



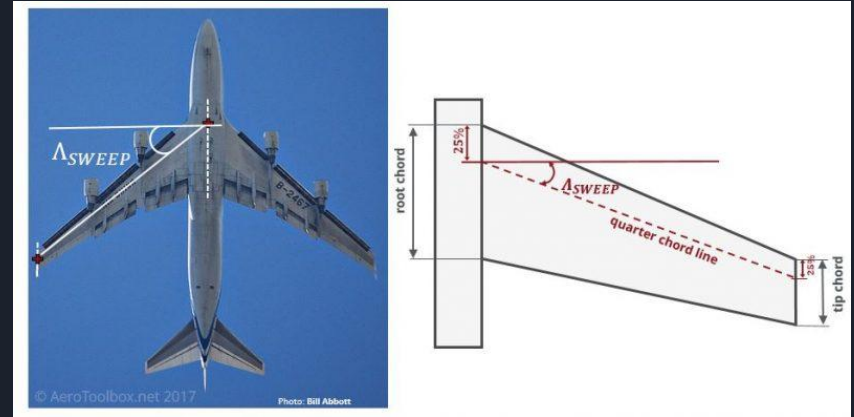
Summer Science Internship

Darya Alimoradi

9/12/22

General Overview

- Aerospace engineering department at UMD
- First project: fault detection in planes
- Switched groups midway
- Second project: obstacle avoidance in planes



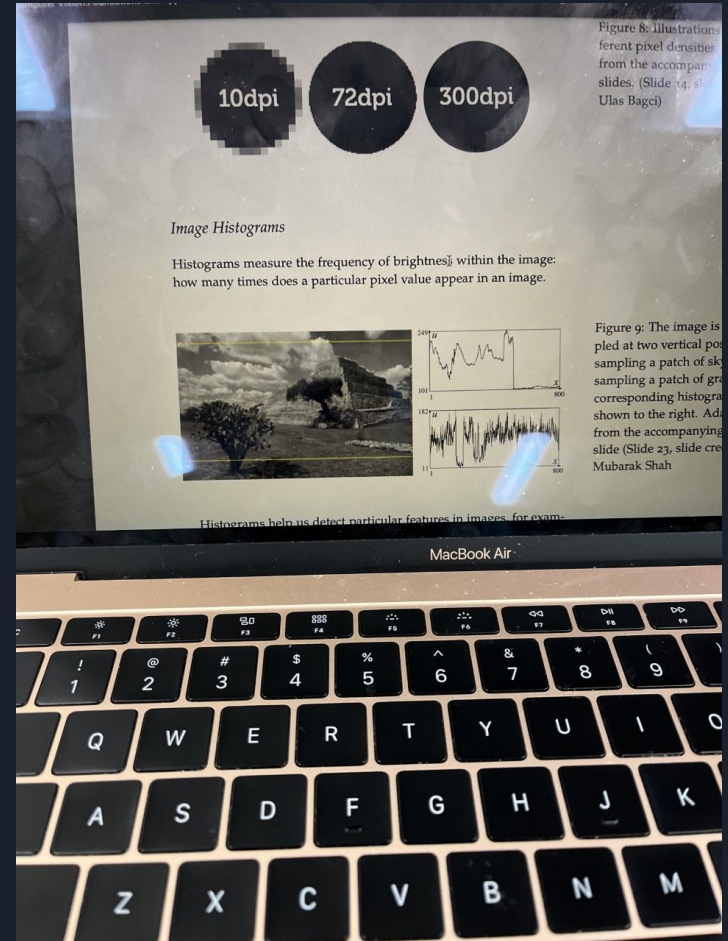


Chronology

- First group project: 5 weeks
 - 2 weeks research
 - 3 weeks applying findings in Open CV
- Second group project: 3 weeks
 - 1 week setting up the plane
 - 2 weeks coding

First Project: My Role

- Research on computer vision
- Learning how to use MATLAB
- Passing images through Open CV
- Learning how to virtually fly a drone for videography





Second Project: My Role

- Helping set up the plane
- Setting up the pitot tube
- Coding monitor to read the airspeed of the plane
- Coding computer to open different softwares like Mission Planner
- Creating a flight plan



Speedometer (mph) Pitot Tube (mph?)

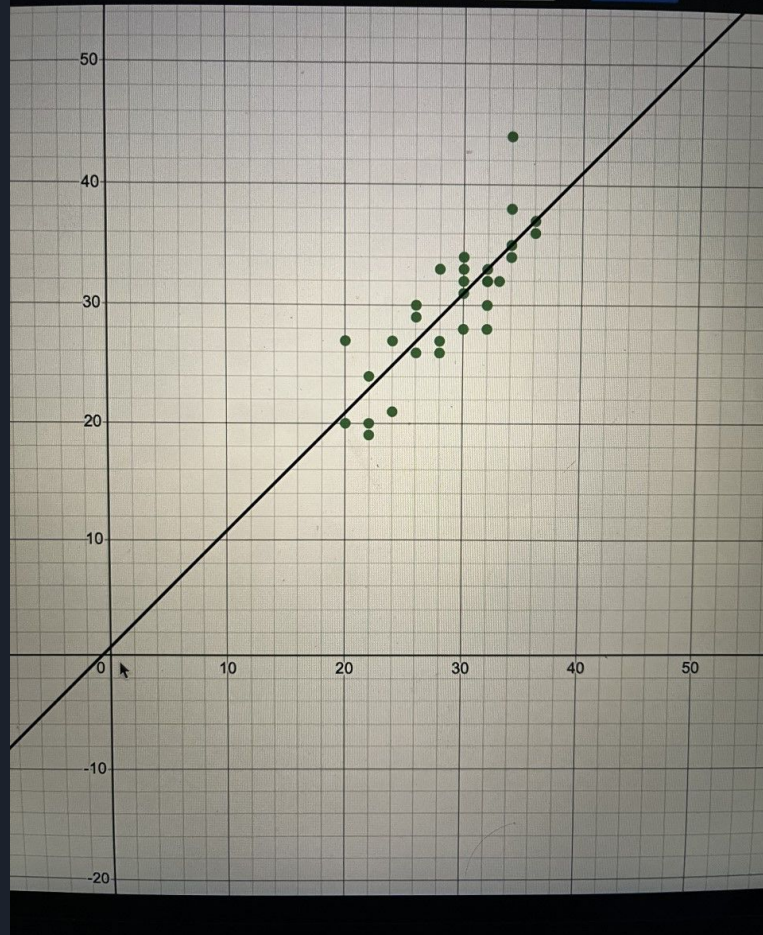
22	21.9
22	24
26	30
30	33
20	27 (prob wrong)
22	20
24	27
26	29
28	33
30	
20	20
22	19
24	21
26	26
28	27
30	28
32	32
34	34
36	37
30	31
32	28

OS

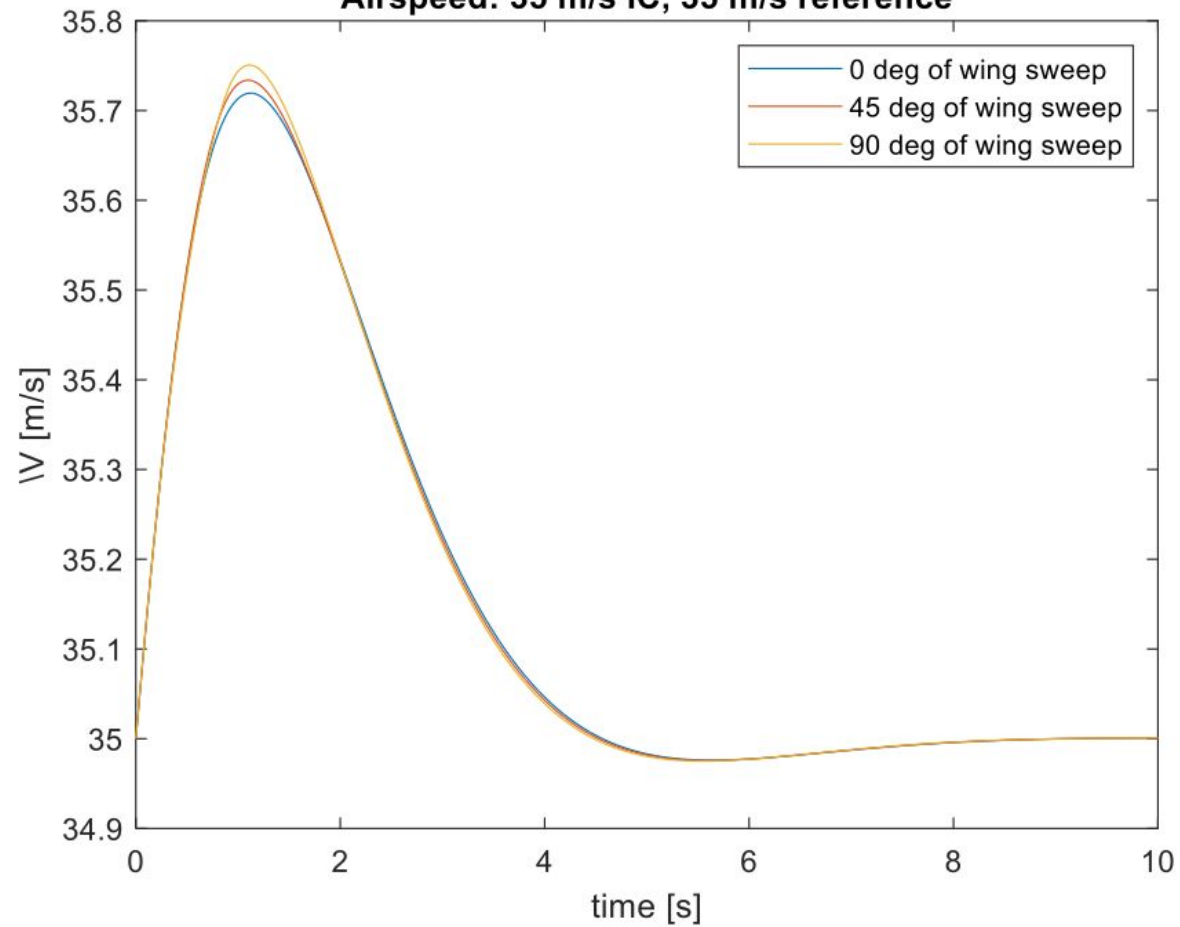
Log In

or

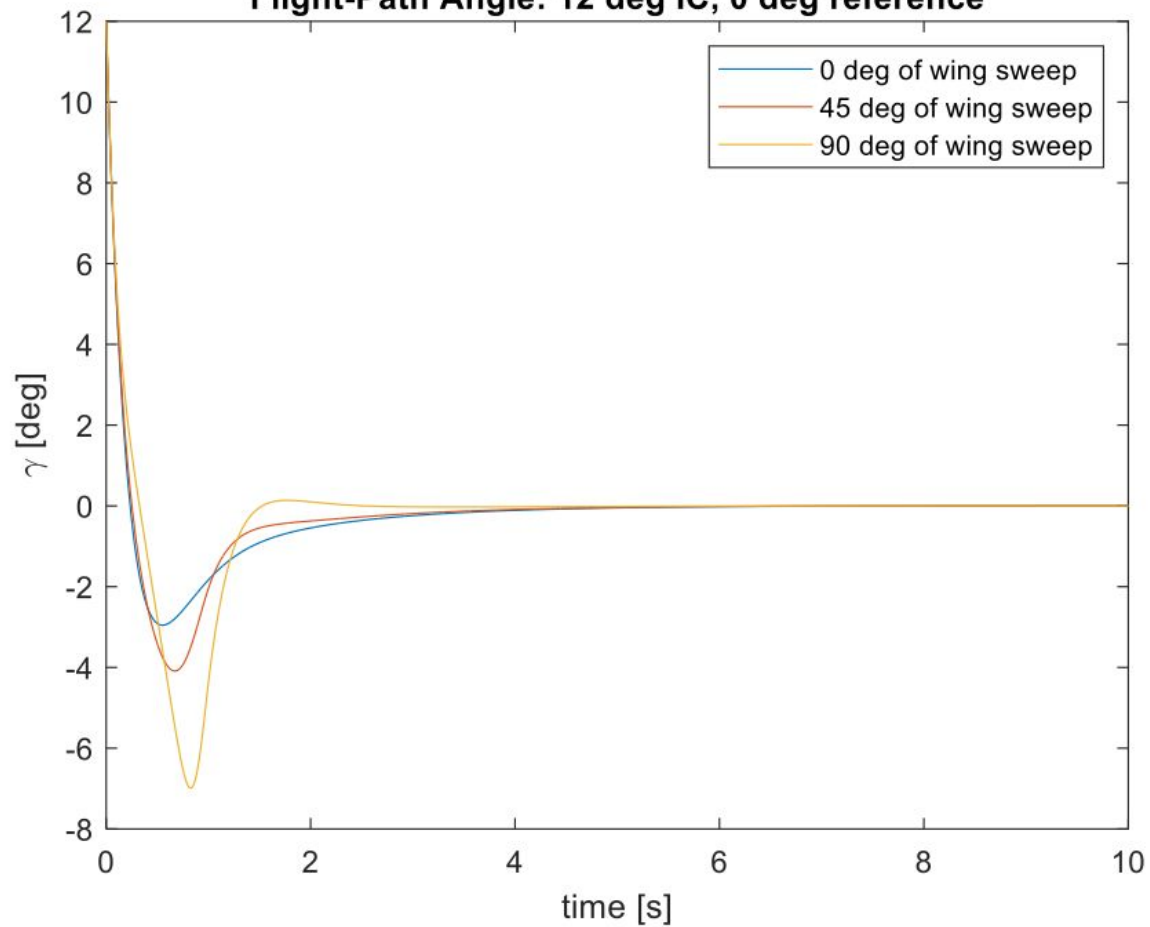
Sign Up



Airspeed: 35 m/s IC, 35 m/s reference



Flight-Path Angle: 12 deg IC, 0 deg reference

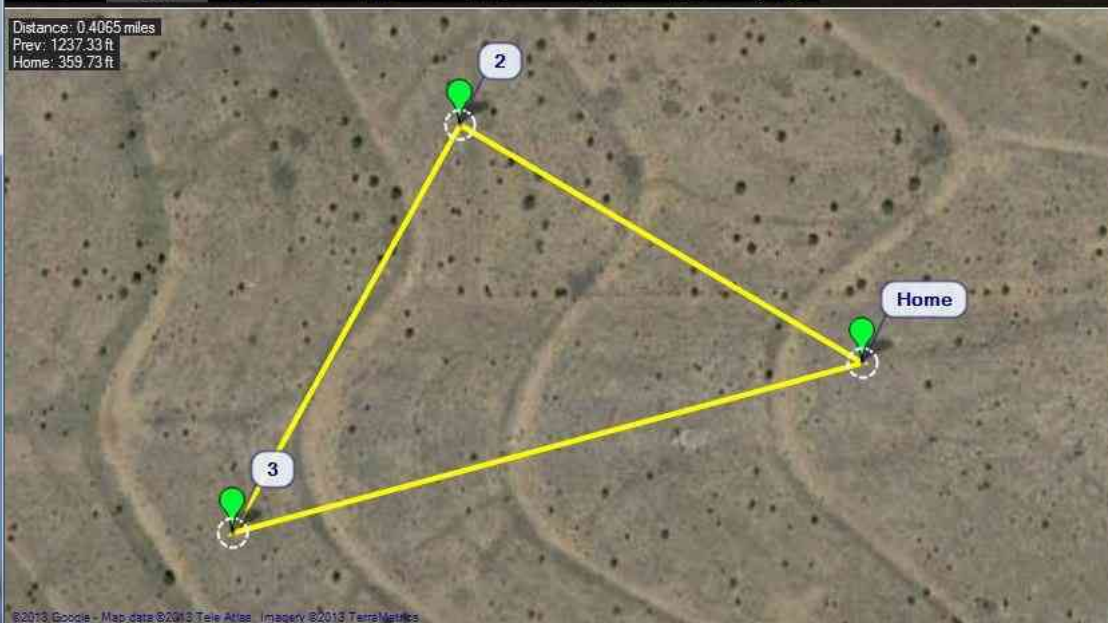


COM15

115200

CONNECT

Distance: 0.4065 miles
Prev: 1237.33 ft
Home: 359.73 ft



Zoom

Action

Mouse Location

Lat 35.13274633!

Long -106.2184381

Alt 2044

GoogleSatellite

Status: loaded tiles

Read WPs

Write WPs

Home Location

Lat 35.13229884!

Long -106.2195110

Alt (abs) 0

Waypoints

WP Radius: 40
Loiter Radius: 40
Default Alt: 100

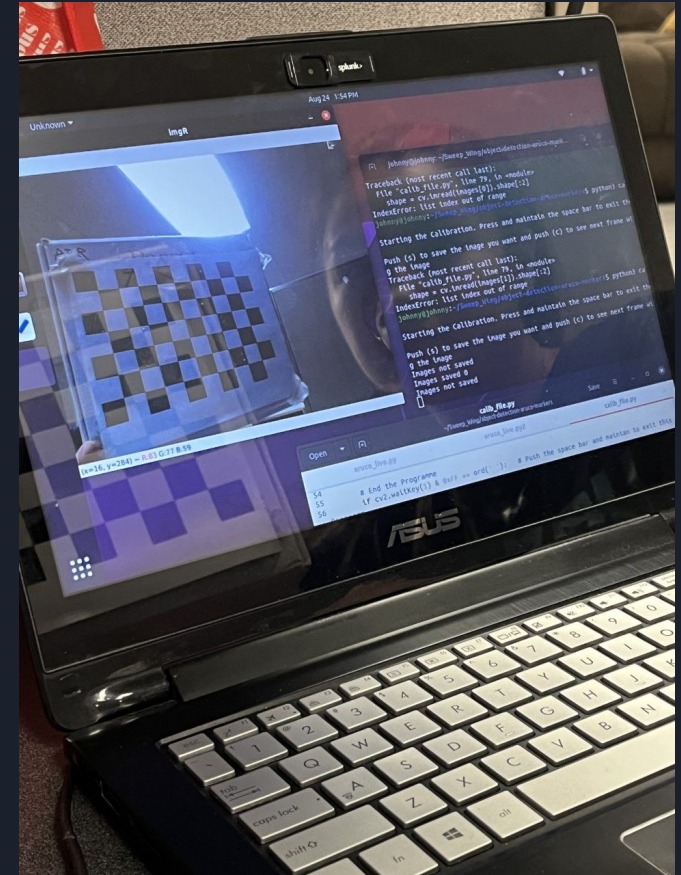
☐ Verify Height

Add Below

	Command	Delay	Hit Rad	Yaw Ang	Lat	Long	Alt	Delete	Up	Down	Grad
1	TAKEOFF	0	0	0	0	0	20	X	⬆	⬇	0
2	WAYPOINT	10	0	0	35.1331763	-106.2213349	100	X	⬆	⬇	51.9675196520121
3	WAYPOINT	0	0	0	35.1316671	-106.2223649	50	X	⬆	⬇	-26.0165085220058
4	RETURN_TO_LAUNCH	0	0	0	0	0	0	X	⬆	⬇	0

Procedures Learned

- How to use MATLAB
- How to use Open CV
- How to code in the terminal of a computer
- How to analyze real data with the best line of fit
- How to use Mission Planner





Mistakes Made and Lessons Learned

- Speaking up for myself
- No such thing as a dumb question
- Try it yourself before immediately asking for help



Acknowledgements

- Dr. Xu
- John Schmidt
- Ruth Quezada
- Lina Castano
- Dr. Krug!