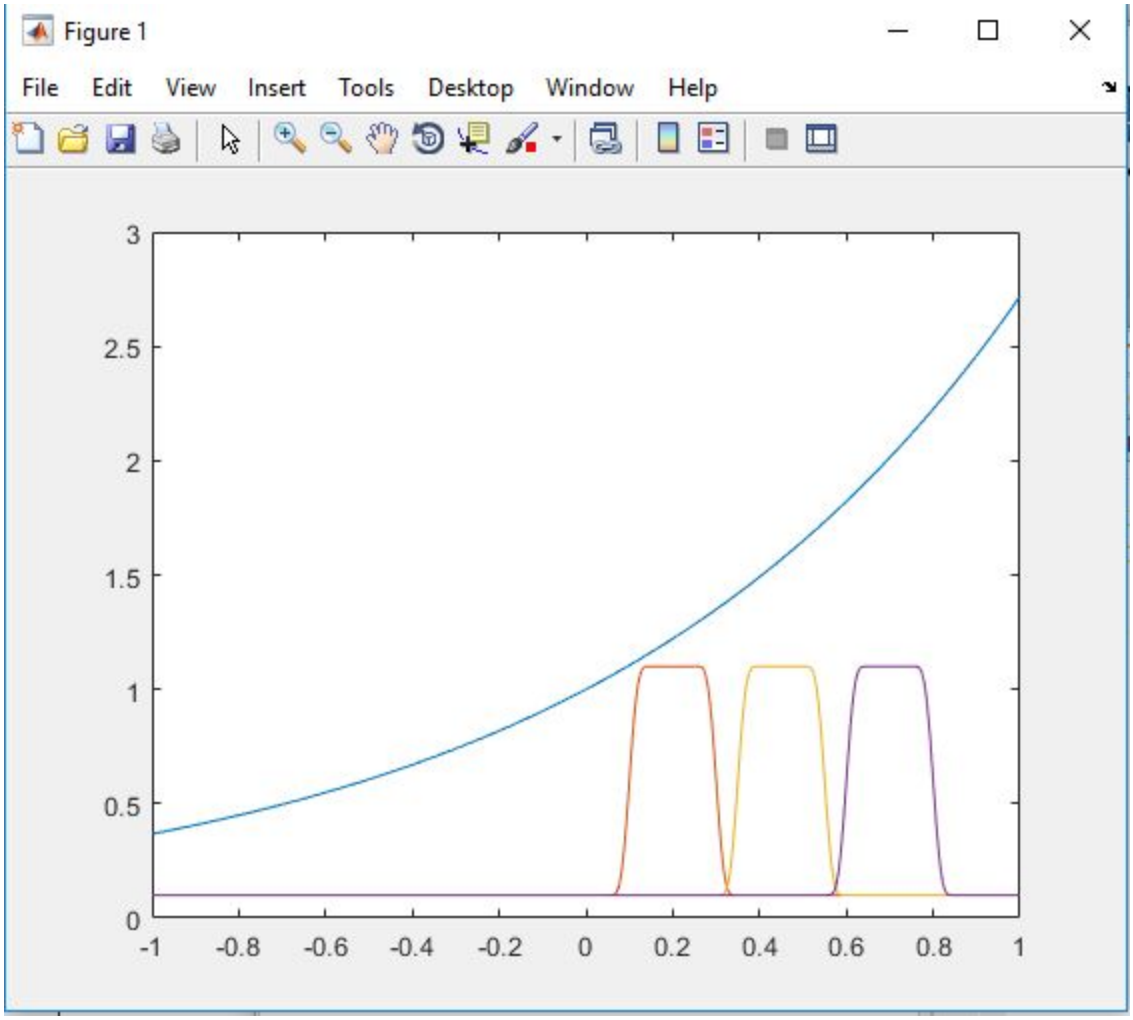
Yingjie Lian
Assignment 01
CS-3200
02.02.2018

Assignment 01 Report

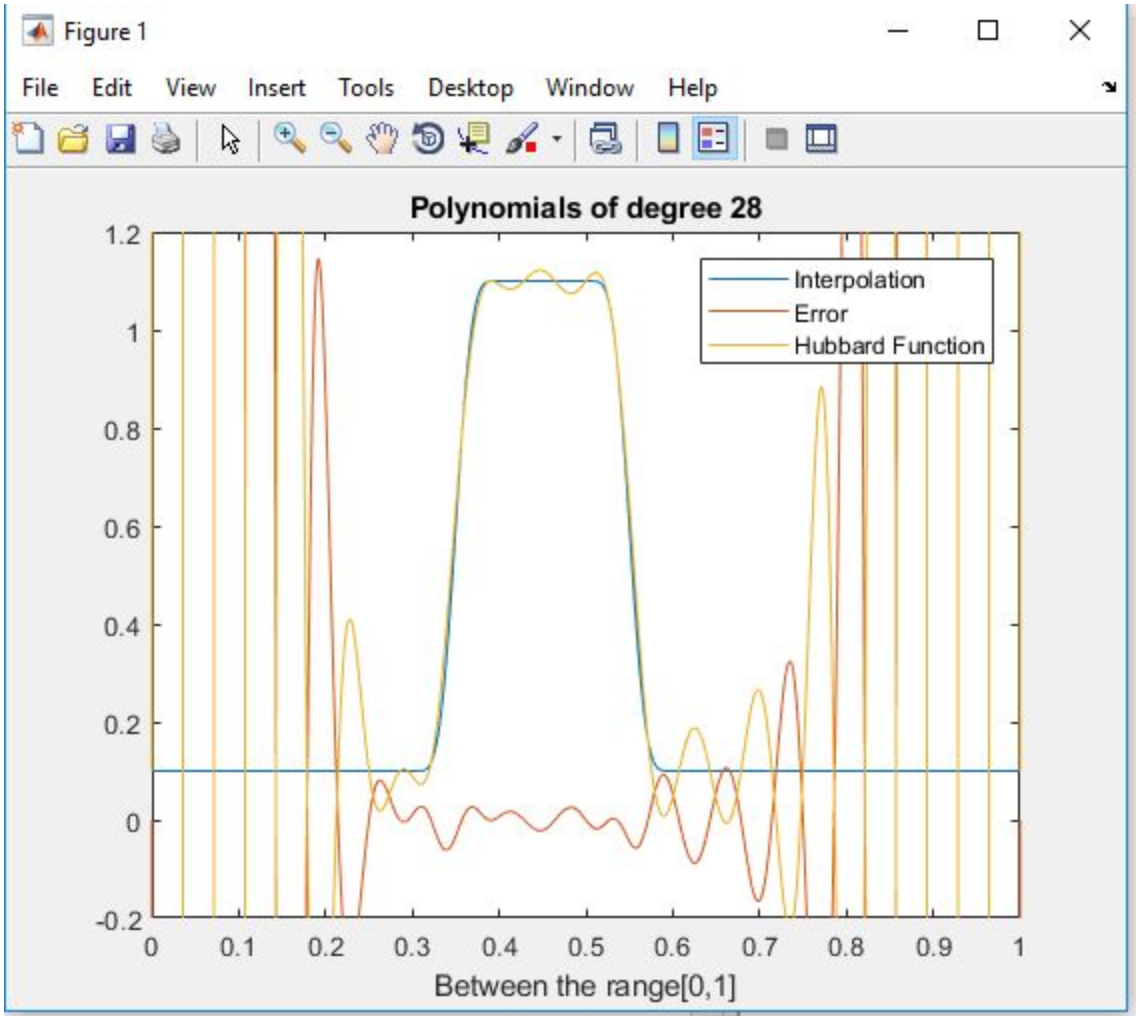
In my matlab files, those are called programs are my source code. And the readme notes are in the matlab file too. I wrote those readme files as comments.

1.

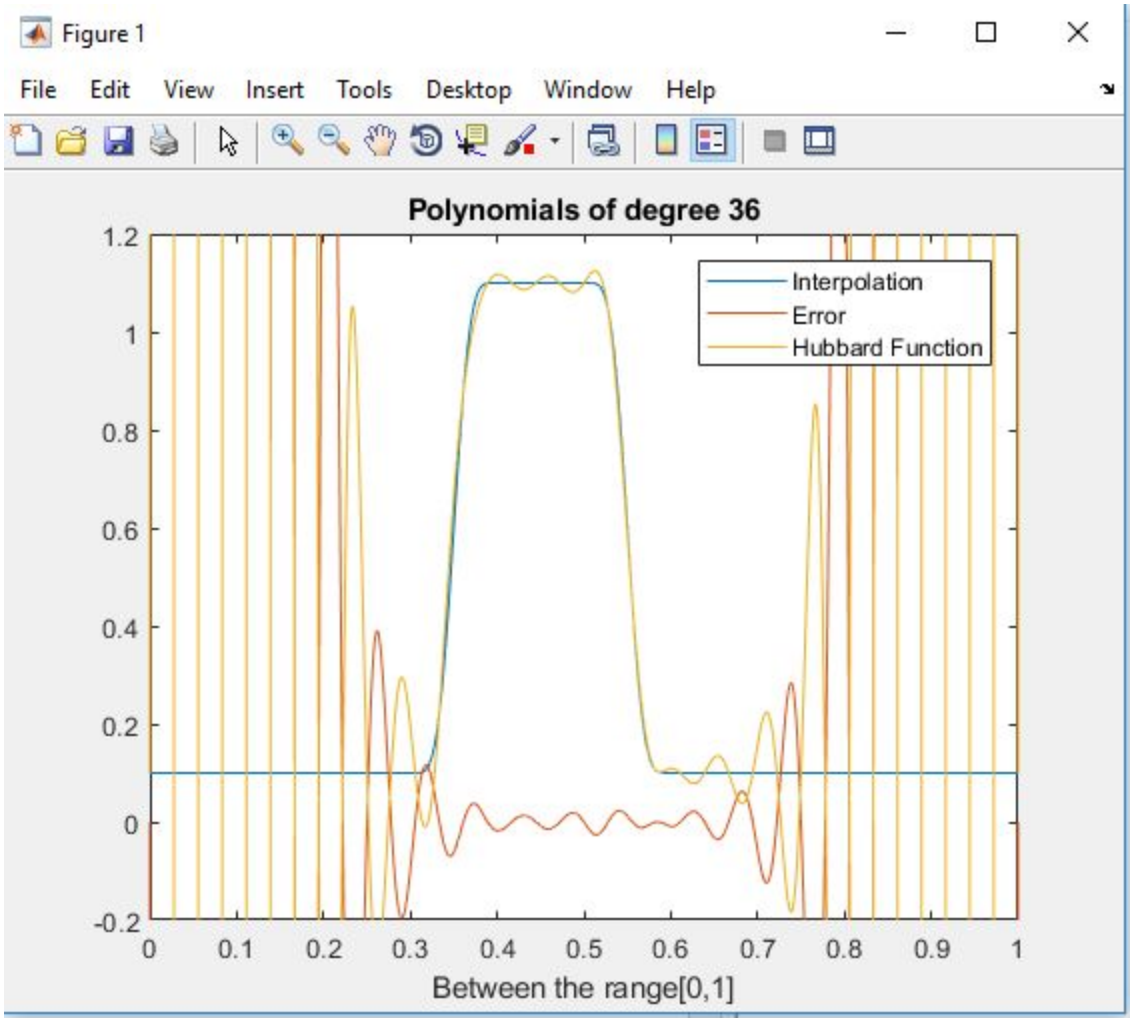


Here are the figure that I got for the first question. I combined the exponential function and the "Hubbard" equation function. The blue line is the figure of the exponential function. The red, yellow, and the purple are the figures of when t is 0.1, 0.25 and 0.5 "Hubbard" equation function. We can see that, the time increases then the figure will move to the right along the x-axis.

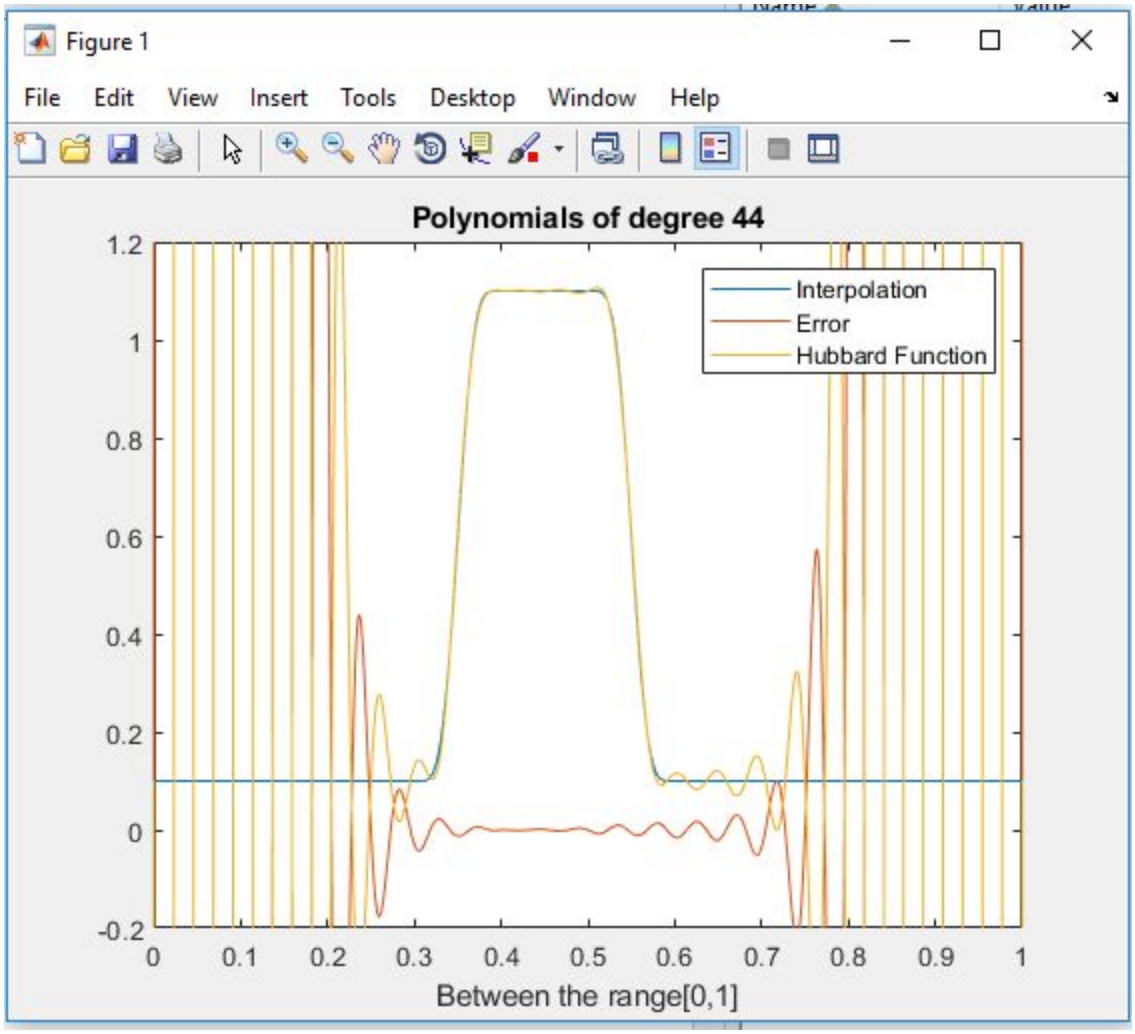
2.



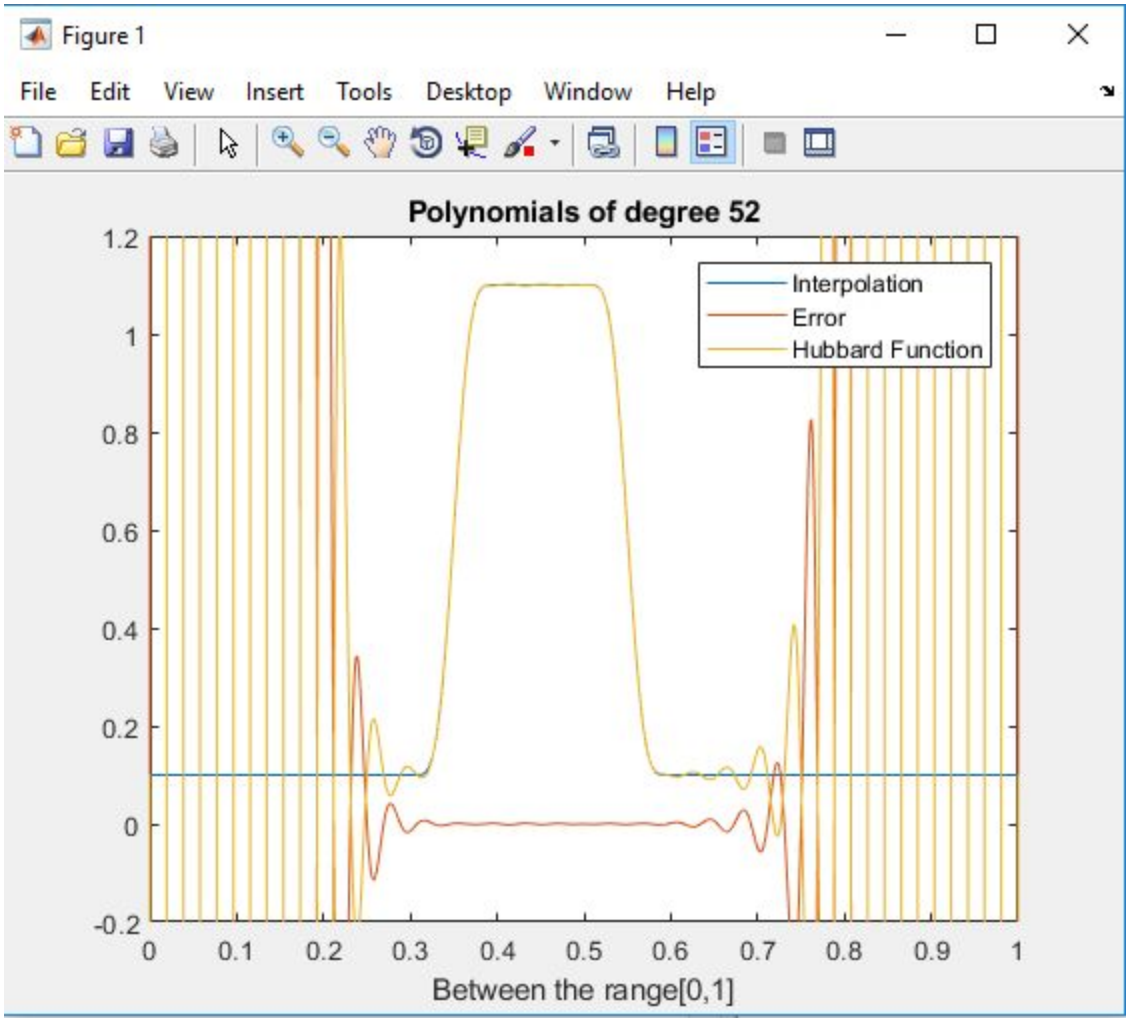
The above graph is when degree is 28. The yellow line represents hubbard function, the blue line represents polyinterp function, and the red line represents error. The range is from x[0, 1].



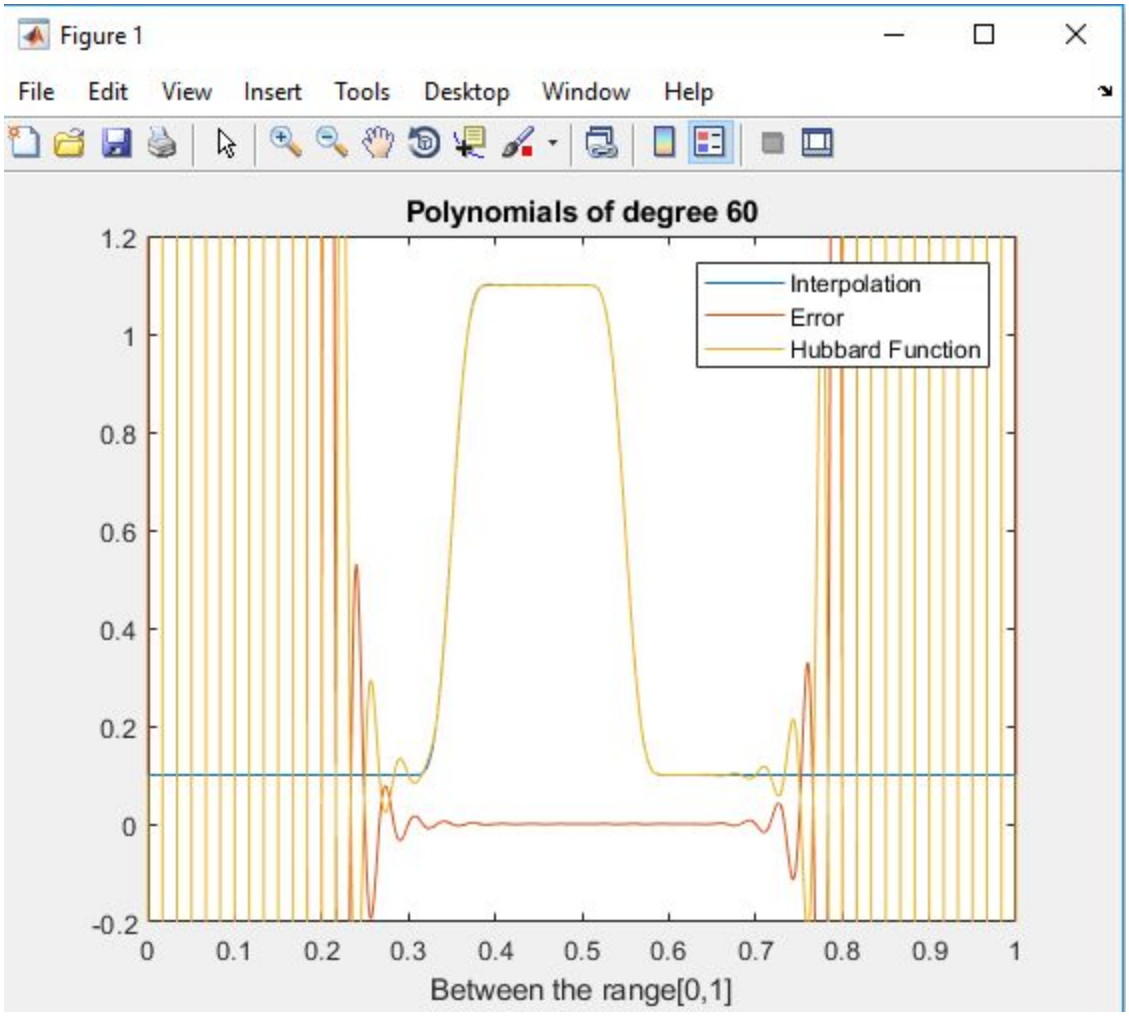
The above graph is when degree is 36. The yellow line represents hubbard function, the blue line represents polyinterp function, and the red line represents error. The range is from x[0, 1].



The above graph is when degree is 44. The yellow line represents hubbard function, the blue line represents polyinterp function, and the red line represents error. The range is from x[0, 1].



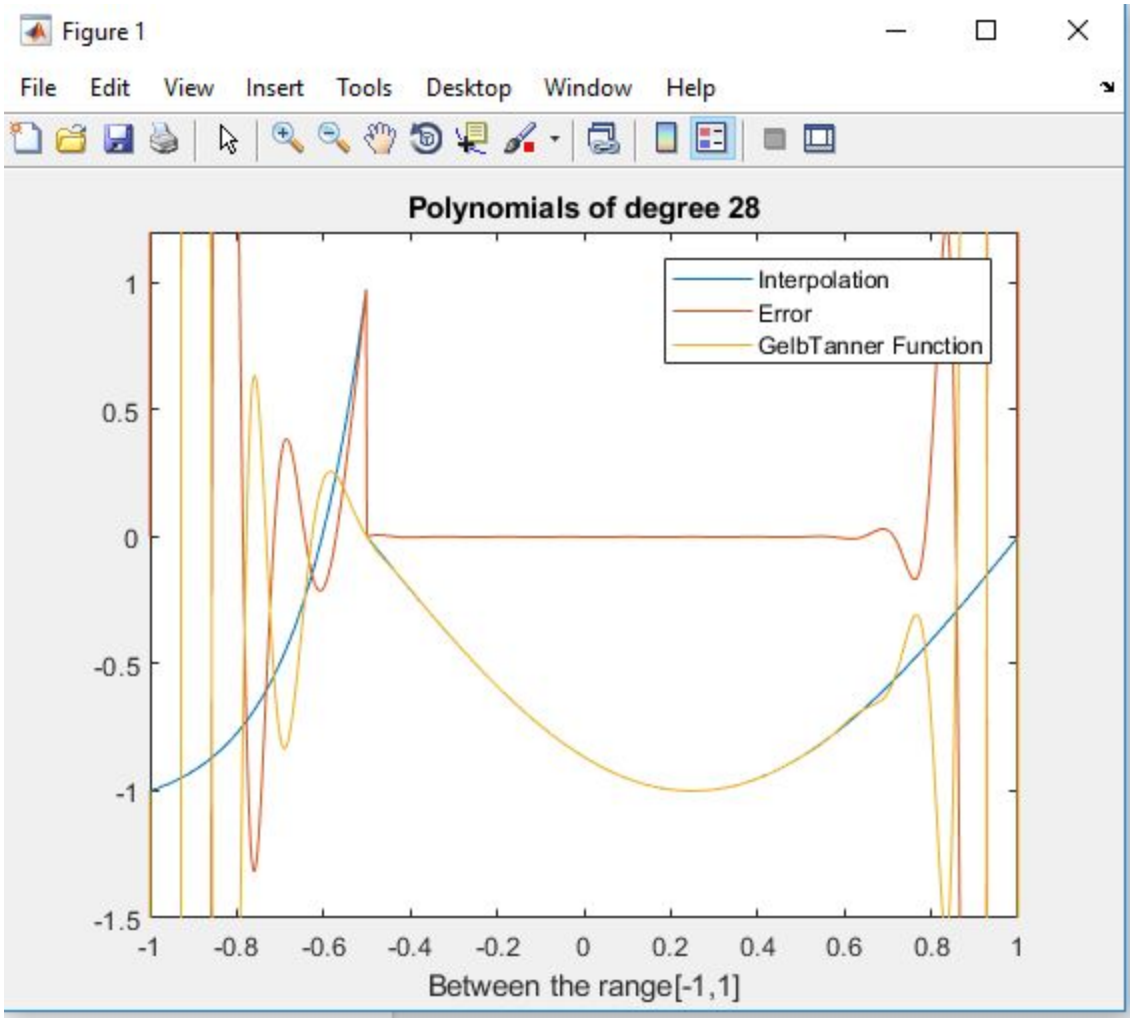
The above graph is when degree is 52. The yellow line represents hubbard function, the blue line represents polyinterp function, and the red line represents error. The range is from x[0, 1].



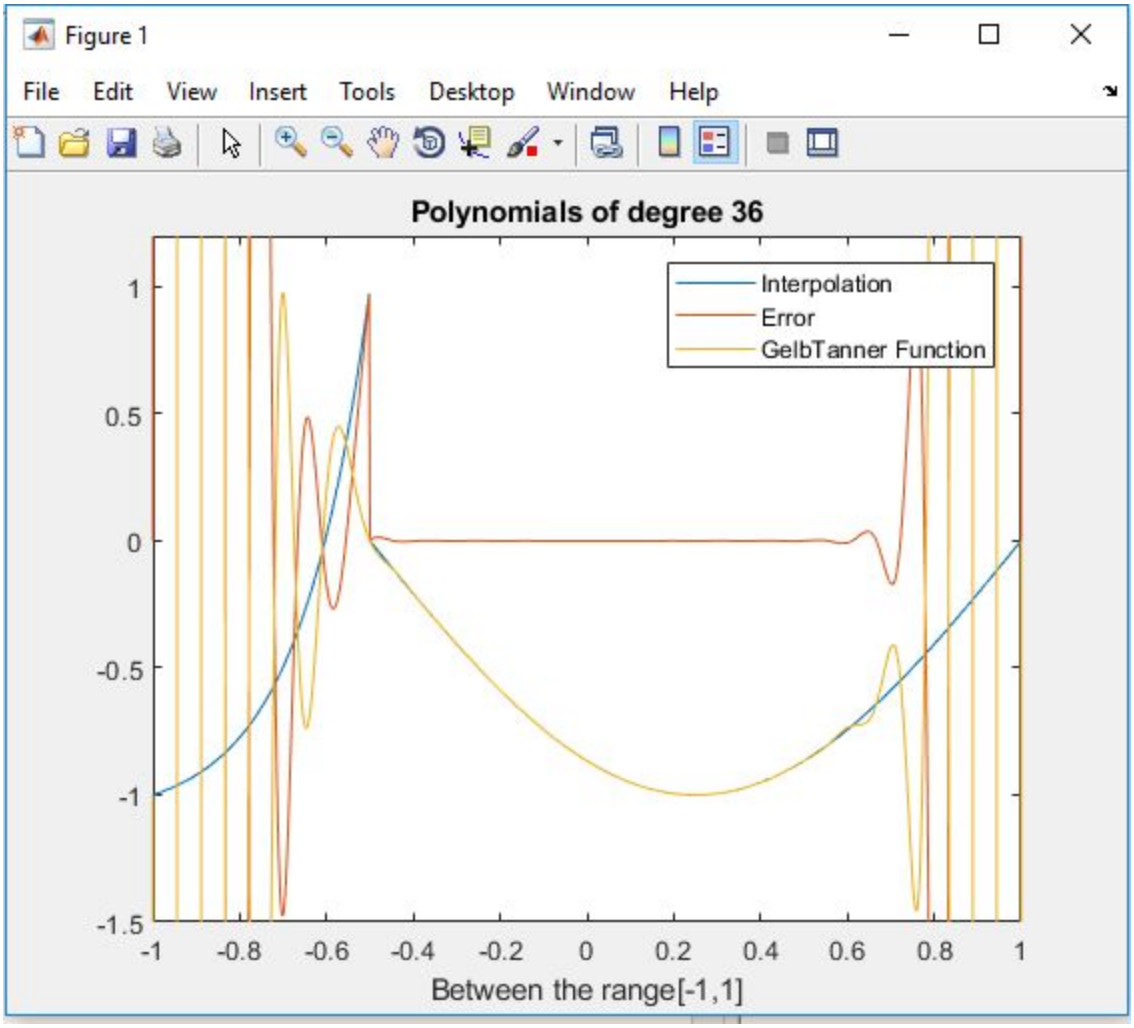
The above graph is when degree is 60. The yellow line represents hubbard function, the blue line represents polyinterp function, and the red line represents error. The range is from x[0, 1].

Base on those graphs, we can conclude that when the degree are getting higher, the two lines are getting closer and less error.

3.



The above graph is when degree is 28. The yellow line represents GelbTanner Function, the blue line represents polyinterp function, and the red line represents error. The range is from x[-1, 1]..



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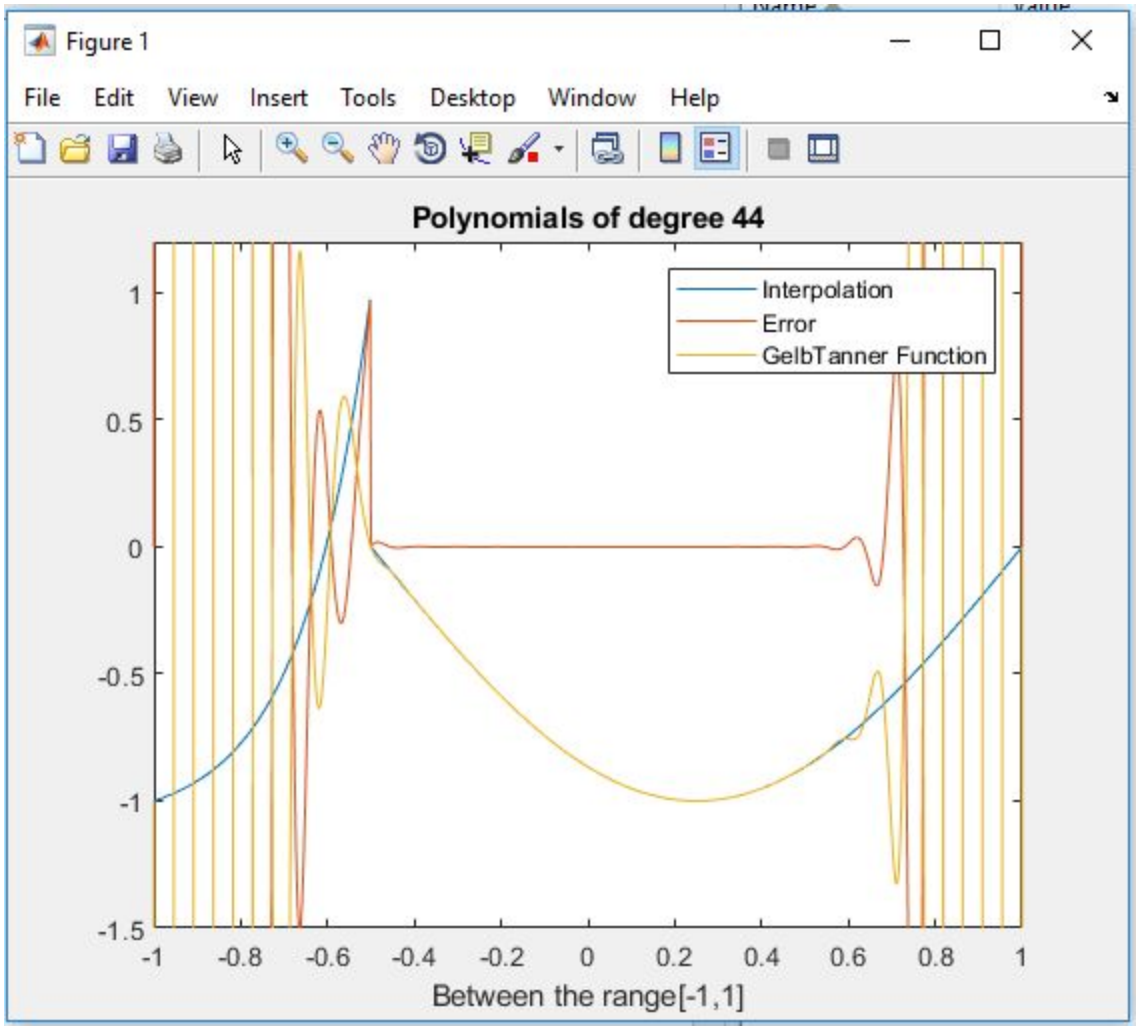

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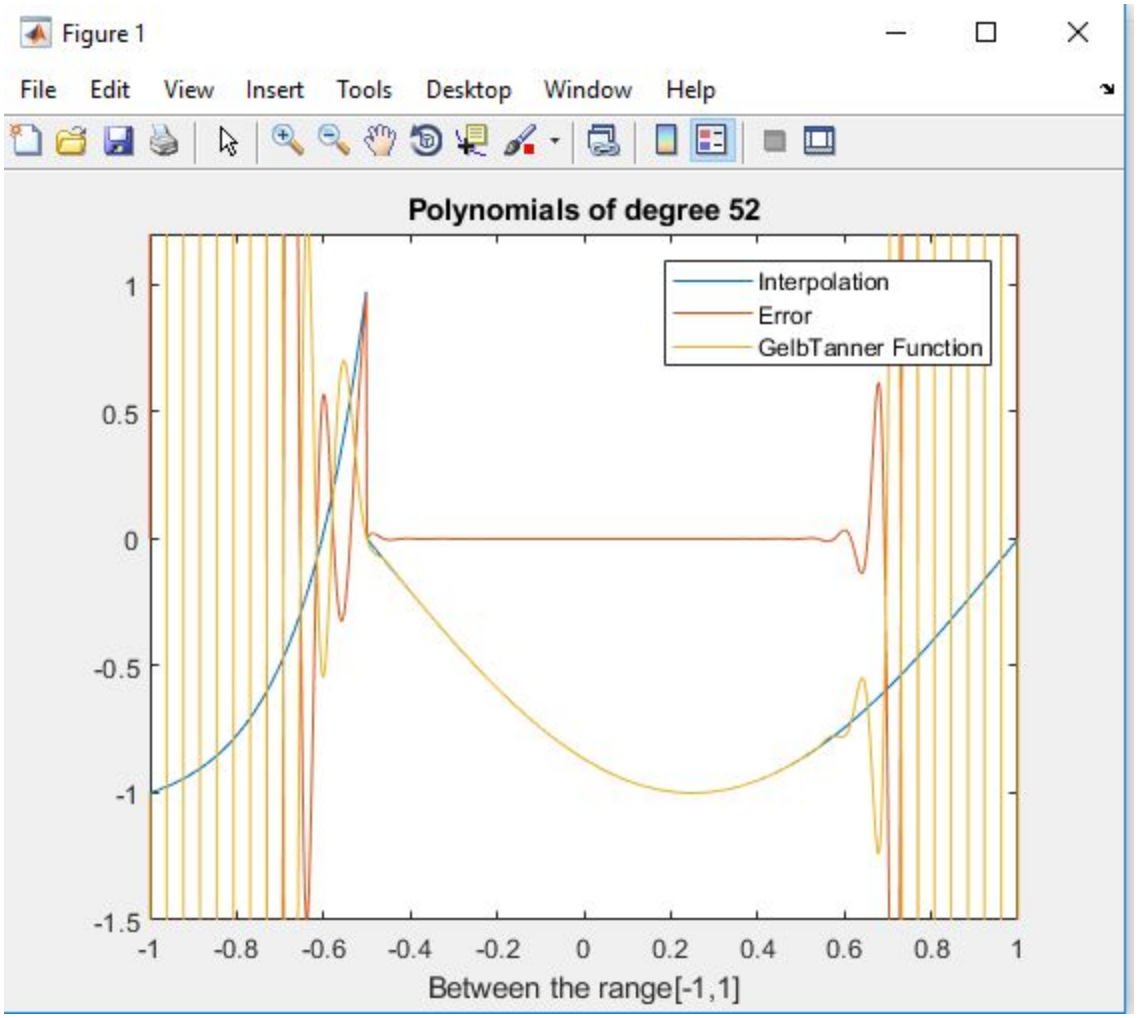

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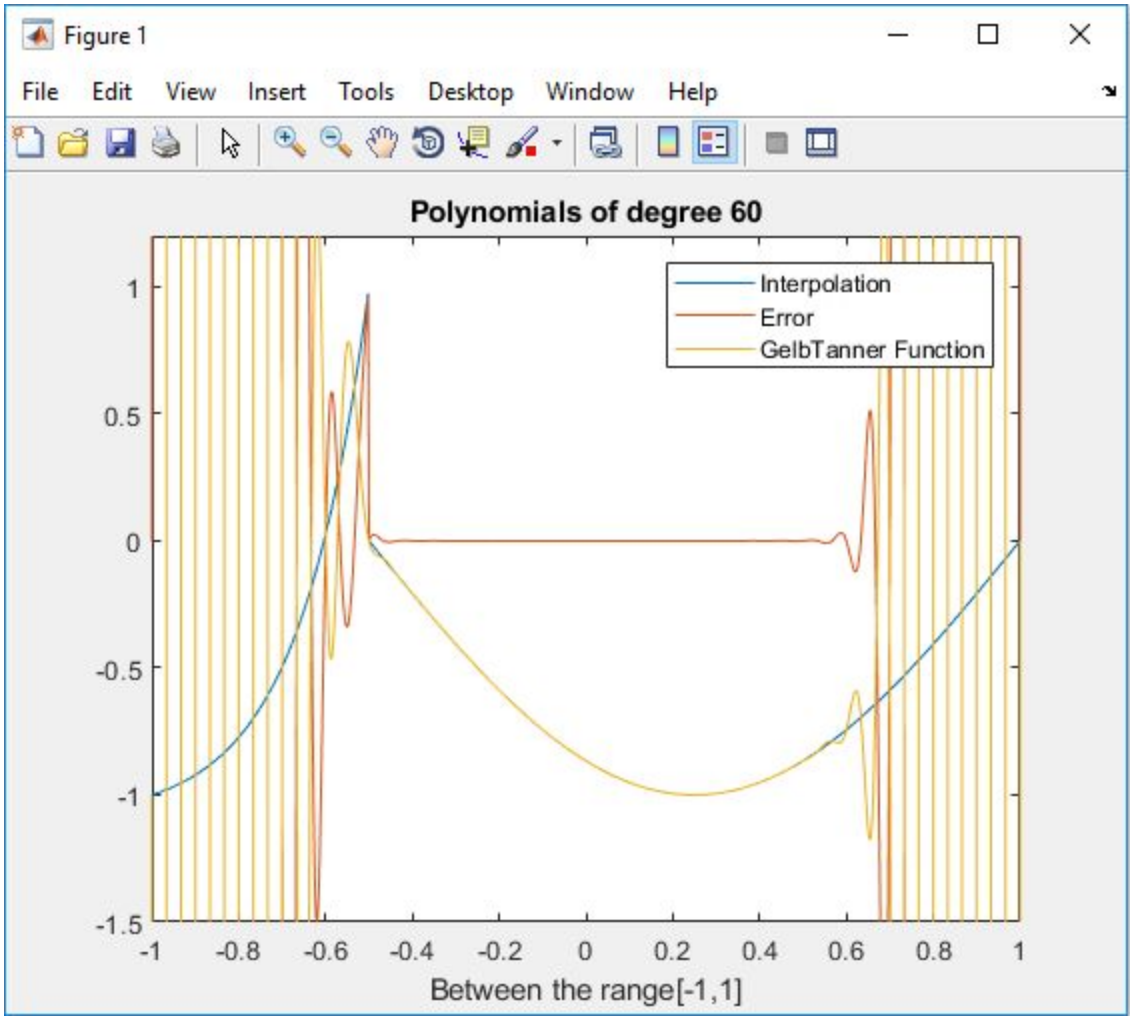

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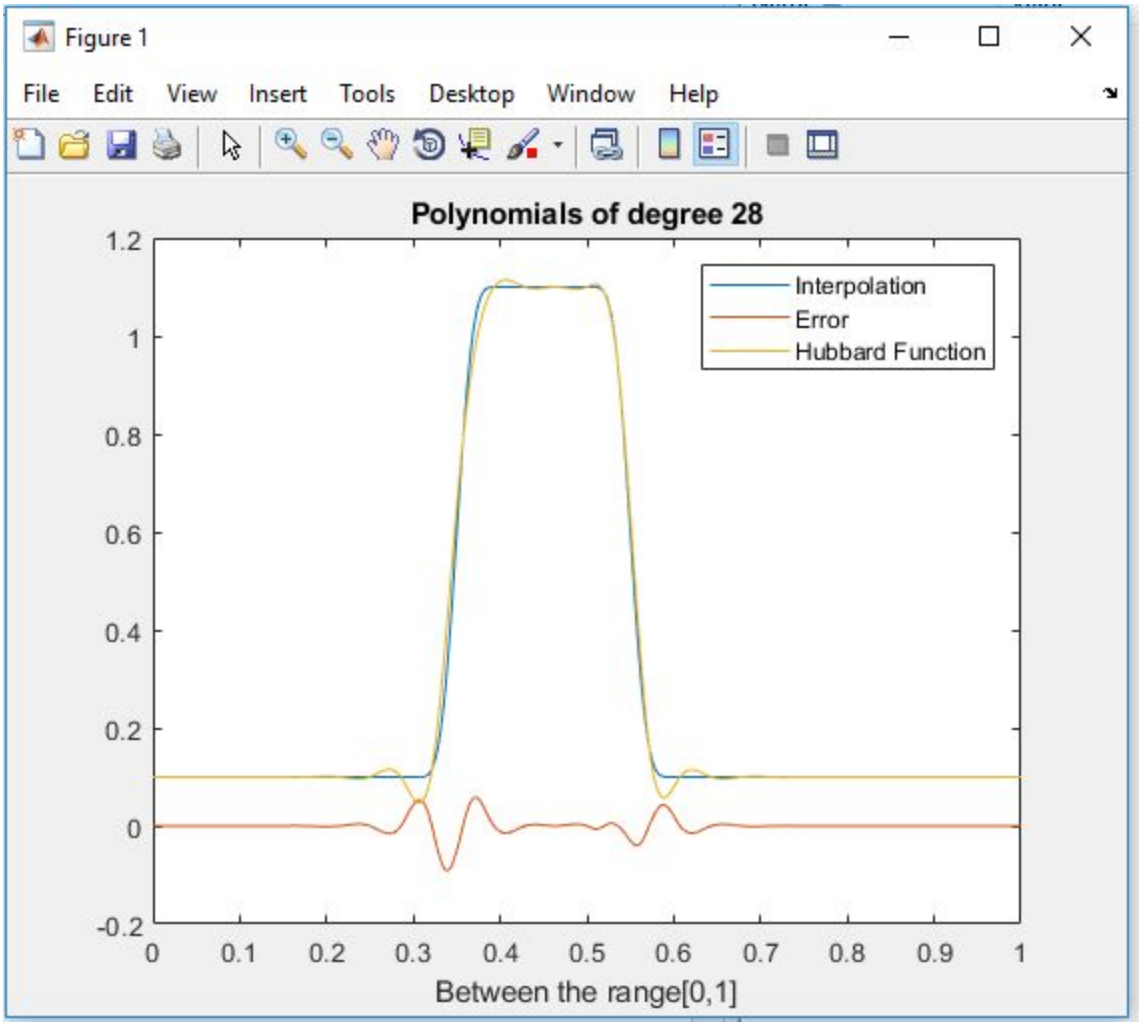

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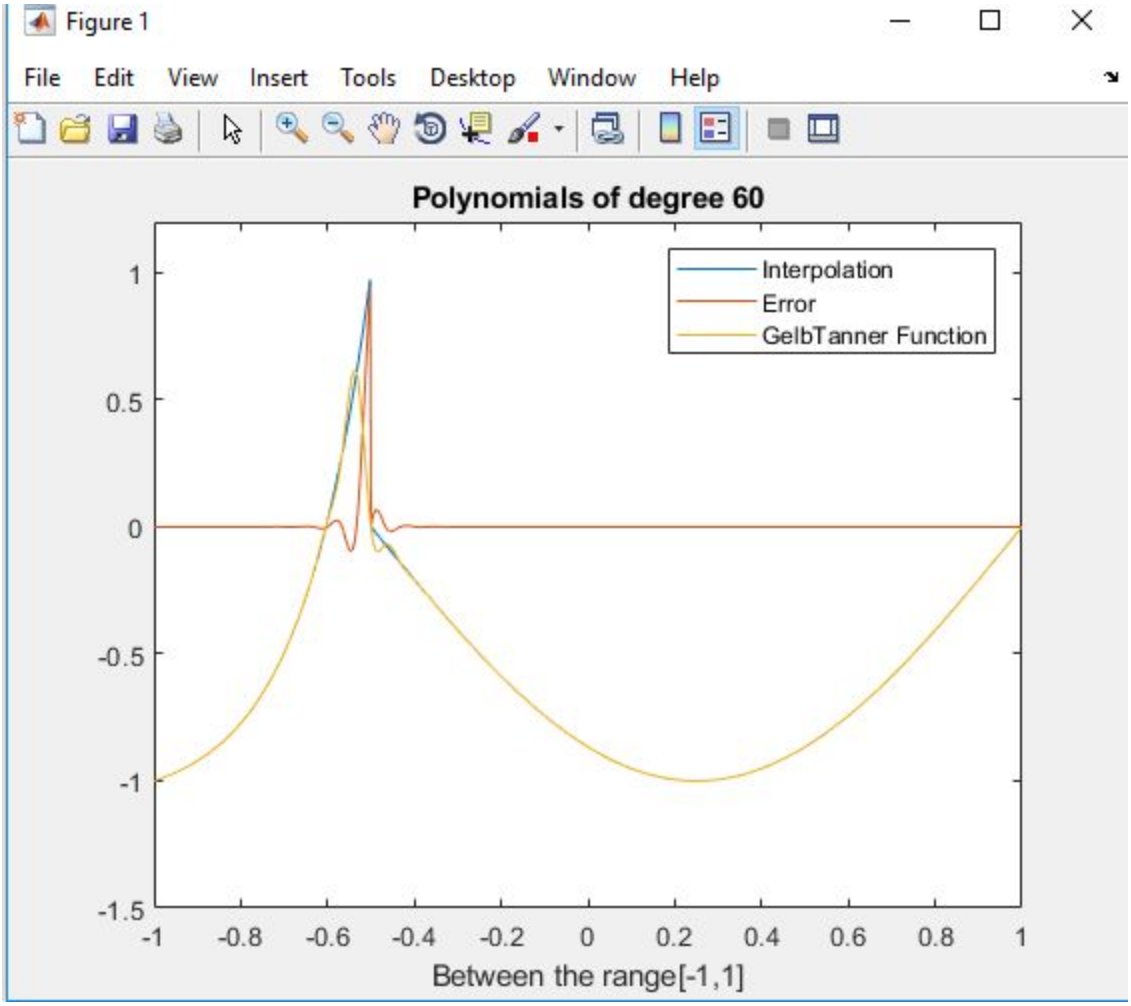
I got the error line use **spline** function.



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To sum up, after using two different kind of image tools and comparing the results, I think the **spline interpolants** is more efficient and accurate than PCHIP interpolants.