

Weekly Report

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1 Progress

This week I finished replicating the results of 5.1.1 and 5.3.1 from Chen et al. Using this code gave the following tables. The exact values I am getting are different than what I see in the paper. I am achieving above third order accuracy and my errors are lower than theirs so I am happy with these results.

5.1.1

	N	L ₁ Error	L ₁ Order	L _{inf} Error	L _{inf} Order	Iterations
0	40	1.009e-03	NaN	3.171e-03	NaN	81
1	80	1.503e-04	2.746754	6.168e-04	2.362200	209
2	160	1.961e-05	2.938453	1.201e-04	2.360192	505
3	320	2.222e-06	3.141978	2.451e-05	2.293147	1154
4	640	2.419e-07	3.199434	4.894e-06	2.324276	2582
5	1280	2.510e-08	3.268100	9.391e-07	2.381678	5718
6	2560	2.410e-09	3.380740	1.616e-07	2.538457	12622

Figure 1: This plot is an attempt to reproduce the results from Table 1 in Chen et al.

5.3.1

	NxN	L ₁ Error	L ₁ Order	L _{inf} Error	L _{inf} Order	Iterations
0	20x20	9.723e-04	NaN	2.683e-03	NaN	25
1	40x40	1.350e-04	2.848868	5.787e-04	2.212915	64
2	80x80	1.450e-05	3.218357	9.375e-05	2.625759	153
3	160x160	1.325e-06	3.452089	1.785e-05	2.392881	349
4	320x320	1.070e-07	3.630749	3.481e-06	2.358474	784
5	640x640	7.650e-09	3.805592	5.756e-07	2.596376	1743

Figure 2: This plot is an attempt to reproduce the results from Table 3 in Chen et al.

2 To Do

This is everything that I have been asked to do thus far. What is the next step?