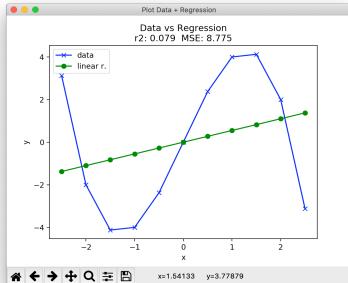


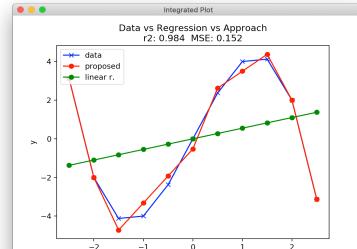
Example 5: Solving cubic function $y = -x^3 + 5x$ with SML Algorithm applied recursively one time.

Solving twice with SML with left = LinearRegression and right=LinearRegression



x	y
-2.5	3.13
-2	-2.00
-1.5	-4.13
-1	-4.00
-0.5	-2.38
0	0.00
0.5	2.38
1	4.00
1.5	4.13
2	2.00
2.5	-3.13

$y = -x^3 + 5x$



Solution:

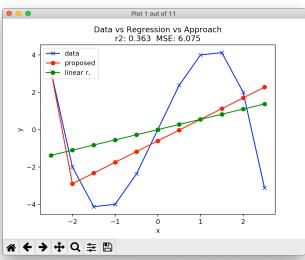
Algorithm applied twice (1 recursion)

Output: 4 linear regressions (1st cut off $X[:,0] \leq 0$)

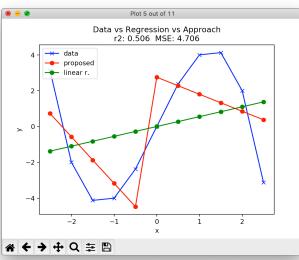
Cut off left: $X[:,0] \leq -2$ Cut off right: $X[:,0] \leq 1.5$

r2 from 0.079 to 0.984

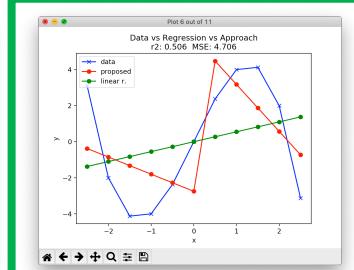
First Run (only for iterations shown):



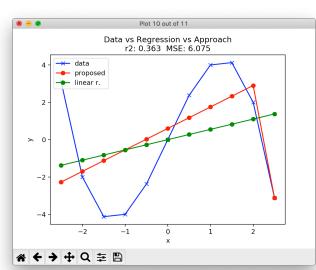
Iteration 1
r2: 0.363



Iteration 5
r2 = 0.506

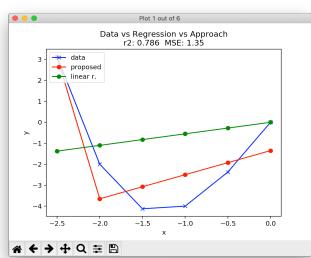


Iteration 6 (BEST)
r2: 0.506
cut point: x <= 0.0

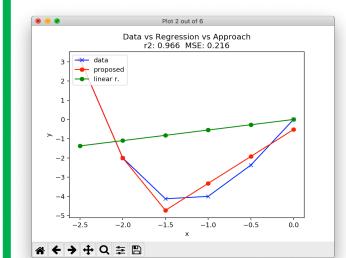


Iteration 10
r2: 0.363

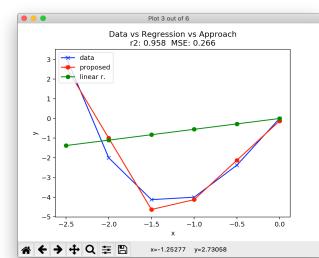
Recursion 1: 'left' side:



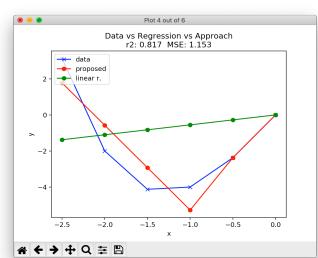
Iteration 1
r2: 0.786



Iteration 2 (BEST)
r2: 0.966
cut point: x <= -2

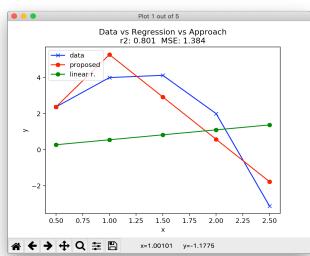


Iteration 3
r2: 0.958

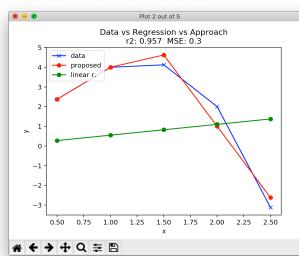


Iteration 4
r2: 0.817

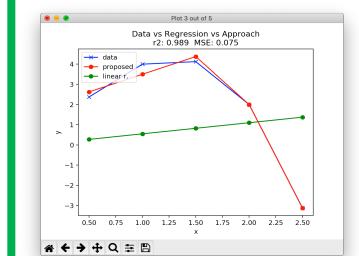
Recursion 1: 'right' side:



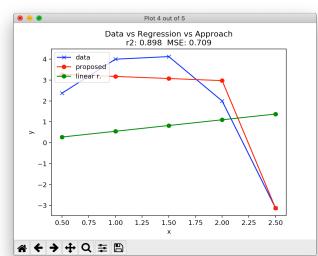
Iteration 1
r2: 0.801



Iteration 2
r2: 0.957



Iteration 3 (BEST)
r2: 0.989
cut point: x <= 1.5



Iteration 4
r2: 0.898