

Assignment I: Optimal Airbag Deployment

Course: Advanced Econometrics

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Airbag deployment test results for first 5 vehicles (No crash)

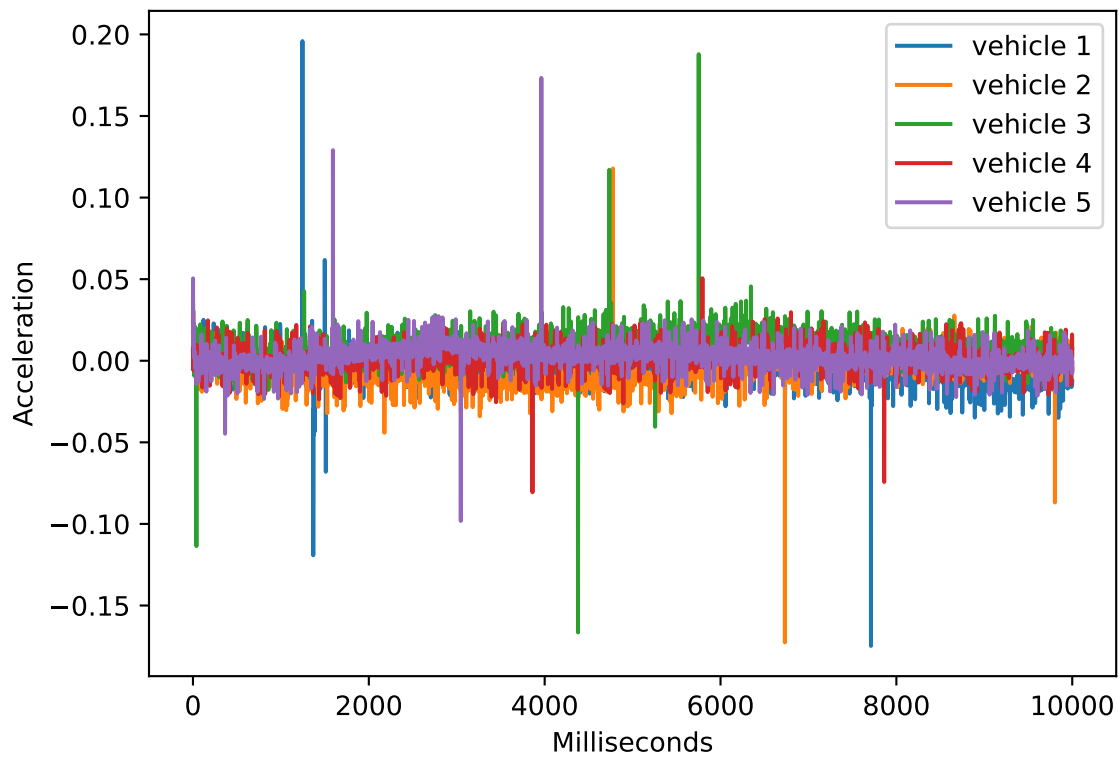


Figure 1: Data on acceleration per millisecond for the first 5 vehicles that experienced no crash

Airbag deployment test results for last 5 vehicles (crashed)

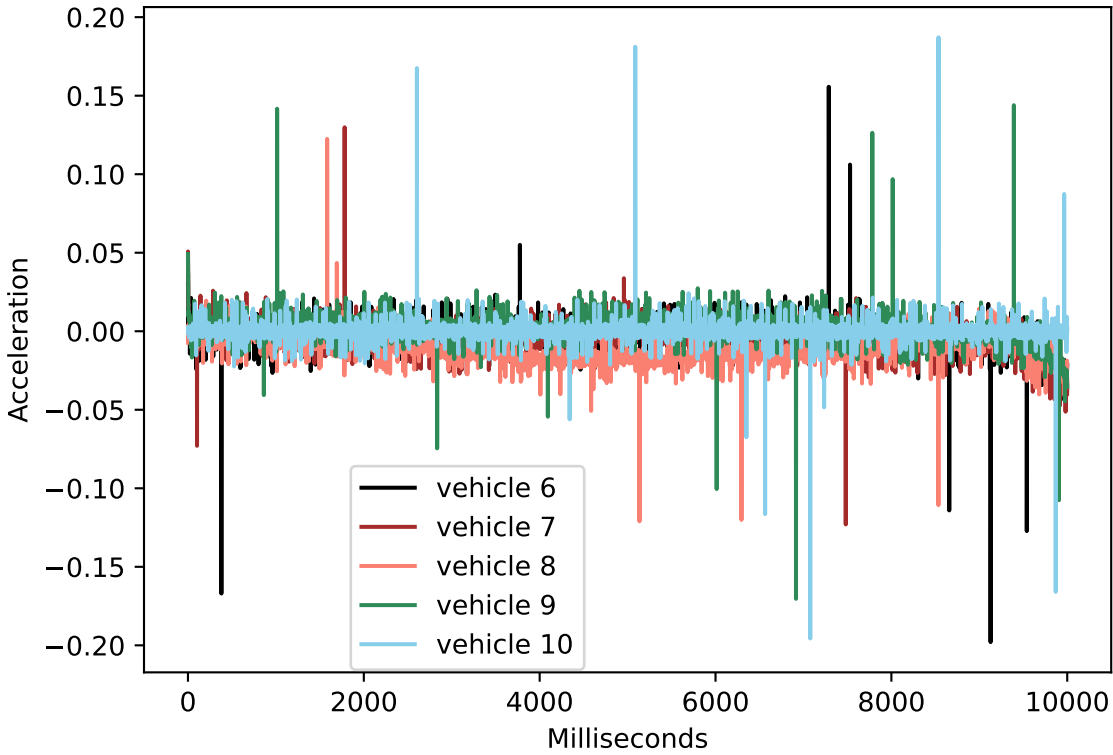


Figure 2: Data on acceleration per millisecond for the last 5 vehicles that experienced a crash

Airbag deployment test results for 10 vehicles (Signal A)

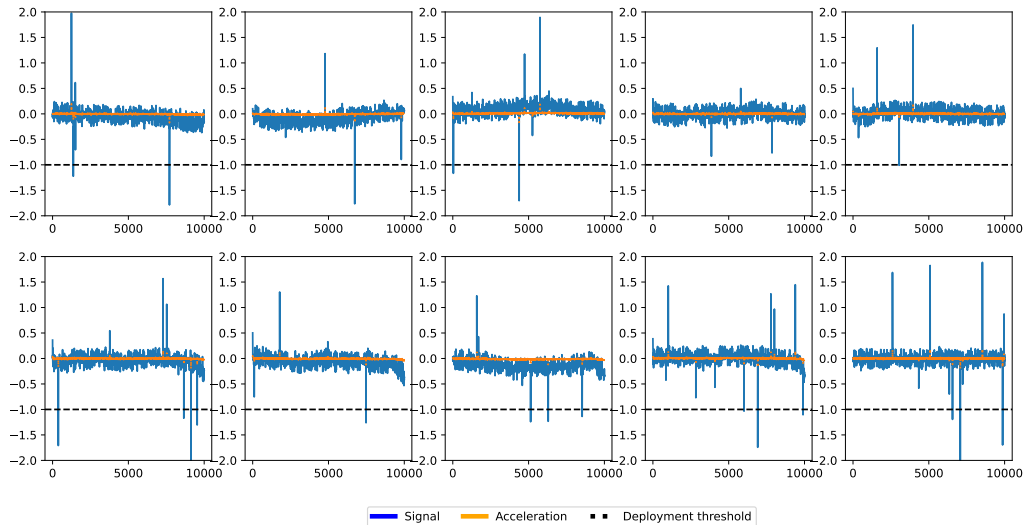


Figure 3: Shows raw accelerometer data (orange) and signal (blue), and threshold value (dashed black), for all ten cars in the experiment. Taking into account that the first five vehicles did not experience a crash, and the last five vehicles did, we see that for most of them, the signal surpasses the threshold, resulting in the airbag being employed. We can conclude therefore that the signal performs poorly and employs the airbag when it shouldn't, which can be very dangerous for the driver

Airbag deployment test results for 10 vehicles (Signal B)

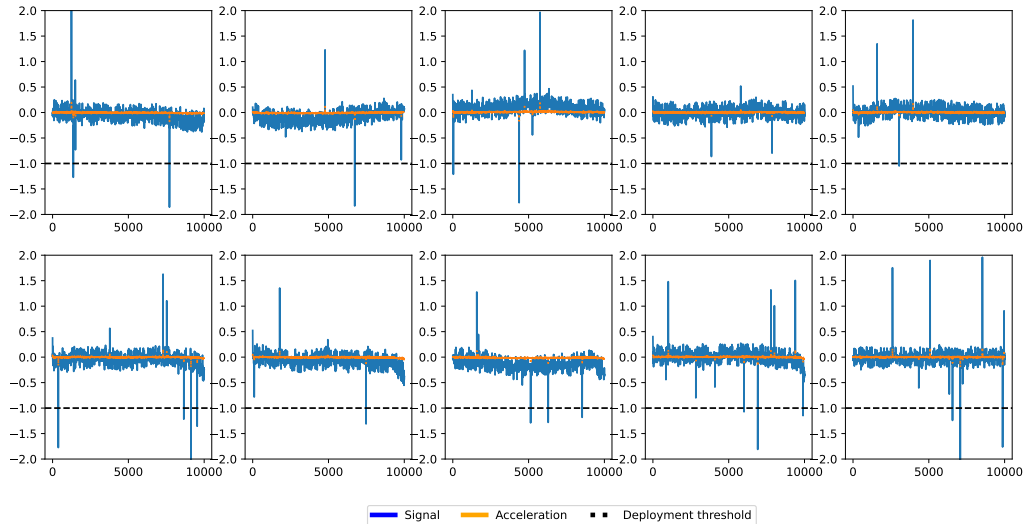


Figure 4: Shows the result for filter B, similarly as the previous filter, it does not perform well, employing the airbag when it shouldn't

Airbag deployment test results for 10 vehicles (Signal C)

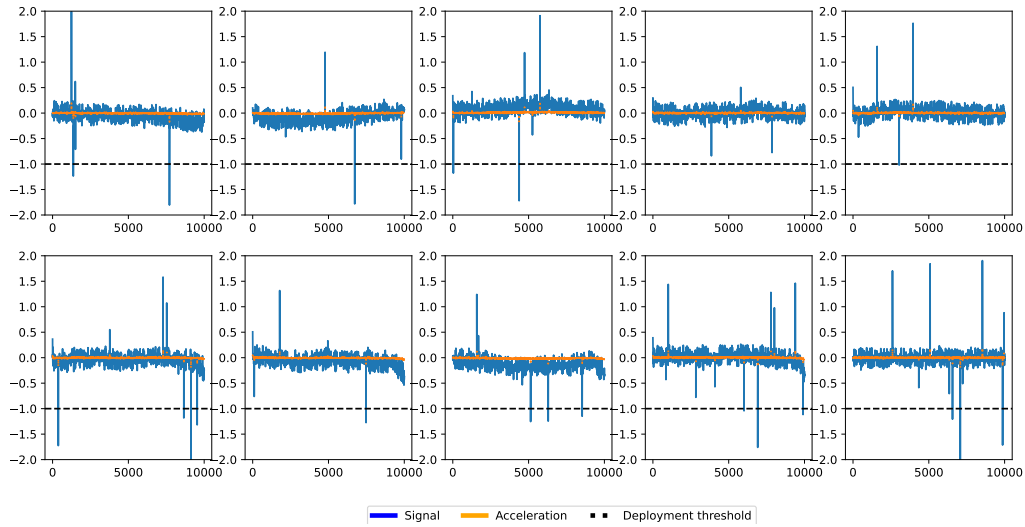


Figure 5: Filter C does also not perform well, and is similar to the previous two filters