

All terminals and outputs ↓

The screenshot shows a development environment with three main components:

- Qt Window:** Displays a semi-circular diagram with a red dot. Below it, a text box shows "angle: -120" and "filterd: 39.1021".
- Log Window:** Shows a list of log entries, each starting with "pulling CHEVY_FVP/angles.txt: 1 file pulled. 0.0 MB/s". A red circle highlights one entry, and the text "Qt's log" is written next to it.
- Terminal Window:** Displays a table of data. A red circle highlights one row, and the text "output from main program" is written next to it.

Below the terminal window, a "config file for tuning" is shown, listing various parameters and their values:

```

confidence_cc_threshold (double) 0.15
no_obvious_count_threshold (int) 100
target_band_ratio_threshold (double) 70
coherence_tolerance (double) 0.05
obvious_strict_sequence (double) 3
speed_attenuation_ratio (double) 0.99
tracking_speed_amplification (double) 3
Volume_threshold (double) 0.25
  
```

Main program output

chevy@chevy-virtual-machine: ~

Frame Number	Estimated theta	Short-time volume	Calculated PIAT-LRP	Target band ratio
##10903	Theta: 39.2	(+)0.43	(-)0.14	(+)76
##10904	Theta: 39.2	(+)0.37	(-)0.10	(+)81
##10905	Theta: 39.2	(+)0.40	(-)0.11	(+)86
##10906	Theta: 39.1	(+)1.28	(+)0.36	(+)99
##10907	Theta: 39.1	(+)1.38	(-)0.12	(+)94
##10908	Theta: 39.1	(+)0.49	(-)0.08	(+)86
##10909	Theta: 39.1	(+)0.33	(-)0.09	(+)95
##10910	Theta: 39.1	(+)0.36	(+)0.21	(+)95
##10911	Theta: 39.1	(+)0.39	(-)0.12	(+)98

frame number

estimated theta

short-time volume

calculated PIAT-LRP

target band ratio

"+" means there is a sound target

"-" means no target

"+" means larger than threshold

coherence

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How to tune parameters?

1	confidence_CC_THRESHOLD (double)	The threshold for calculated PHAT-SRP
2	0.15	
3		
4	no_obvious_count_threshold (int)	If 100 continuous measurement does not satisfy the 4 threshold, then give up the current target
5	100	
6		
7	target_band_ratio_threshold (double)	only target-band-energy ratio > 70 can be used
8	70	
9		
10	coherence_tolerance (double)	Smaller coherence-tolerance means the sudden change of the measurement have high possibility to be regarded as good measurement (set it to negative if you does not use it)
11	0.05	
12		
13	obvious_strict_sequence (double)	Continuously meeting the threshold requirements for 3 times can be regarded as a valid new target for tracking
14	3	
15		
16	speed_attenuation_ratio (double)	If the measurement does not satisfy the threshold, make the speed = $0.99 \times \text{speed}$ for kalman.
17	0.99	
18		
19	tracking_speed_amplification (double)	Multiply the KF estimated speed with 3
20	3	
21		
22	Volume_threshold (double)	The threshold for the short-time volume of a frame of data
23	0.25	
24		
25	Passband_Low (double)	define target band (Hz)
26	100	
27		
28	Passband_High (double)	
29	50000	
30		
31	reference_angle (double)	Ignore !!!
32	20	
33		
34	train_path (string)	Only for offline testing)
35	../sound_data/48000Hz_report/small_room/20s_60-60_small_room.wav	