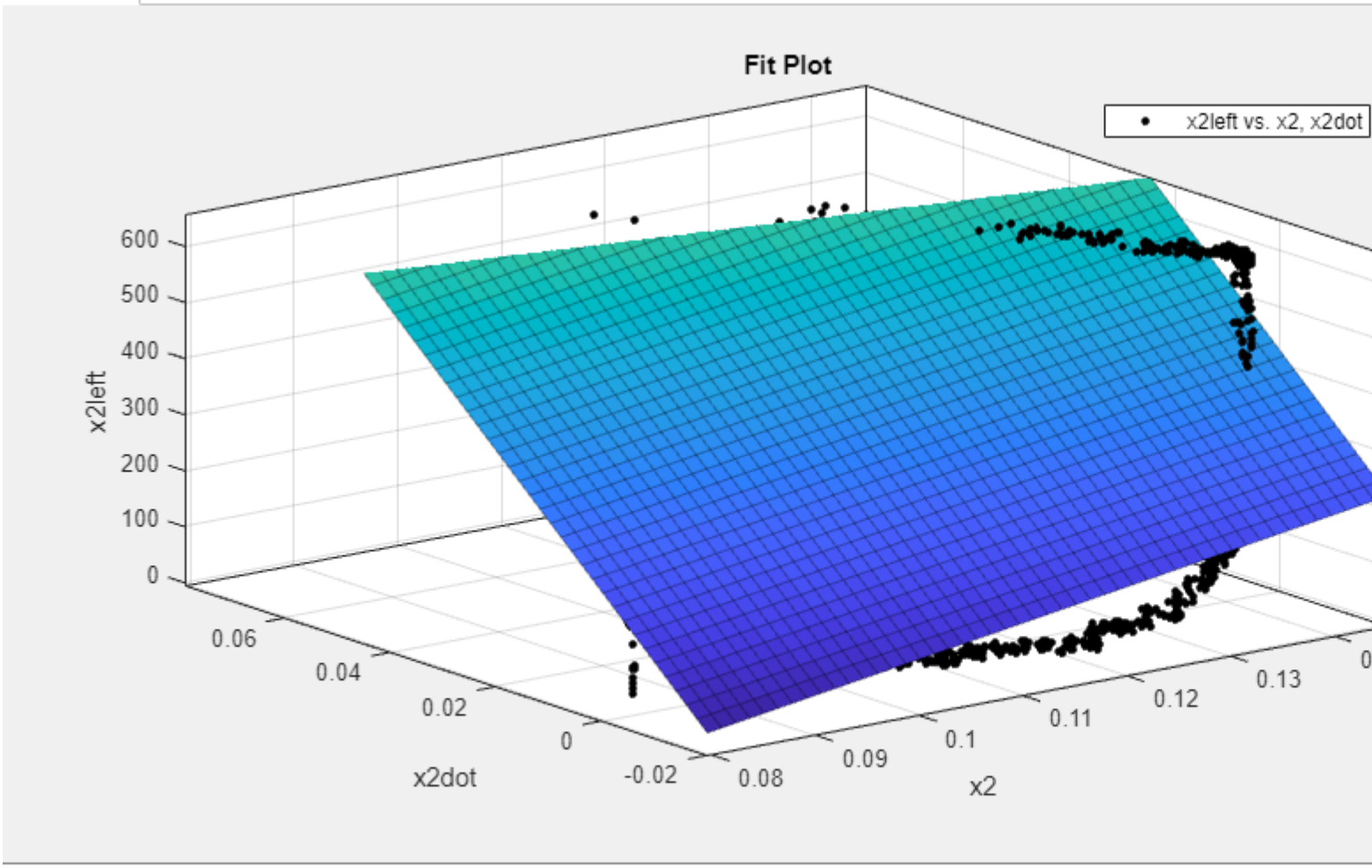
Major changes:

- We modify the EOM by using the measured contact area and length of level arm, so that only K and D matrix needs to be estiamted.

- The updated quation is :
- $M\ddot{q} + C\dot{q} + G = TF_{pm} - Kq - D\dot{q}$,
- $TF_{pm} = [\tau_1, f_1, \tau_2, f_2]^T$
- For i th segment, $\tau_i = (pm_{i1} - pm_{i2}) * Area * levelarm, f_i = (pm_{i1} + pm_{i2} + 2 * pm_{i3}) * Area$
- We directly apply simple curve fiiting for the elongation data and the result are as follows:(no filter for position, 10pts for vel and acc signals)



ble Of Fits

Fit name	Data	Fit type	R-square	SSE	DFE	Adj R-sq	RMSE	# Coeff	Validation D
untitled fit 1	x2left v...	a*x+b*y	0.41945	1.0304e+08	2402	0.41921	207.12	2	

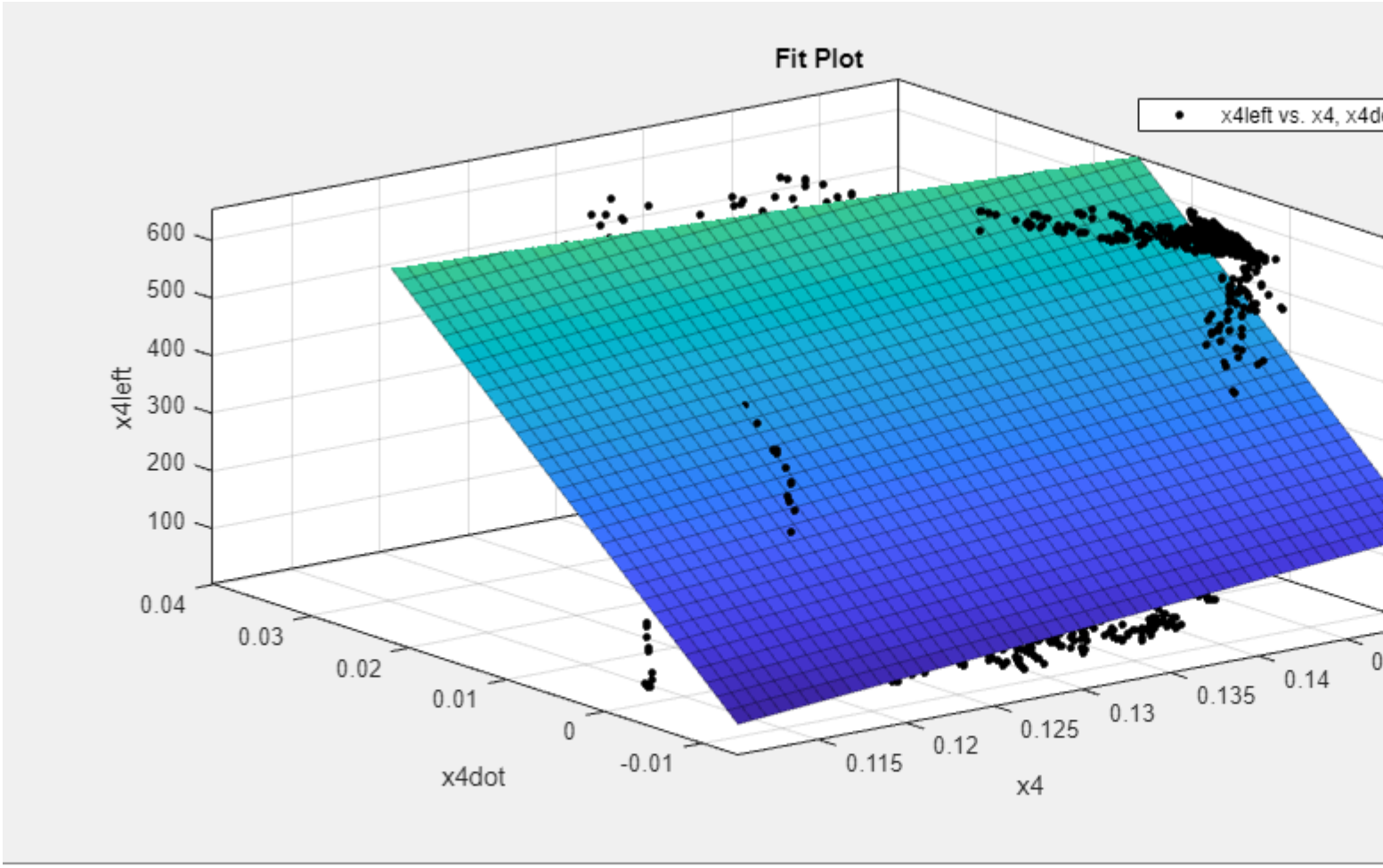


Table Of Fits

	Fit name	Data	Fit type	R-square	SSE	DFE	Adj R-sq	RMSE	# Coeff	Validatio
✓	untitled fit 1	x4left v...	a*x+b*y	0.30842	1.2195e+08	2402	0.30813	225.32	2	

Observation and more test plan:

- The new assumption gives promising 0.4 and 0.3 R-square value, and both give positive values.
- This is only elongation test so I didnt do the bending identification but my plan is collecting more data tomorrow.
- With more experiment data, we might get a mean value of all and use that as a baseline model.
- I could also try the matlab compare funtion to check the model accuracy between the mean value model and experimental data.