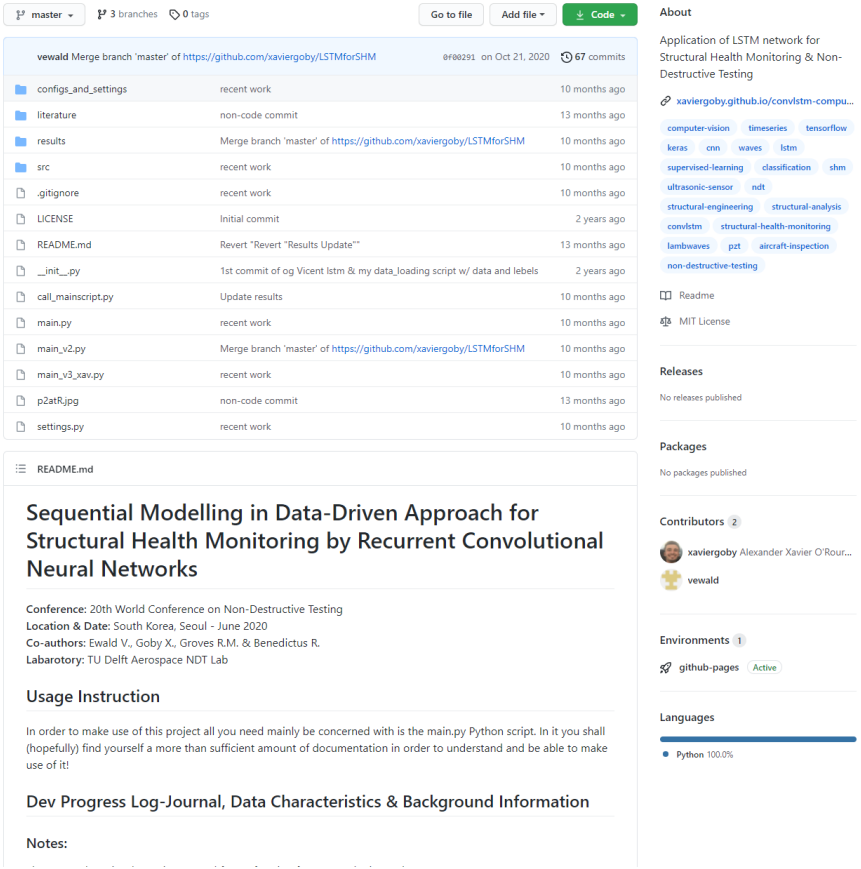
Aircraft Maintenance

Propulsion, NDT and more



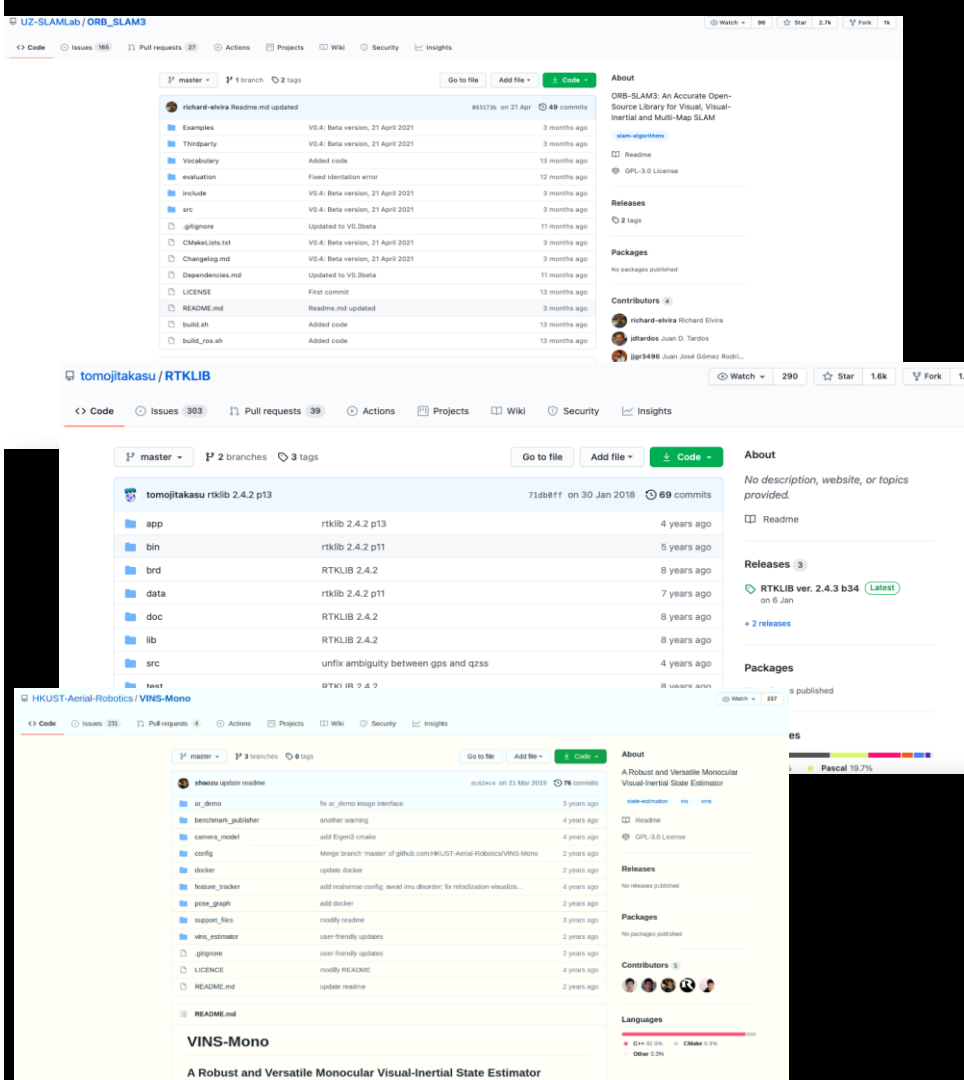
Example on NDT

- Resources on the whole conference
  - 20th World Conference on Non-Destructive Testing
- Documentation and software resources
- Applying LSTM to NDT



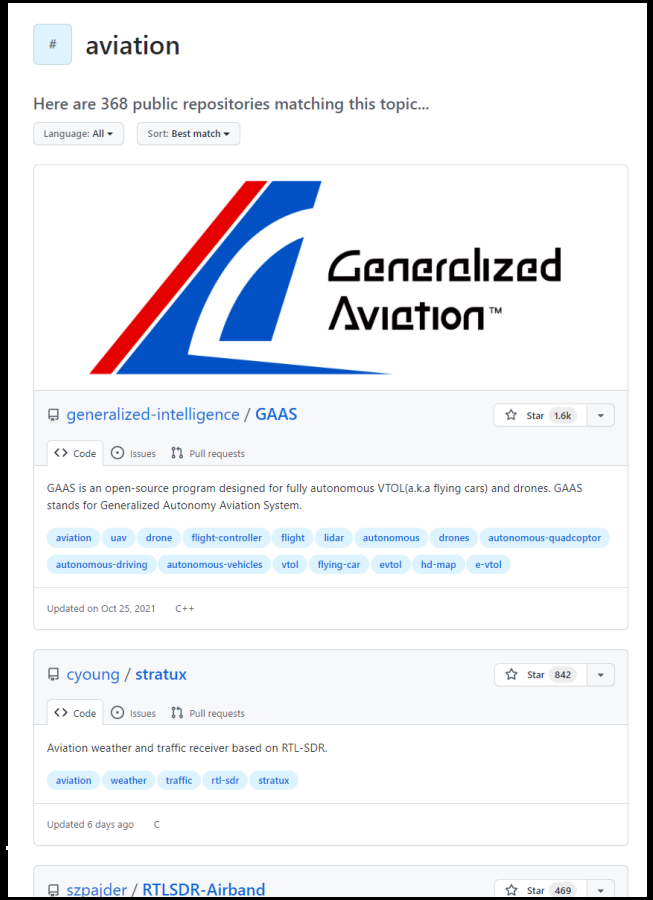
Navigation and Positioning

RTKLIB, VINS, ORB_SLAM3, ROS and more



Repository Examples

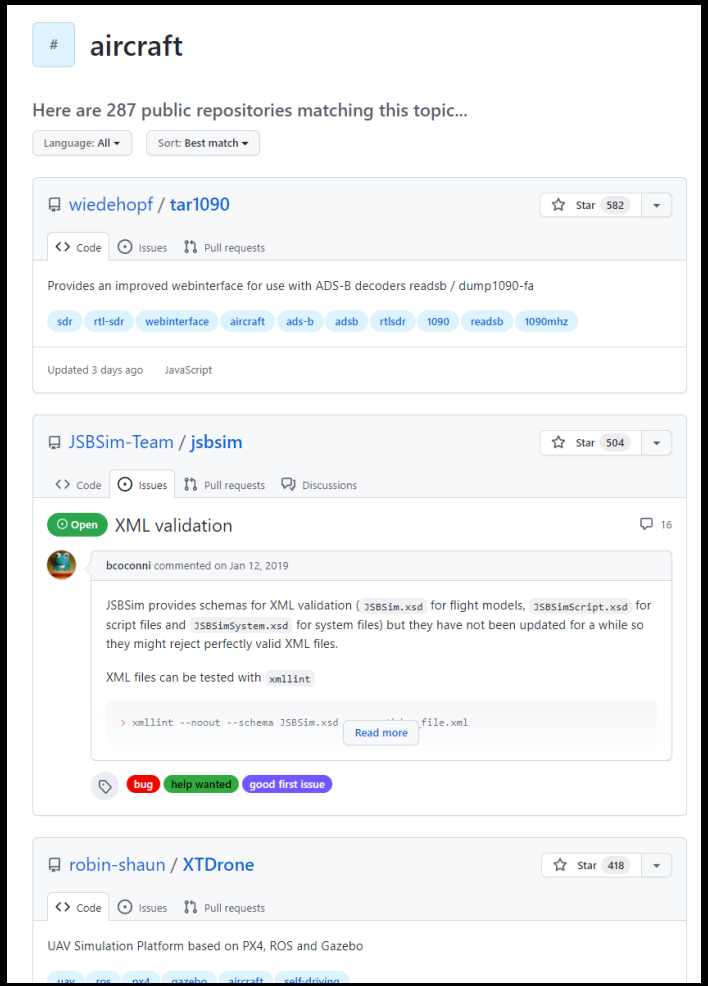
- UAV Powering Programmes
- Weather and Traffic Receiver
- Radio demodulator
- Proximity awareness systems
- Traffic visualization
- And more!!
- https://github.com/topics/aviation



Other related Repositories

- UAV simulation platforms
- ADS-B Decoder
- Aircraft design optimization
- Aircraft design toolbox
- https://github.com/topics/aircraft

Explore in your free time and you might find out something interesting!

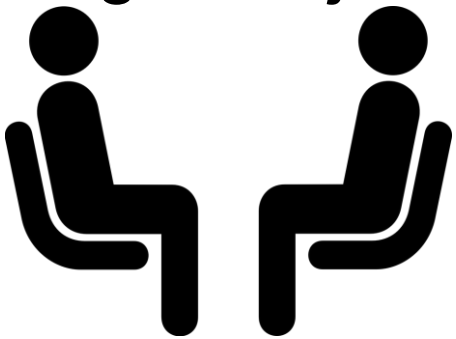


https://www.youtube.com/watch?v=w3jLJU7DT5E

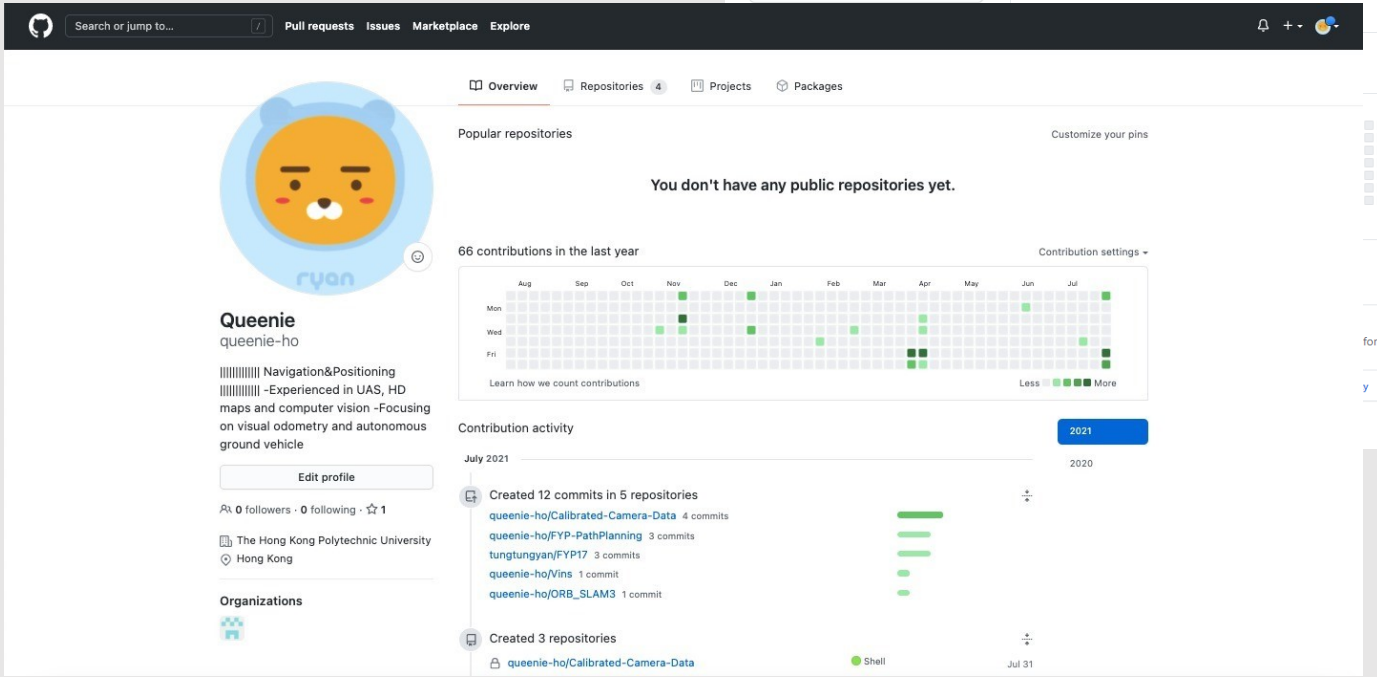
For Your Career 

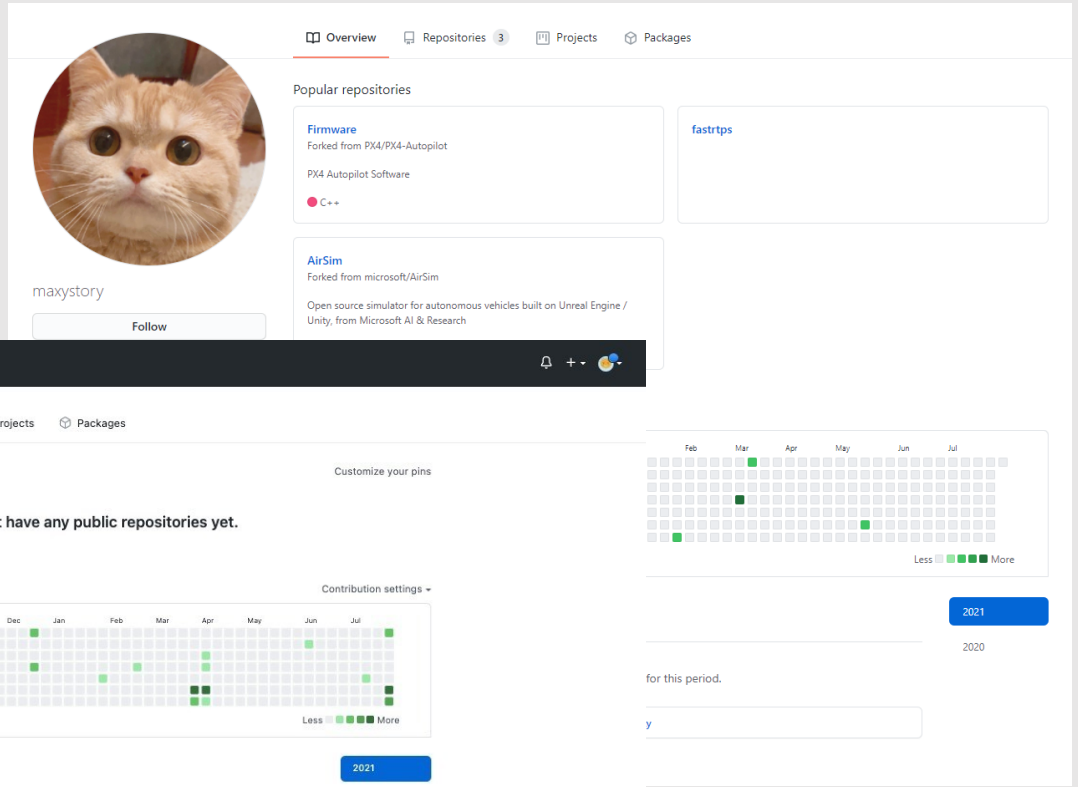
GitHub Facilitated Job Hunting

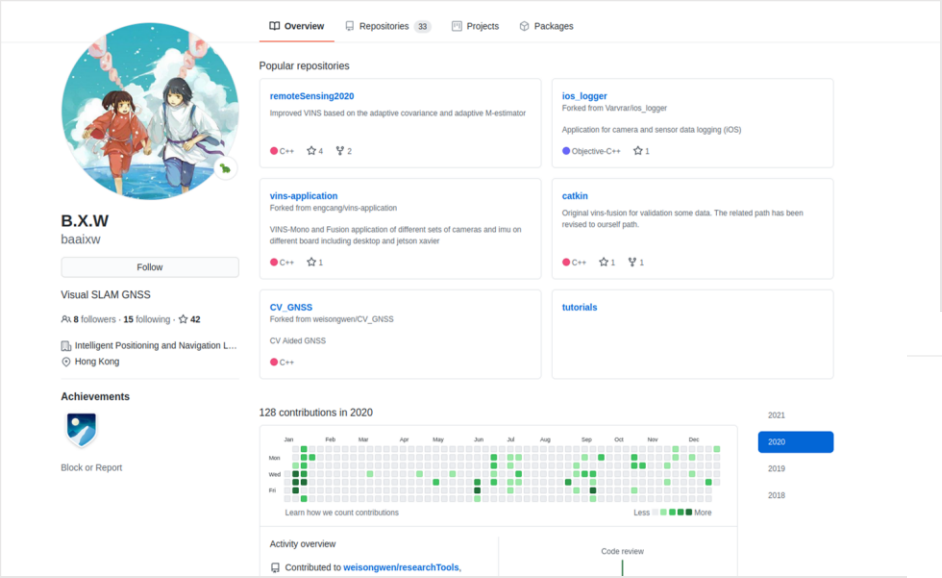
- A online digital profile for students
  - Indicating interests
  - Show past work
  - Roadmap of students' development career
- Let people know that you are looking for a job
- During job hunting
  - Better first impression
  - Better understanding
  - Appears more enthusiastic

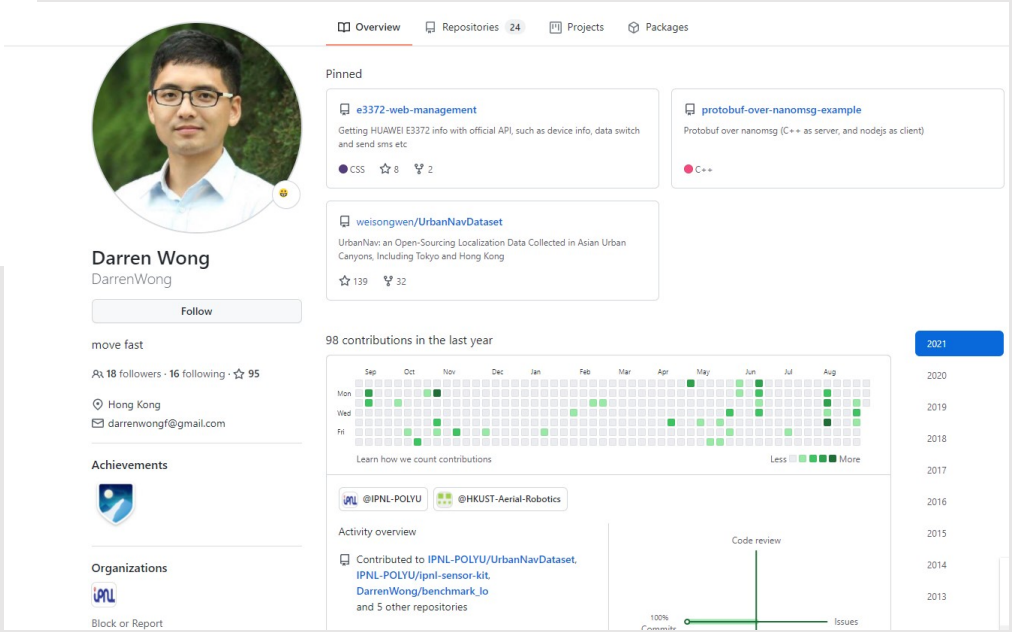


Develop Personal Profiles Starting from AAE UG

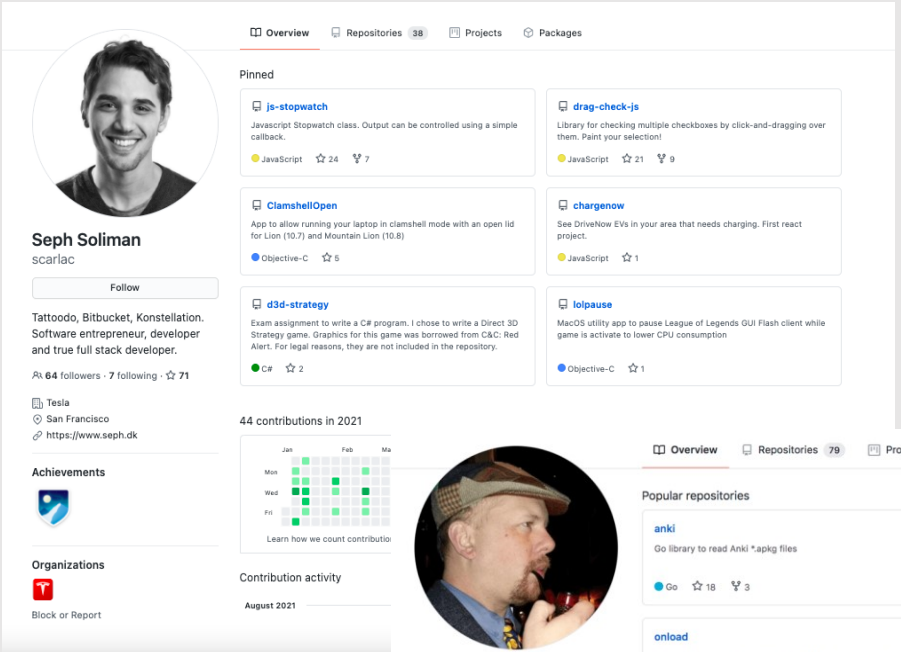


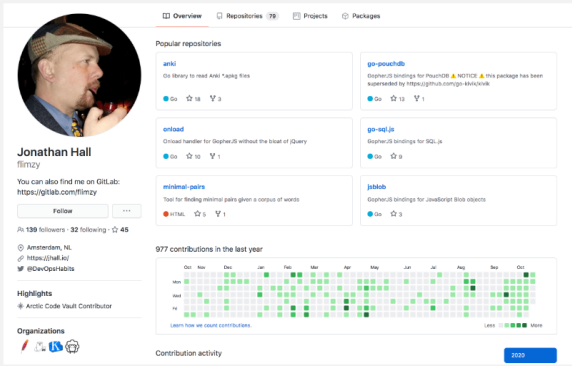


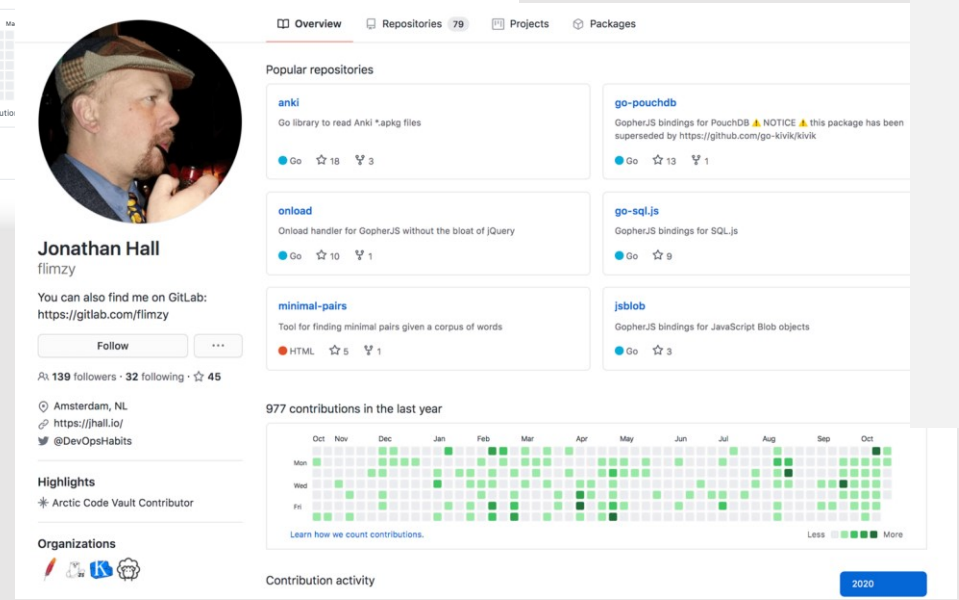




Up to Phd Studies







Making GitHub Part of your Work

Now you have an empty GitHub profile. How do you make it shine?

The following tips are roughly organized according to effort. Practically anyone can implement at least some of them. The later suggestions will be more discretionary, depending on your interests and time.

Star interesting projects

Whenever you run across a GitHub project that piques your interest, “star” it. Your starred projects appear on your public profile, and if nothing else, they provide recruiters and hiring managers an indication of what sorts of projects you find interesting.

Follow interesting people

GitHub also allows you to follow interesting people, and these people will appear on your public profile, as well. In addition to signaling to the world whom you find interesting, when people you follow make contributions to their projects, you will

What Will You will Learn and Experience?

- Pull Request (Basic Features)
  - Allowing leaders to **double check** modifications done by teammates
- Code Synchronization (Version Control on Web, VS, MATLAB etc)
  - Ensuring everyone is working on the **latest** code version
- Self-learning using GitHub resources
- Look for interesting issues on GitHub