

**ONLINE SUPPLEMENT FOR
REGION OF INTEREST X-RAY COMPUTED TOMOGRAPHY
VIA CORRECTED BACK PROJECTION**

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1. INTRODUCTION

This document contains additional results not included in the paper due to space constraints. The table in the paper is a subset of Table 1 shown here. All the code needed to generate these results is available online in the reproducible research package for this paper [].

2. REFERENCES

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Table 1. SNR of 128 by 128 ROI reconstructions (dB).

	method				
	full	naive	interp.	FP	BP
pixel, nonnegativity					
filament-40	29.6	13.3	20.3	29.5	29.5
filament-60	40.8	13.4	20.3	40.8	40.8
ellipse-40	16.1	-3.87	25.2	16.2	16.2
ellipse-60	30.4	-3.83	27.1	31.4	31.4
medical-pixel-40	18.8	-1.17	27.1	18.7	18.7
medical-pixel-60	34.9	-1.13	28.5	34.8	34.9
mecical-sinc-40	18.8	-1.17	26.5	18.7	18.7
mecical-sinc-60	34.1	-1.13	28.2	34.0	34.0
sinc, nonnegativity					
filament-40	31.6	13.3	22.1	31.7	31.8
filament-60	49.1	13.3	22.1	46.2	50.1
ellipse-40	17.2	-3.91	26.4	18.1	18.1
ellipse-60	27.4	-3.88	27.8	32.3	32.4
medical-pixel-40	20.3	-1.22	28.5	20.6	20.6
medical-pixel-60	35.6	-1.19	29.7	34.9	35.6
mecical-sinc-40	20.3	-1.22	28.3	20.6	20.6
mecical-sinc-60	36.3	-1.19	29.6	35.8	36.9
pixel, total variation					
filament-40	28.9	13.2	21.6	28.9	28.9
filament-60	29.0	13.2	21.6	29.0	29.0
ellipse-40	30.0	-3.87	27.1	29.9	29.9
ellipse-60	31.2	-3.87	27.8	31.2	31.2
medical-pixel-40	31.3	-1.18	28.6	31.2	31.2
medical-pixel-60	32.4	-1.18	29.6	32.3	32.3
mecical-sinc-40	31.8	-1.18	28.2	31.7	31.7
mecical-sinc-60	32.9	-1.18	29.4	32.8	32.8
sinc, total variation					
filament-40	28.7	13.2	22.2	28.7	28.7
filament-60	28.8	13.2	22.2	28.8	28.8
ellipse-40	29.9	-3.91	27.0	29.8	29.9
ellipse-60	31.4	-3.91	27.8	31.3	31.4
medical-pixel-40	31.2	-1.22	29.1	31.1	31.2
medical-pixel-60	32.4	-1.22	29.9	32.3	32.4
mecical-sinc-40	31.7	-1.22	28.9	31.6	31.7
mecical-sinc-60	33.0	-1.22	29.8	32.9	33.0

Table 2. SNR of 256 by 256 ROI reconstructions (dB).

	method				
	full	naive	interp.	FP	BP
pixel, nonnegativity					
filament-40	24.9	22.8	29.2	24.7	24.7
filament-60	40.1	27.1	32.3	40.0	40.0
ellipse-40	15.4	6.85	22.3	15.5	15.4
ellipse-60	30.6	7.48	31.0	31.6	31.6
medical-pixel-40	18.6	12.7	25.0	18.5	18.5
medical-pixel-60	35.0	14.0	32.3	35.3	35.2
mecical-sinc-40	18.6	12.7	24.9	18.5	18.4
mecical-sinc-60	34.3	14.0	31.6	34.3	34.3
sinc, nonnegativity					
filament-40	26.4	23.9	33.4	26.7	26.6
filament-60	44.8	27.2	40.9	46.0	46.0
ellipse-40	16.6	6.97	24.2	17.2	17.2
ellipse-60	28.7	7.39	31.7	32.6	32.6
medical-pixel-40	20.0	13.0	26.7	20.3	20.3
medical-pixel-60	35.4	13.9	32.8	35.5	35.5
mecical-sinc-40	20.0	13.1	26.7	20.4	20.3
mecical-sinc-60	36.3	13.9	32.8	36.5	36.5
pixel, total variation					
filament-40	29.7	25.4	31.3	29.7	29.7
filament-60	29.8	25.4	31.4	29.8	29.8
ellipse-40	31.0	7.48	29.8	31.0	31.0
ellipse-60	32.5	7.49	31.5	32.5	32.5
medical-pixel-40	31.0	14.0	30.2	31.0	31.0
medical-pixel-60	31.9	14.0	31.7	31.9	31.9
mecical-sinc-40	31.6	14.0	30.5	31.6	31.6
mecical-sinc-60	32.6	14.0	32.0	32.6	32.6
sinc, total variation					
filament-40	29.5	25.2	30.5	29.5	29.5
filament-60	29.6	25.3	30.6	29.6	29.6
ellipse-40	30.8	7.45	29.6	30.8	30.8
ellipse-60	32.6	7.46	31.4	32.6	32.6
medical-pixel-40	30.9	13.9	30.1	30.9	30.9
medical-pixel-60	31.9	14.0	31.7	31.9	31.9
mecical-sinc-40	31.5	13.9	30.3	31.5	31.5
mecical-sinc-60	32.7	14.0	32.1	32.7	32.7

Table 3. SSIM of 128 by 128 ROI reconstructions (dB).

	method				
	full	naive	interp.	FP	BP
pixel, nonnegativity					
filament-40	0.72	0.67	0.62	0.71	0.71
filament-60	0.97	0.84	0.62	0.97	0.97
ellipse-40	0.14	0.09	0.36	0.14	0.14
ellipse-60	0.45	0.23	0.44	0.48	0.48
medical-pixel-40	0.10	0.07	0.23	0.10	0.10
medical-pixel-60	0.67	0.28	0.26	0.68	0.68
mecical-sinc-40	0.13	0.09	0.22	0.12	0.12
mecical-sinc-60	0.71	0.32	0.25	0.71	0.71
sinc, nonnegativity					
filament-40	0.75	0.71	0.66	0.76	0.76
filament-60	0.99	0.88	0.67	0.98	0.99
ellipse-40	0.15	0.11	0.42	0.17	0.17
ellipse-60	0.37	0.28	0.50	0.52	0.53
medical-pixel-40	0.12	0.08	0.25	0.12	0.12
medical-pixel-60	0.69	0.37	0.29	0.67	0.69
mecical-sinc-40	0.15	0.11	0.25	0.15	0.15
mecical-sinc-60	0.75	0.43	0.28	0.76	0.77
pixel, total variation					
filament-40	0.93	0.82	0.75	0.93	0.93
filament-60	0.93	0.82	0.75	0.93	0.93
ellipse-40	0.77	0.28	0.56	0.77	0.77
ellipse-60	0.85	0.33	0.68	0.85	0.85
medical-pixel-40	0.35	0.18	0.25	0.35	0.35
medical-pixel-60	0.38	0.22	0.26	0.38	0.38
mecical-sinc-40	0.38	0.21	0.24	0.38	0.38
mecical-sinc-60	0.40	0.24	0.26	0.40	0.40
sinc, total variation					
filament-40	0.93	0.82	0.76	0.93	0.93
filament-60	0.93	0.82	0.76	0.93	0.93
ellipse-40	0.75	0.27	0.55	0.75	0.75
ellipse-60	0.86	0.33	0.68	0.86	0.86
medical-pixel-40	0.35	0.18	0.26	0.35	0.35
medical-pixel-60	0.39	0.23	0.28	0.39	0.39
mecical-sinc-40	0.39	0.21	0.25	0.39	0.39
mecical-sinc-60	0.41	0.25	0.28	0.41	0.41

Table 4. SSIM of 256 by 256 ROI reconstructions (dB).

	method				
	full	naive	interp.	FP	BP
pixel, nonnegativity					
filament-40	0.33	0.32	0.65	0.32	0.32
filament-60	0.94	0.92	0.97	0.94	0.94
ellipse-40	0.08	0.08	0.20	0.08	0.08
ellipse-60	0.38	0.29	0.50	0.42	0.42
medical-pixel-40	0.10	0.09	0.21	0.09	0.09
medical-pixel-60	0.64	0.51	0.46	0.66	0.65
mecical-sinc-40	0.11	0.10	0.21	0.11	0.11
mecical-sinc-60	0.69	0.56	0.46	0.69	0.69
sinc, nonnegativity					
filament-40	0.37	0.37	0.74	0.38	0.38
filament-60	0.95	0.91	0.99	0.96	0.96
ellipse-40	0.10	0.09	0.23	0.10	0.10
ellipse-60	0.34	0.29	0.57	0.47	0.47
medical-pixel-40	0.11	0.10	0.23	0.11	0.11
medical-pixel-60	0.65	0.46	0.47	0.66	0.66
mecical-sinc-40	0.13	0.12	0.24	0.13	0.13
mecical-sinc-60	0.72	0.53	0.48	0.73	0.73
pixel, total variation					
filament-40	0.98	0.97	0.98	0.98	0.98
filament-60	0.98	0.98	0.98	0.98	0.98
ellipse-40	0.75	0.59	0.69	0.75	0.75
ellipse-60	0.87	0.70	0.83	0.87	0.87
medical-pixel-40	0.33	0.31	0.29	0.33	0.33
medical-pixel-60	0.35	0.34	0.32	0.35	0.35
mecical-sinc-40	0.35	0.33	0.30	0.35	0.35
mecical-sinc-60	0.37	0.37	0.33	0.37	0.37
sinc, total variation					
filament-40	0.98	0.97	0.98	0.98	0.98
filament-60	0.98	0.98	0.98	0.98	0.98
ellipse-40	0.73	0.59	0.63	0.73	0.73
ellipse-60	0.87	0.70	0.83	0.87	0.87
medical-pixel-40	0.33	0.32	0.29	0.33	0.33
medical-pixel-60	0.35	0.35	0.33	0.35	0.35
mecical-sinc-40	0.36	0.34	0.30	0.36	0.36
mecical-sinc-60	0.38	0.38	0.34	0.38	0.38