Test results for

implose noise removel

r	30%		50%		70%		90%	
solver	Ct	PSNR	Ct	PSNR	Ct	PSNR	Ct	PSNR
AMFSPGATR1	4.01	33.3837	4.0979	30.0766	4.2676	26.7674	4.0624	22.1867
AMFSPGATR2	3.6246	33.4134	4.2938	30.0706	4.391	26.7818	4.3016	22.1879
AMFSPGATR3	3.7776	33.4095	4.3945	30.0835	4.5913	26.7911	4.5608	22.1808
AMFSPGATR4	3.9641	33.4039	4.5796	30.0712	4.8046	26.791	4.8114	22.1882
AMFSPGATR5	4.0094	33.3864	4.7002	30.0804	4.9389	26.7927	4.9806	22.1941
AMFCGKR1	3.8458	33.0677	4.5604	29.6884	4.442	26.4101	3.9284	22.2855
AMFCGKR2	3.0257	32.6524	3.3956	29.3722	3.2702	26.2439	2.8943	22.1257
AMFCGYH	4.7253	33.2472	5.5578	29.9881	5.3318	26.7012	4.9856	22.3281
AMFCGYQ	3.0017	33.0127	3.4491	29.735	3.2791	26.4891	2.8901	22.3005
AMFCGDY	3.0103	32.9535	3.3867	29.9366	3.2573	26.7365	2.8467	22.2547
AMFCGPR	2.9999	32.7564	3.3927	29.5359	3.2465	26.4619	2.8545	22.218
AMFCGHS	3.0189	33.1117	3.3685	29.9911	3.2543	26.6935	2.8682	22.1151
AMFCGCD	3.0905	32.6259	3.3864	29.4552	3.2516	25.7598	2.8568	21.4245

Table 1: Results summary for 256×256 Lena

r	30%		50%		70%		90%	
solver	Ct	PSNR	Ct	PSNR	Ct	PSNR	Ct	PSNR
AMFSPGATR1	3.4807	38.3423	4.1712	34.1245	4.2185	30.7564	4.0508	24.302
AMFSPGATR2	3.6277	38.3447	4.1832	34.1351	4.3316	30.78	4.3698	24.2787
AMFSPGATR3	3.5932	38.3601	4.369	34.1517	4.5526	30.7851	4.5193	24.2582
AMFSPGATR4	3.8361	38.3675	4.5647	34.1227	4.7904	30.7863	4.8574	24.2421
Continued on next page								

AMFSPGATR5	3.9186	38.3602	4.6403	34.1387	4.9082	30.7749	4.9724	24.256
AMFCGKR1	3.8801	37.7657	4.6066	33.6243	4.4022	30.5101	4.0263	24.7751
AMFCGKR2	2.9217	36.4595	3.4105	32.6412	3.258	29.6441	2.8882	24.4755
AMFCGYH	4.0882	38.1299	4.943	33.9555	4.853	30.7029	4.8291	24.6403
AMFCGYQ	2.9856	37.7378	3.4008	33.792	3.2701	30.5427	2.8998	24.6609
AMFCGDY	2.9969	36.8808	3.3938	33.1171	3.2541	30.0403	2.8544	24.5719
AMFCGPR	3.0232	36.6004	3.3913	32.8122	3.2574	29.7897	2.8556	24.4607
AMFCGHS	3.0892	37.0878	3.4024	33.335	3.2234	30.1218	2.8246	24.1501
AMFCGCD	2.939	36.3763	3.3944	31.8251	3.2212	29.1178	2.8419	23.447

Table 2: Results summary for 256×256 House

r	30%		50%		70%		90%	
solver	Ct	PSNR	Ct	PSNR	Ct	PSNR	Ct	PSNR
AMFSPGATR1	3.513	30.7152	4.1825	27.1373	4.274	24.519	4.0493	20.8428
AMFSPGATR2	3.6593	30.745	4.1357	27.1556	4.378	24.522	4.2867	20.833
AMFSPGATR3	3.6469	30.7644	4.3305	27.1804	4.582	24.5437	4.4785	20.8552
AMFSPGATR4	3.963	30.7554	4.5352	27.1885	4.83	24.531	4.8133	20.8584
AMFSPGATR5	4.0016	30.7665	4.6515	27.1862	4.9602	24.5432	4.9632	20.8619
AMFCGKR1	3.9408	30.241	4.6426	26.8407	4.4582	24.3309	3.9077	20.8321
AMFCGKR2	3.0615	30.0041	3.421	26.6265	3.2618	24.1406	2.8987	20.6526
AMFCGYH	4.8279	30.6091	5.7188	27.0709	5.4629	24.4835	5.0891	20.9738
AMFCGYQ	3.0582	30.3087	3.4126	26.916	3.2769	24.2667	2.899	20.6651
AMFCGDY	3.1202	30.5857	3.3882	27.0542	3.228	24.3509	2.8561	20.5077
AMFCGPR	3.122	30.1902	3.407	26.7601	3.248	24.3117	2.8599	20.9514
AMFCGHS	3.0372	30.7338	3.4074	27.1692	3.2359	24.4401	2.8475	20.7646
AMFCGCD	3.024	28.7315	3.3619	26.097	3.2313	23.8983	2.8324	20.0523

Table 3: Results summary for 256×256 Cameraman

r	30%		50%		70%		90%	
solver	Ct	PSNR	Ct	PSNR	Ct	PSNR	Ct	PSNR

Continued on next page

AMFSPGATR1	3.602	31.9341	4.0826	28.4942	4.26	24.8966	4.0602	18.9437
AMFSPGATR2	3.6608	31.9914	4.2632	28.4754	4.395	24.9122	4.306	18.9544
AMFSPGATR3	3.7385	32.0003	4.3619	28.4904	4.4536	24.9197	4.5601	18.9318
AMFSPGATR4	3.8387	31.9755	4.5028	28.5141	4.6959	24.9254	4.8782	18.9746
AMFSPGATR5	3.9988	31.9643	4.7036	28.4723	4.8917	24.9444	5.0234	18.9962
AMFCGKR1	3.927	31.3075	4.6094	27.9321	4.4286	24.6411	3.9919	19.3483
AMFCGKR2	2.9812	31.0356	3.4047	27.6638	3.2605	24.4926	2.9273	19.3903
AMFCGYH	4.4701	31.6524	5.8604	28.301	5.4346	24.8982	5.1721	19.2573
AMFCGYQ	3.0405	31.3082	3.4165	27.8085	3.2733	24.76	2.9045	19.3607
AMFCGDY	3.0173	31.8664	3.4144	28.4909	3.2395	24.9224	2.8433	19.2275
AMFCGPR	3.0404	31.1866	3.394	27.8958	3.2295	24.7014	2.8591	19.4912
AMFCGHS	3.0363	31.9251	3.3688	28.5265	3.2333	24.8721	2.8361	18.968
AMFCGCD	3.2159	30.9375	3.3981	27.3386	3.2391	24.1338	2.8674	19.2684

Table 4: Results summary for 256×256 Monarch

r	30%		50%		70%		90%	
solver	Ct	PSNR	Ct	PSNR	Ct	PSNR	Ct	PSNR
AMFSPGATR1	16.8196	42.0613	19.0313	39.6461	19.4255	37.5204	19.5367	33.5902
AMFSPGATR2	16.4109	42.0793	19.3748	39.6567	20.4744	37.5237	20.8827	33.5869
AMFSPGATR3	17.33	42.0858	19.9794	39.6566	21.4762	37.5319	22.0269	33.596
AMFSPGATR4	17.9349	42.0815	20.7402	39.6553	22.507	37.5352	23.6332	33.5956
AMFSPGATR5	18.3005	42.0819	20.8723	39.658	22.4897	37.5334	23.3671	33.593
AMFCGKR1	18.6567	41.9159	21.1736	39.4783	21.1041	37.299	20.2033	33.4667
AMFCGKR2	15.2934	41.4355	16.2042	38.7338	15.9673	36.4295	15.0838	32.9124
AMFCGYH	20.6722	41.9893	21.7613	39.5688	22.0489	37.4543	23.2912	33.5923
AMFCGYQ	15.1455	41.9183	16.3276	39.4473	16.1216	37.2443	15.0573	33.4812
AMFCGDY	15.2268	41.5845	16.2038	39.042	15.8946	36.9311	15.0427	33.5455
AMFCGPR	14.8313	41.4484	16.2195	38.7465	15.9912	36.4532	15.0492	33.0478
AMFCGHS	14.8576	41.5743	16.1619	38.9942	15.9757	36.7522	14.9879	33.2924
AMFCGCD	14.9211	41.3397	16.2903	38.4596	15.8966	36.4353	14.9874	32.1297

Table 5: Results summary for 512×512 Elaine

r	30%		50%		70%		90%	
solver	Ct	PSNR	Ct	PSNR	Ct	PSNR	Ct	PSNR
AMFSPGATR1	16.9545	45.1111	18.9501	40.7608	19.7619	36.254	19.5632	30.2821
AMFSPGATR2	17.4954	45.1103	19.383	40.7666	20.6406	36.2821	20.8013	30.2884
AMFSPGATR3	17.4063	45.12	19.9294	40.8026	21.2371	36.2918	21.7957	30.2854
AMFSPGATR4	18.0228	45.1449	21.3038	40.7963	22.2129	36.2883	23.0793	30.2814
AMFSPGATR5	17.9058	45.1069	20.9635	40.7688	22.6768	36.2881	23.3997	30.2825
AMFCGKR1	18.2545	44.4144	21.2942	40.2022	21.1624	36.0587	20.192	30.2004
AMFCGKR2	14.0807	42.6957	16.1965	39.0398	16.3074	35.4251	15.0971	30.0171
AMFCGYH	20.6492	44.8702	24.0873	40.6258	24.4605	36.2046	24.9636	30.3658
AMFCGYQ	14.343	44.506	16.3596	40.2995	16.3454	36.0195	15.0241	30.2833
AMFCGDY	14.4502	42.942	16.4169	39.3502	16.9424	35.7114	14.8913	30.3726
AMFCGPR	14.6015	42.8983	16.362	39.2763	15.827	35.548	14.8853	30.2533
AMFCGHS	14.6687	43.4432	16.7689	39.6976	17.3374	35.7554	15.1442	30.092
AMFCGCD	14.4104	42.4612	16.8113	38.6011	15.9287	34.8304	14.9802	29.4294

Table 6: Results summary for 512×512 Cameraman

r	30%		50%		70%		90%	
solver	Ct	PSNR	Ct	PSNR	Ct	PSNR	Ct	PSNR
AMFSPGATR1	97.3835	47.704	111.2588	44.3817	118.1747	41.1899	117.081	36.7747
AMFSPGATR2	101.0133	47.7076	118.2133	44.3782	121.4605	41.1932	120.333	36.7798
AMFSPGATR3	100.9693	47.7161	119.22	44.3954	126.6965	41.2001	122.8327	36.7813
AMFSPGATR4	103.5608	47.6989	124.3695	44.3932	127.3348	41.1987	128.2954	36.7725
AMFSPGATR5	108.8653	47.6976	119.4228	44.3889	128.2697	41.1909	130.3287	36.7745
AMFCGKR1	109.2948	47.4661	127.846	44.1651	123.1748	41.0302	119.7136	36.6865
AMFCGKR2	93.6365	46.596	100.8142	43.5019	100.7145	40.5831	93.9647	36.5828
AMFCGYH	112.5528	47.6292	135.6728	44.3508	141.3326	41.1595	143.4851	36.8432
AMFCGYQ	91.0719	47.3328	101.1638	44.1106	98.7862	41.0279	96.8936	36.666
AMFCGDY	88.7439	47.302	100.2606	44.0696	102.0225	41.03	97.315	36.9818
AMFCGPR	88.9744	46.8555	99.9453	43.7038	97.8865	40.7521	98.0669	36.8592
AMFCGHS	89.8284	47.118	96.222	43.9228	101.7563	40.8792	95.8891	36.8428
AMFCGCD	89.7201	47.0565	100.0595	43.2154	96.0177	40.4161	95.6121	35.6626

Table 7: Results summary for 1024×1024 Pirate

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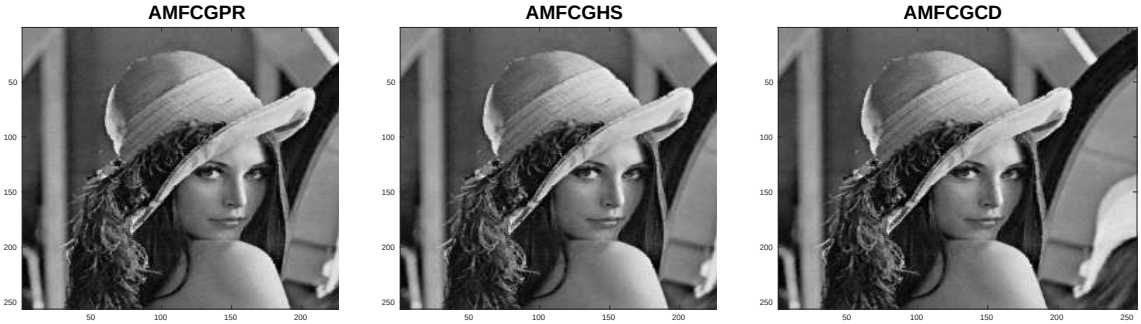
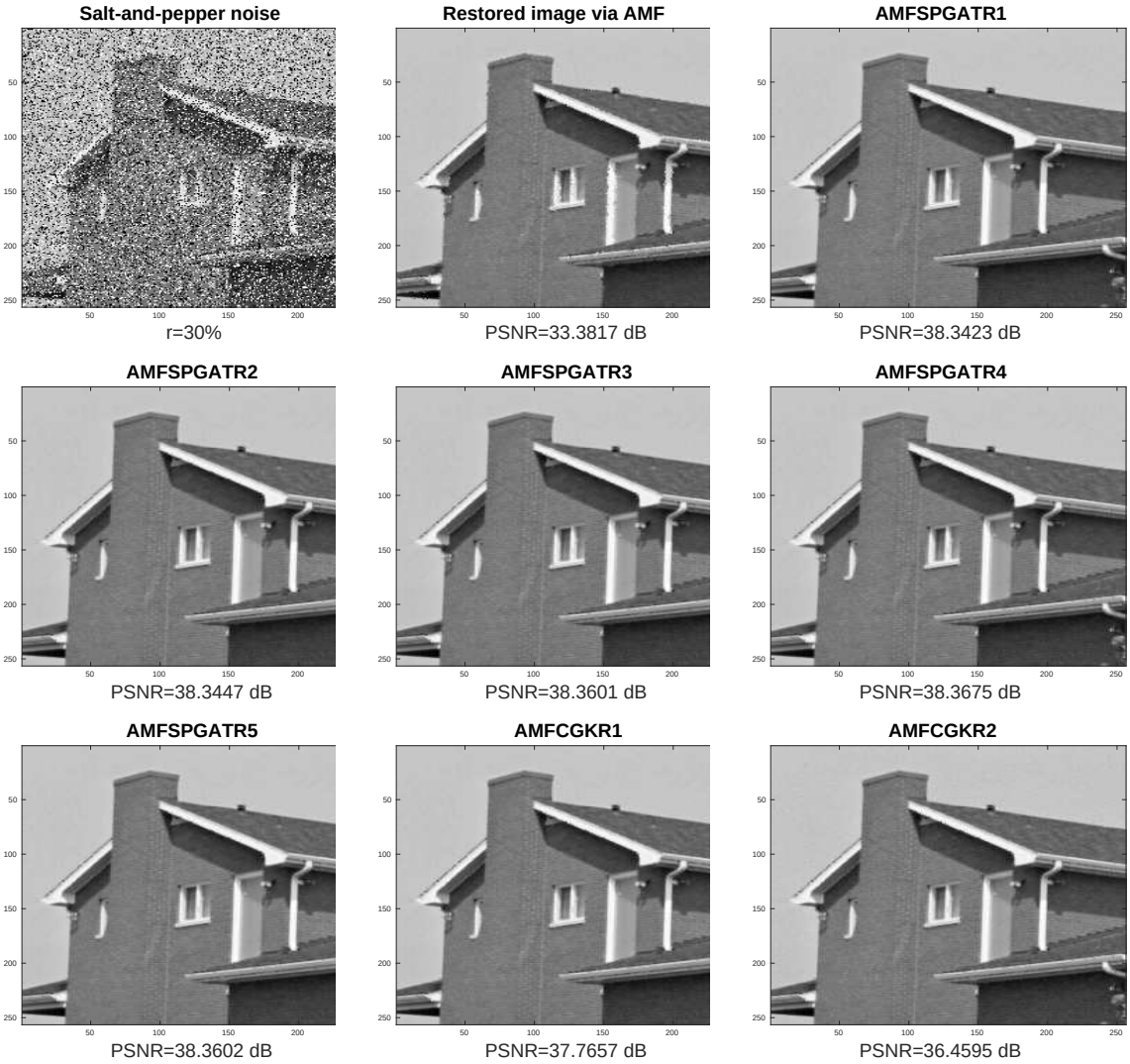


Table 8: The noise image by salt-and-paper noise with ratio 30%/the restored image by AMF/the restored images by all proposed algorithms



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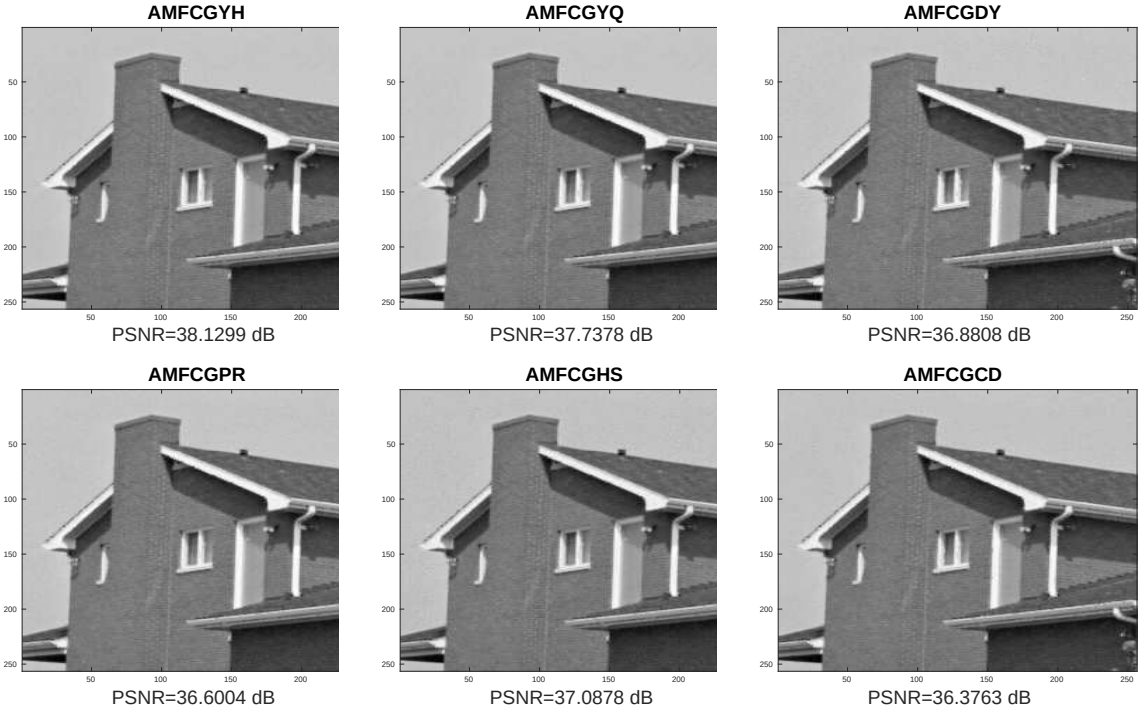
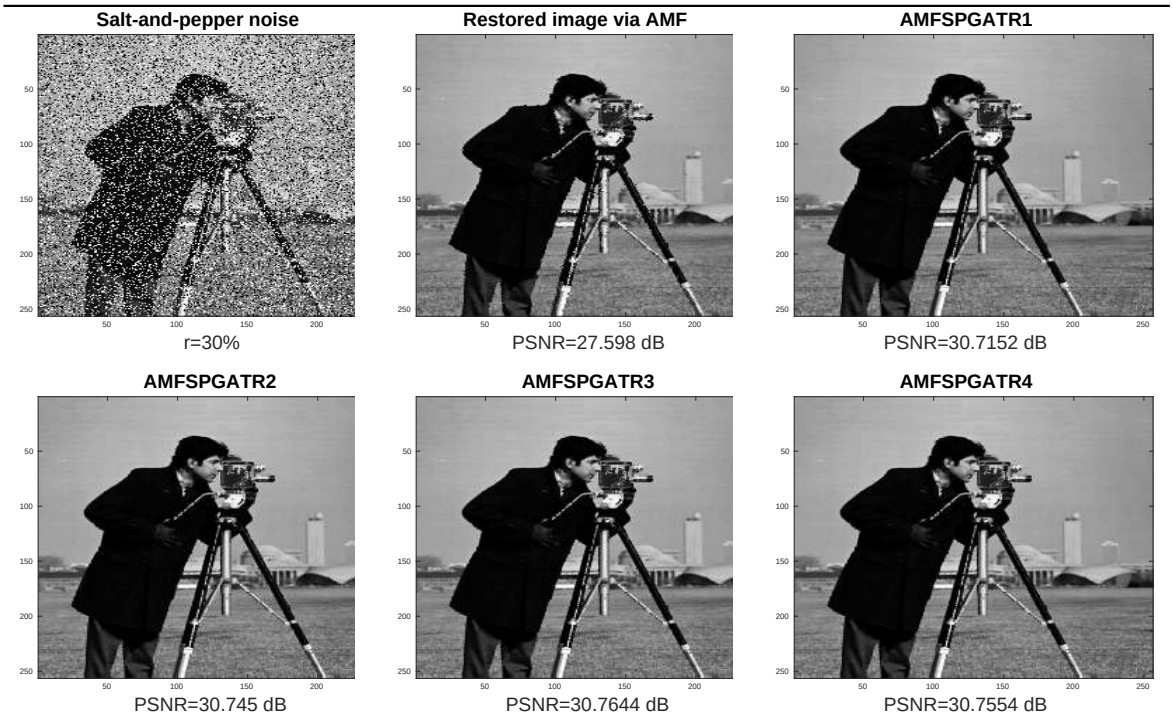


Table 9: The noise image by salt-and-paper noise with ratio 30%/the restored image by AMF/the restored images by all proposed algorithms



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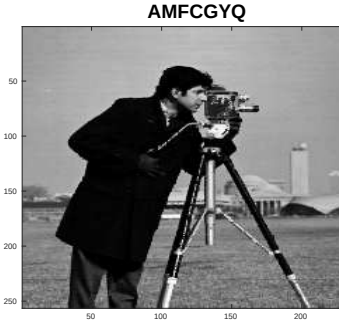
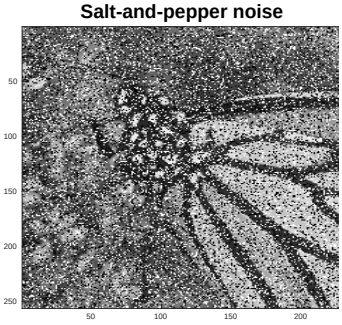
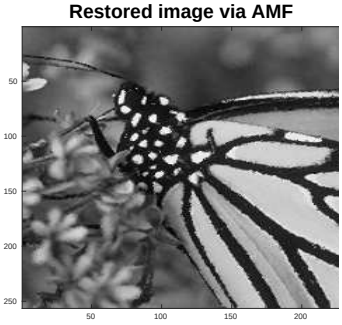
AMFSPGATR5 PSNR=30.7665 dB	**AMFCGKR1** PSNR=30.241 dB	**AMFCGKR2** PSNR=30.0041 dB
AMFCGYH PSNR=30.6091 dB	**AMFCGYQ**  PSNR=30.3087 dB	**AMFCGDY** PSNR=30.5857 dB
AMFCGPR PSNR=30.1902 dB	**AMFCGHS** PSNR=30.7338 dB	**AMFCGCD** PSNR=28.7315 dB

Table 10: The noise image by salt-and-paper noise with ratio 30%/the restored image by AMF/the restored images by all proposed algorithms

Salt-and-pepper noise  r=30%	**Restored image via AMF**  PSNR=28.4804 dB	**AMFSPGATR1** PSNR=31.9341 dB

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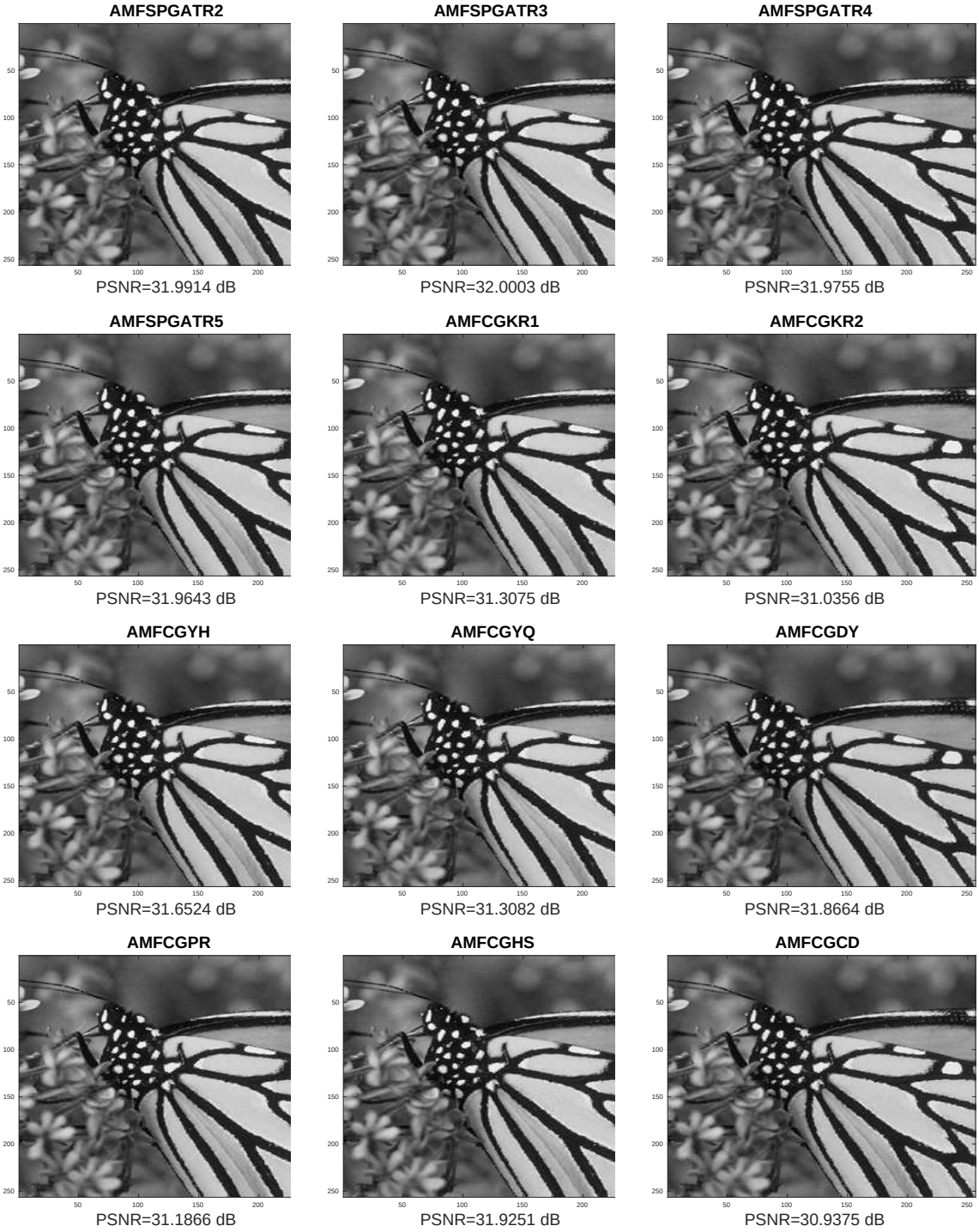

Table 11: The noise image by salt-and-paper noise with ratio 30%/the restored image by AMF/the restored images by all proposed algorithms

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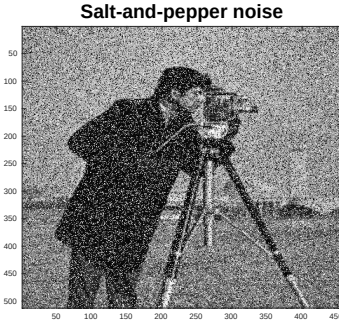
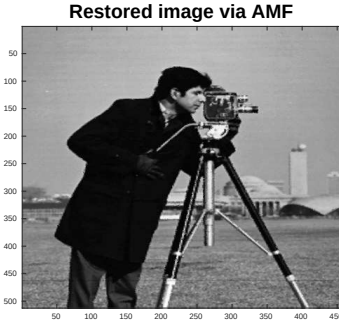
AMFCGPR	AMFCGHS	AMFCGCD
PSNR=41.4484 dB	PSNR=41.5743 dB	PSNR=41.3397 dB

Table 12: The noise image by salt-and-paper noise with ratio 30%/the restored image by AMF/the restored images by all proposed algorithms

Salt-and-pepper noise	Restored image via AMF	AMFSPGATR1
		
r=30%	PSNR=39.8913 dB	PSNR=45.1111 dB
AMFSPGATR2	**AMFSPGATR3**	**AMFSPGATR4**
PSNR=45.1103 dB	PSNR=45.12 dB	PSNR=45.1449 dB
AMFSPGATR5	**AMFCGKR1**	**AMFCGKR2**
PSNR=45.1069 dB	PSNR=44.4144 dB	PSNR=42.6957 dB

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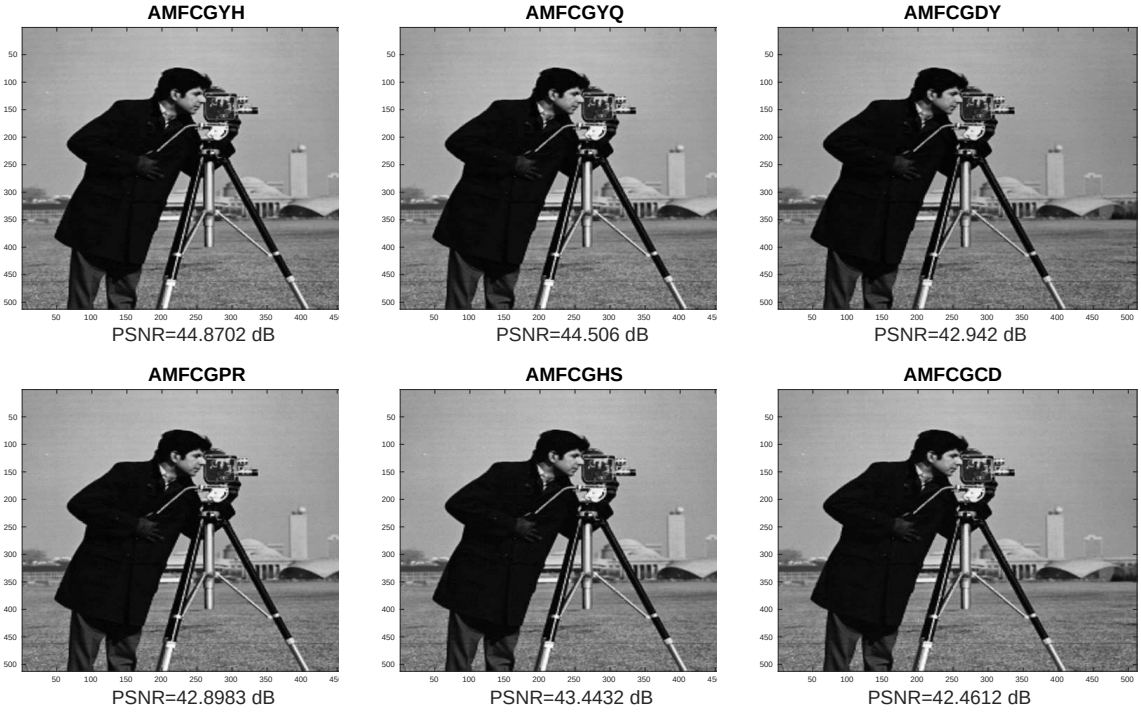

Table 13: The noise image by salt-and-paper noise with ratio 30%/the restored image by AMF/the restored images by all proposed algorithms

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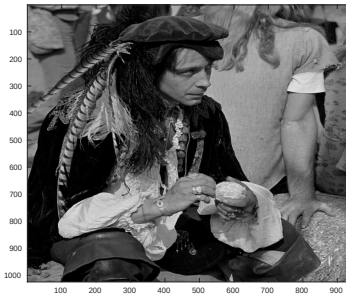
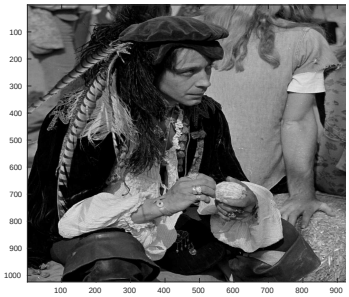
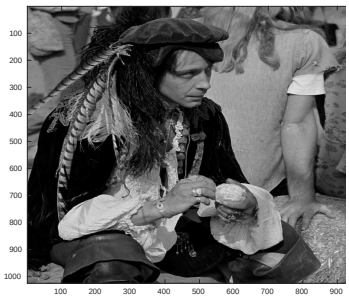
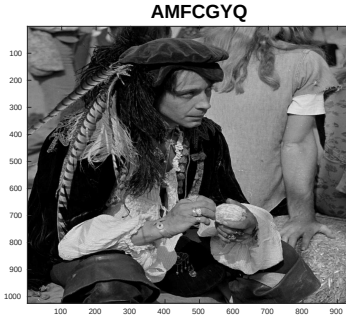
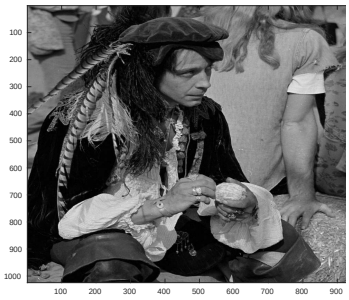
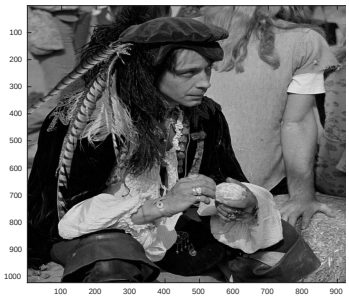
AMFSPGATR5  PSNR=47.6976 dB	**AMFCGKR1**  PSNR=47.4661 dB	**AMFCGKR2** PSNR=46.596 dB
AMFCGYH  PSNR=47.6292 dB	**AMFCGYQ**  PSNR=47.3328 dB	**AMFCGDY** PSNR=47.302 dB
AMFCGPR  PSNR=46.8555 dB	**AMFCGHS**  PSNR=47.118 dB	**AMFCGCD** PSNR=47.0565 dB

Table 14: The noise image by salt-and-paper noise with ratio 30%/the restored image by AMF/the restored images by all proposed algorithms

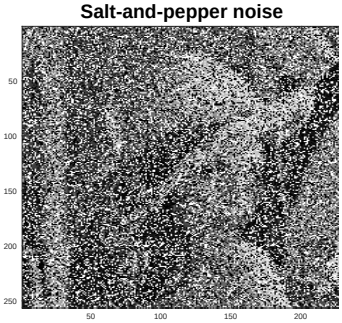
Salt-and-pepper noise  r=50%	**Restored image via AMF** PSNR=26.3984 dB	**AMFSPGATR1** PSNR=30.0766 dB

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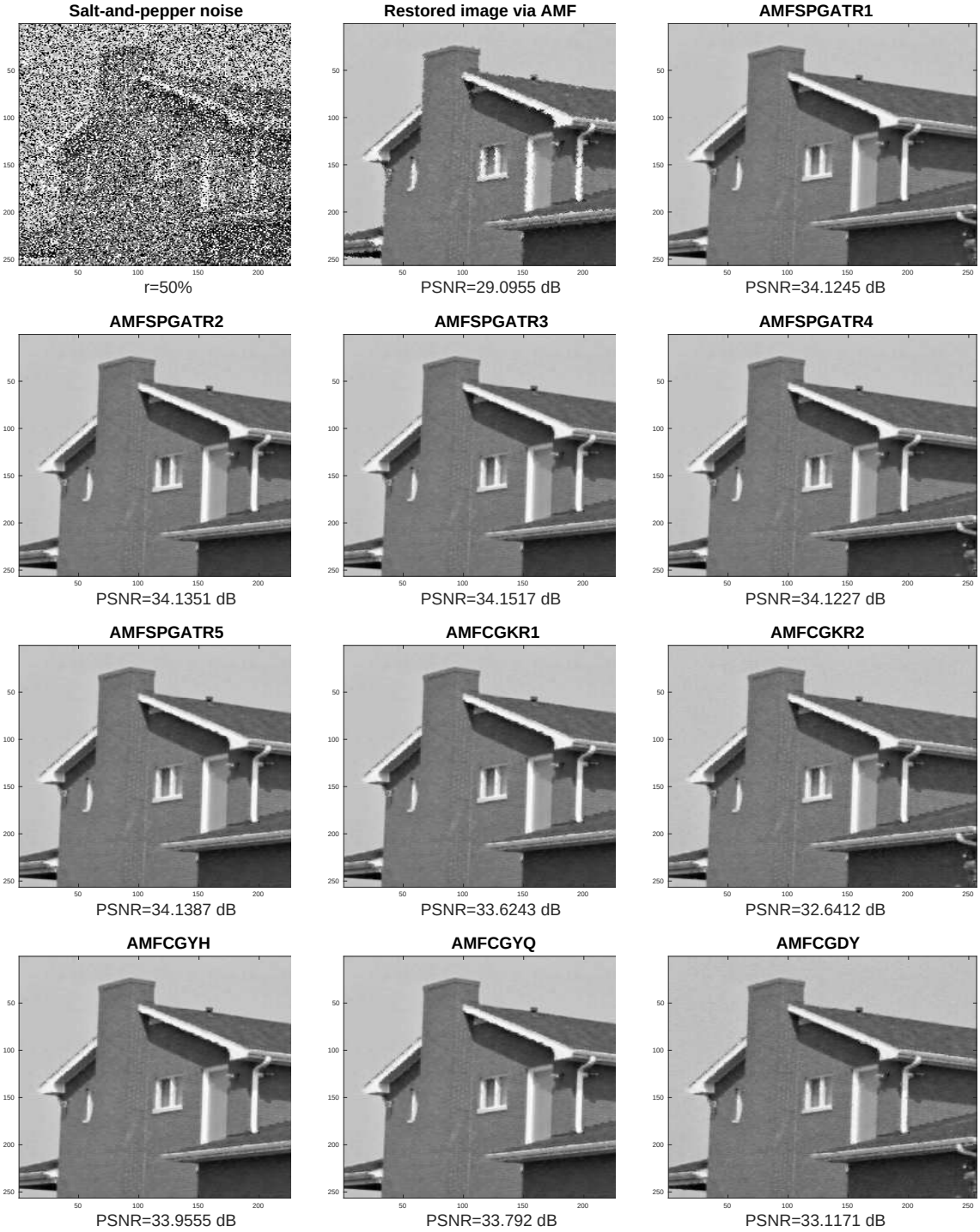
Table 15: The noise image by salt-and-paper noise with ratio 50%/the restored image by AMF/the restored images by all proposed algorithms



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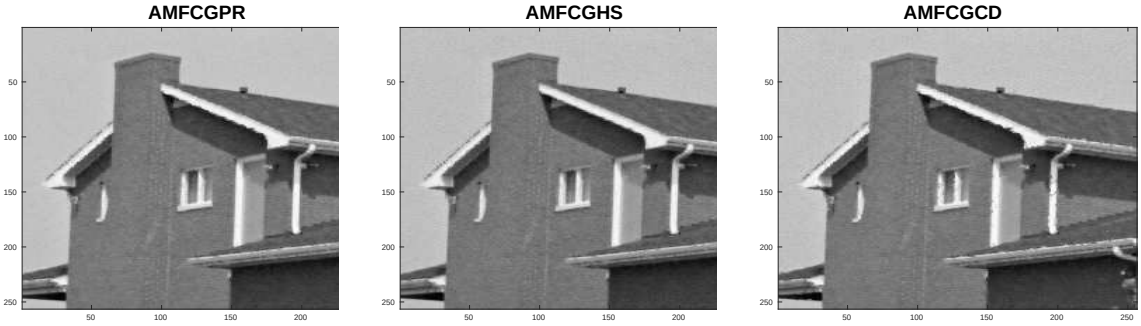
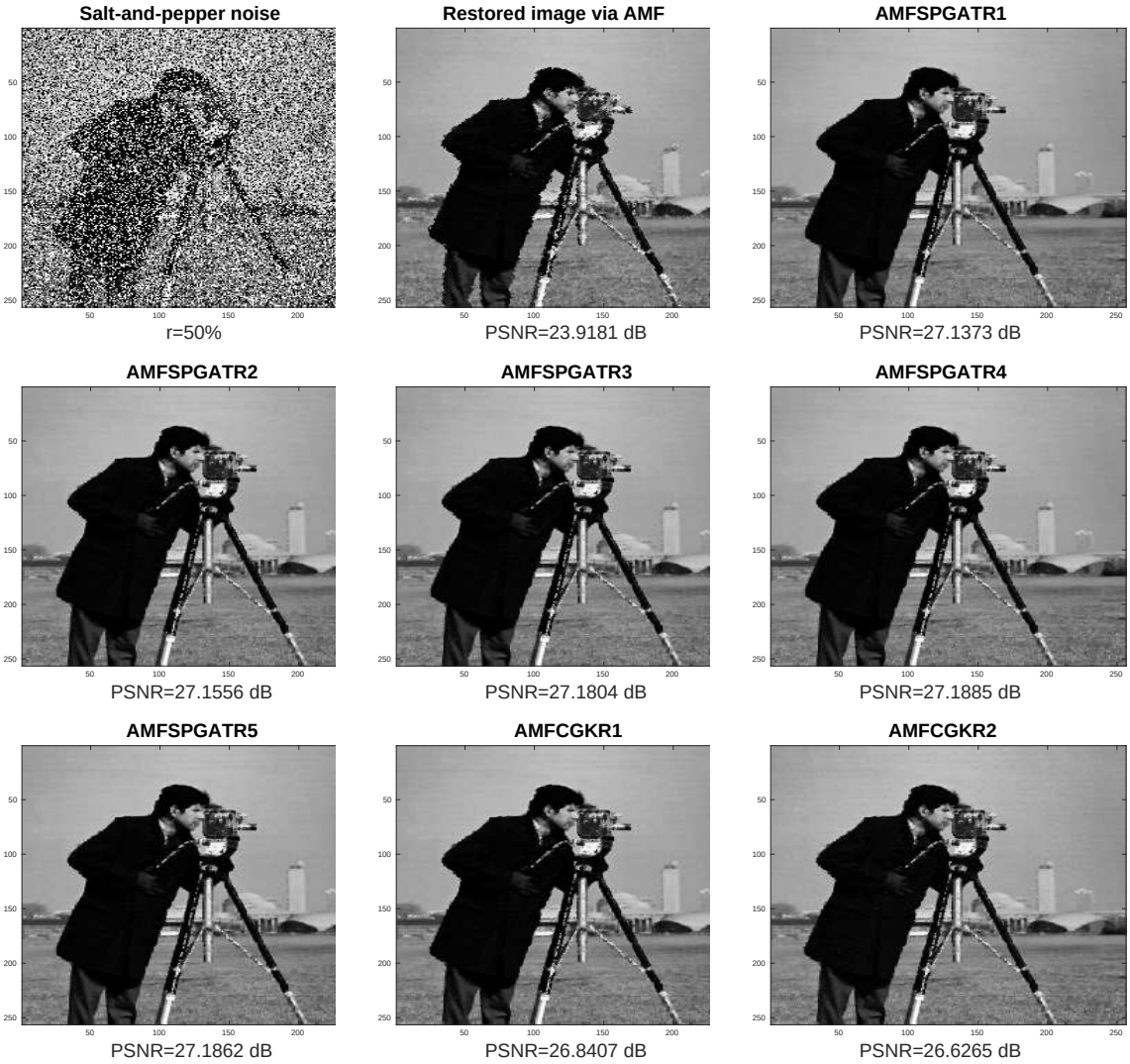


Table 16: The noise image by salt-and-paper noise with ratio 50%/the restored image by AMF/the restored images by all proposed algorithms



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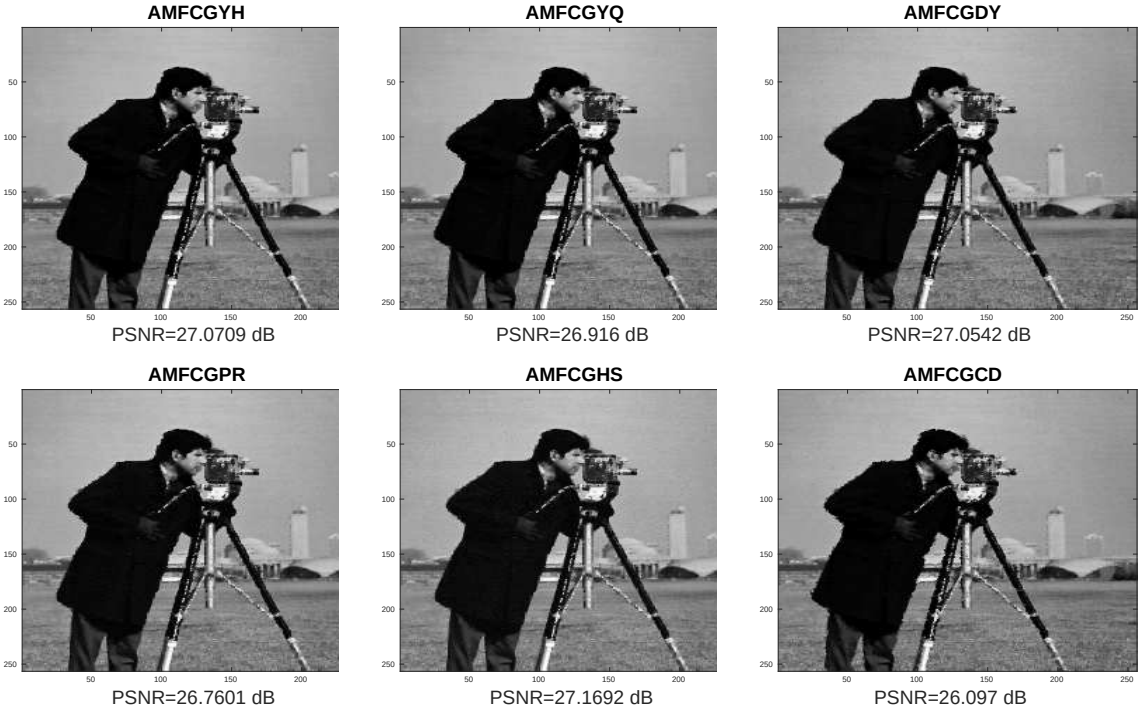
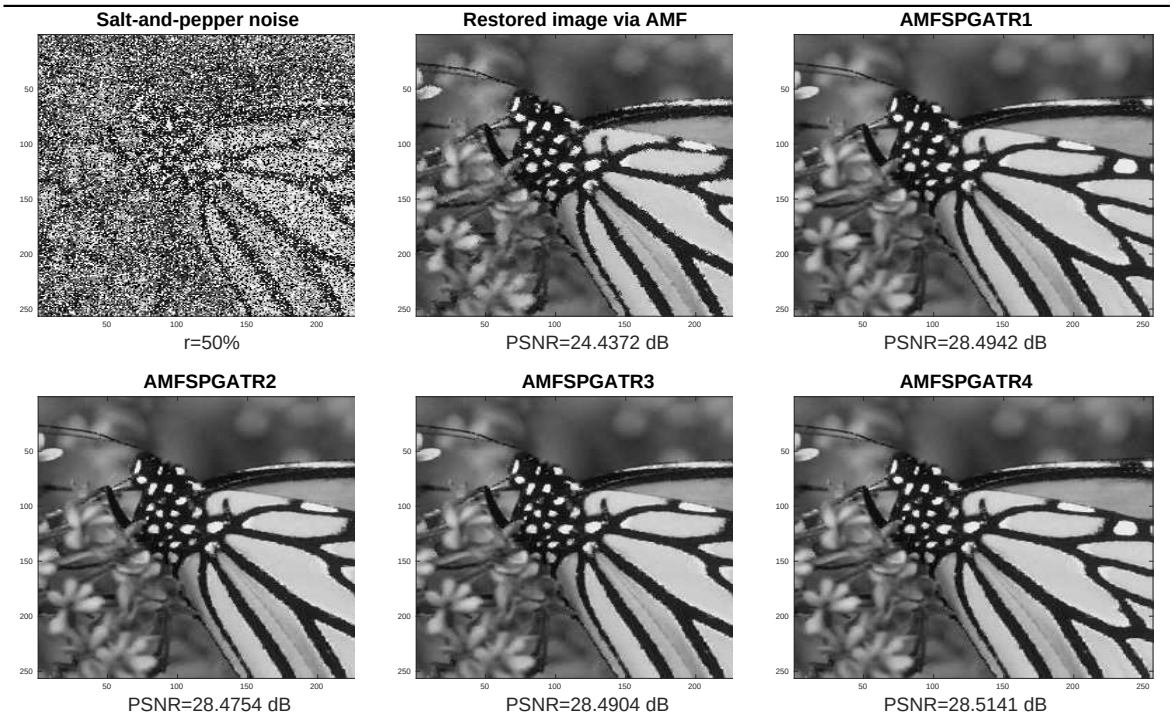
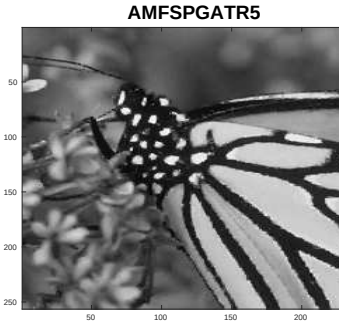


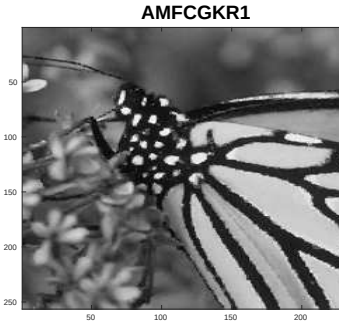
Table 17: The noise image by salt-and-paper noise with ratio 50%/the restored image by AMF/the restored images by all proposed algorithms



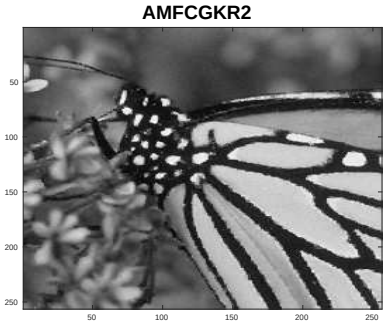
Continued on next page



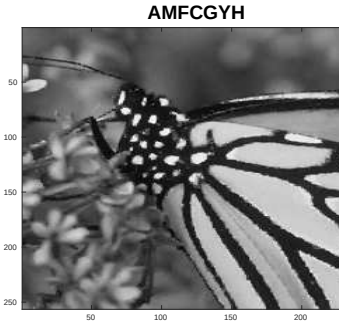
PSNR=28.4723 dB



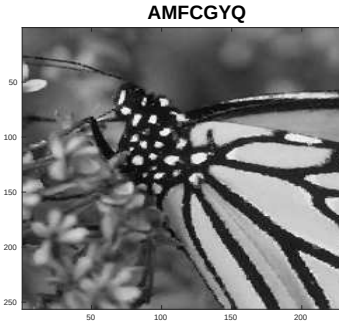
PSNR=27.9321 dB



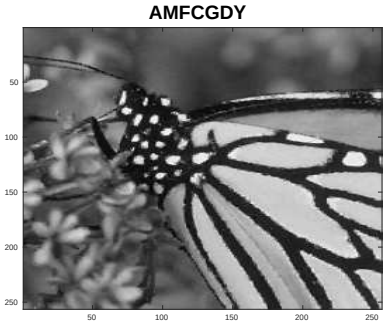
PSNR=27.6638 dB



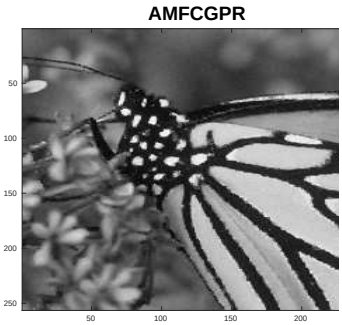
PSNR=28.301 dB



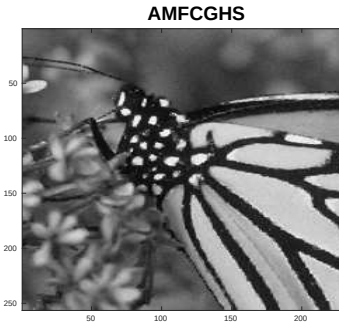
PSNR=27.8085 dB



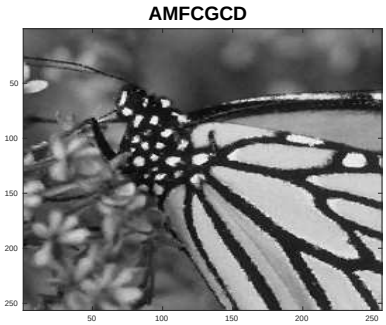
PSNR=28.4909 dB



PSNR=27.8958 dB

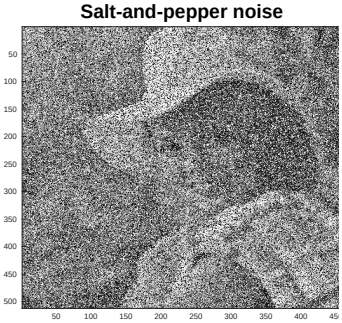


PSNR=28.5265 dB



PSNR=27.3386 dB

Table 18: The noise image by salt-and-paper noise with ratio 50%/the restored image by AMF/the restored images by all proposed algorithms



r=50%

PSNR=37.0564 dB

PSNR=39.6461 dB

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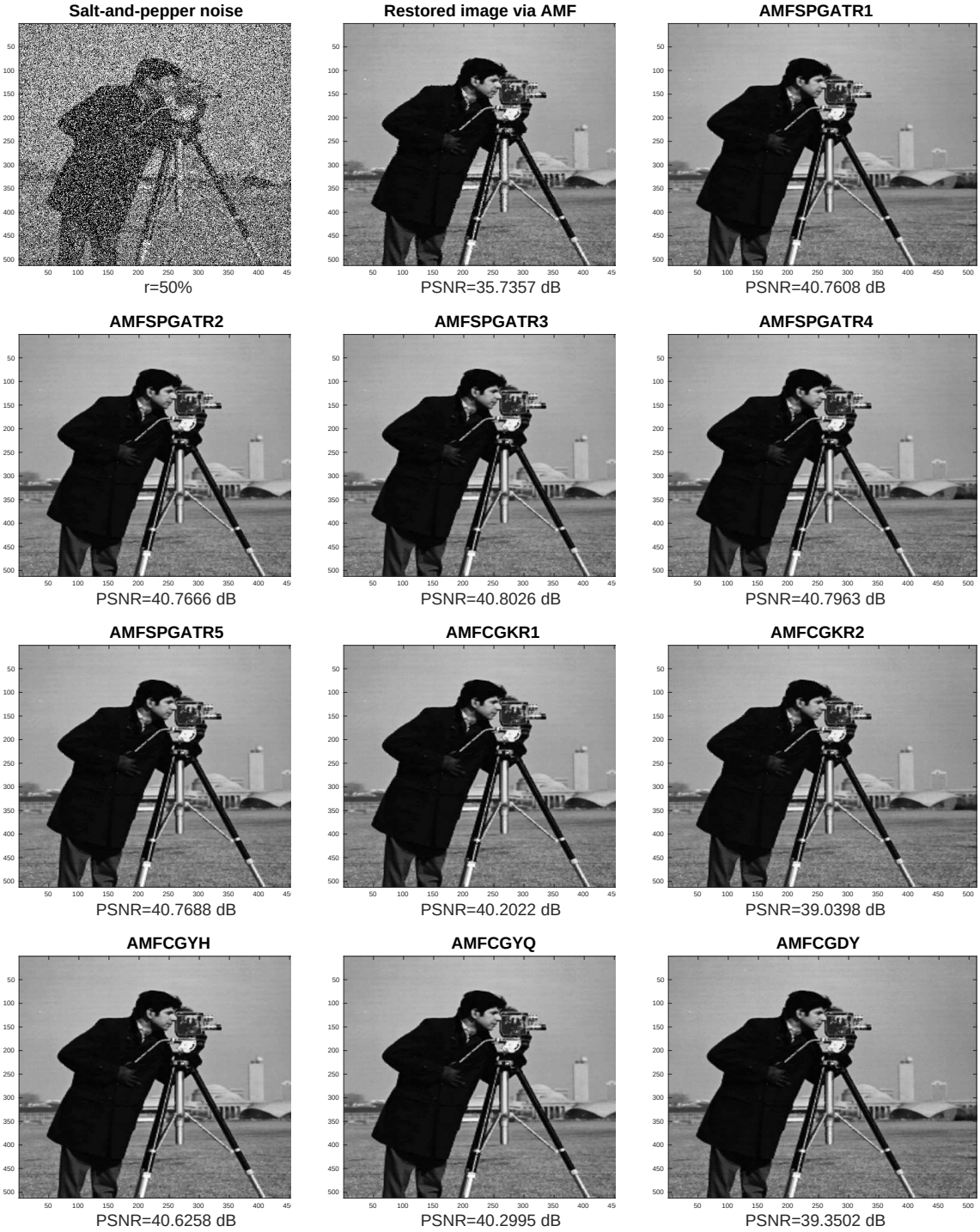
Table 19: The noise image by salt-and-paper noise with ratio 50%/the restored image by AMF/the restored images by all proposed algorithms



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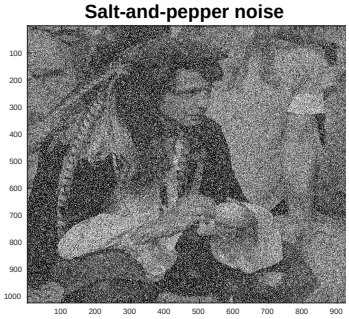
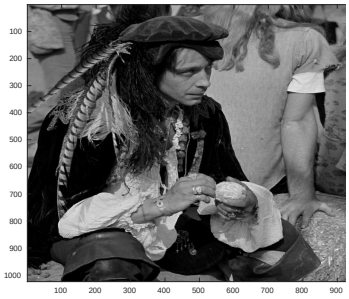
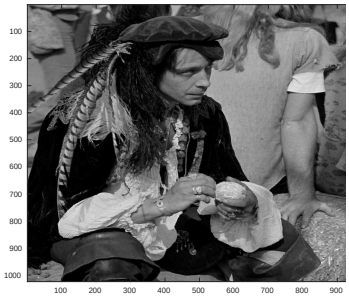
AMFCGPR	AMFCGHS	AMFCGCD
PSNR=39.2763 dB	PSNR=39.6976 dB	PSNR=38.6011 dB

Table 20: The noise image by salt-and-paper noise with ratio 50%/the restored image by AMF/the restored images by all proposed algorithms

Salt-and-pepper noise	Restored image via AMF	AMFSPGATR1
		
r=50%	PSNR=41.1317 dB	PSNR=44.3817 dB
AMFSPGATR2	**AMFSPGATR3**	**AMFSPGATR4**
PSNR=44.3782 dB	PSNR=44.3954 dB	PSNR=44.3932 dB
AMFSPGATR5	**AMFCGKR1**	**AMFCGKR2**
		
PSNR=44.3889 dB	PSNR=44.1651 dB	PSNR=43.5019 dB

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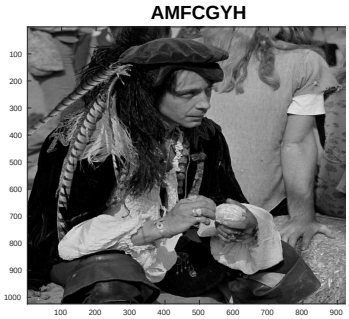
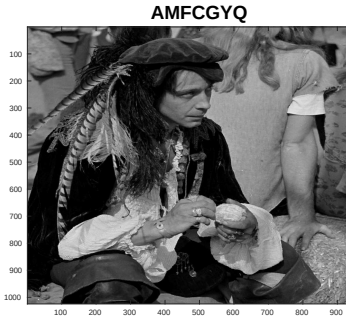
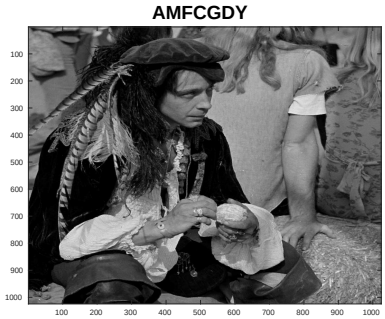


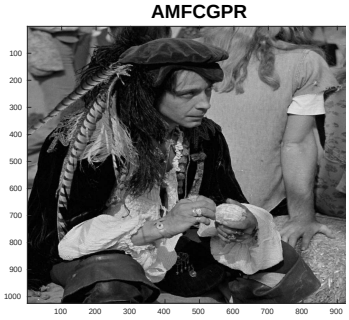
PSNR=44.3508 dB



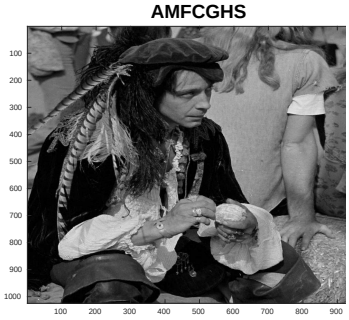
PSNR=44.1106 dB



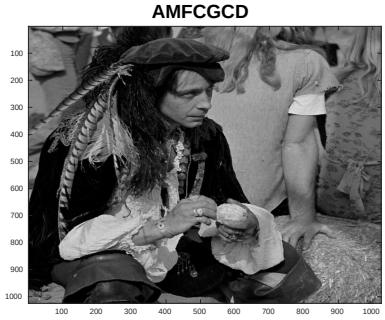
PSNR=44.0696 dB



PSNR=43.7038 dB

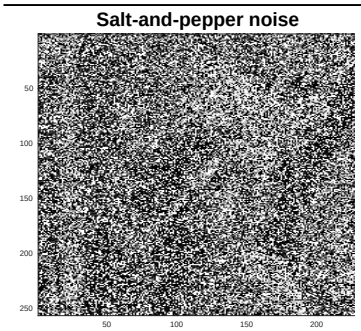


PSNR=43.9228 dB

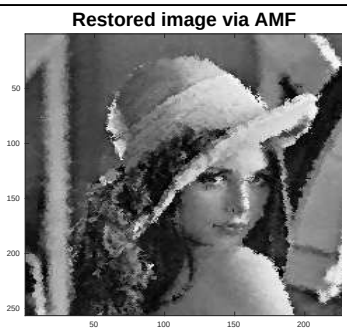


PSNR=43.2154 dB

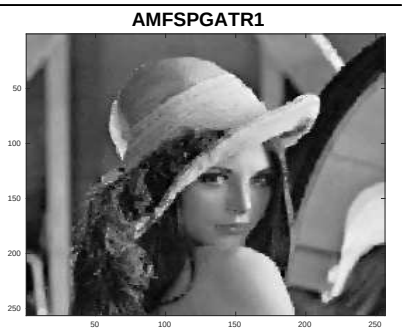
Table 21: The noise image by salt-and-paper noise with ratio 50%/the restored image by AMF/the restored images by all proposed algorithms



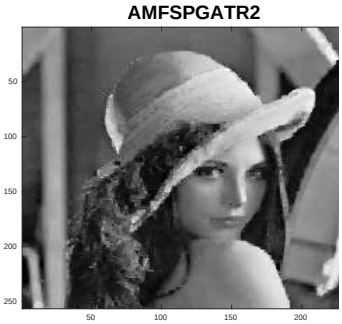
r=70%



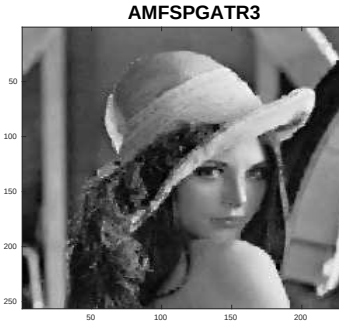
PSNR=23.0866 dB



PSNR=26.7674 dB



PSNR=26.7818 dB



PSNR=26.7911 dB

PSNR=26.791 dB

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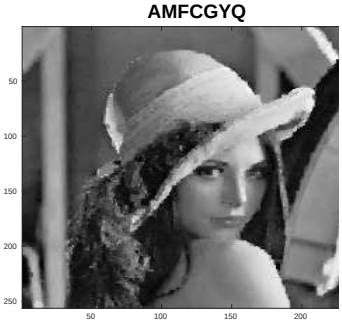
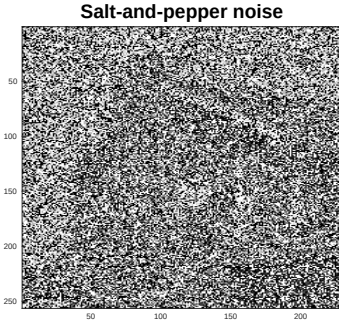
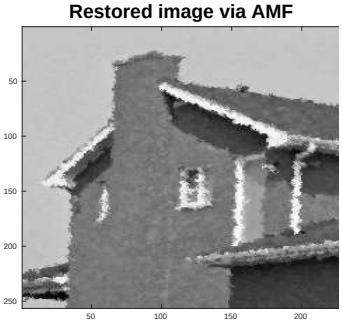
AMFSPGATR5 PSNR=26.7927 dB	**AMFCGKR1** PSNR=26.4101 dB	**AMFCGKR2** PSNR=26.2439 dB
AMFCGYH PSNR=26.7012 dB	**AMFCGYQ**  PSNR=26.4891 dB	**AMFCGDY** PSNR=26.7365 dB
AMFCGPR PSNR=26.4619 dB	**AMFCGHS** PSNR=26.6935 dB	**AMFCGCD** PSNR=25.7598 dB

Table 22: The noise image by salt-and-paper noise with ratio 70%/the restored image by AMF/the restored images by all proposed algorithms

Salt-and-pepper noise  r=70%	**Restored image via AMF**  PSNR=25.8561 dB	**AMFSPGATR1** PSNR=30.7564 dB

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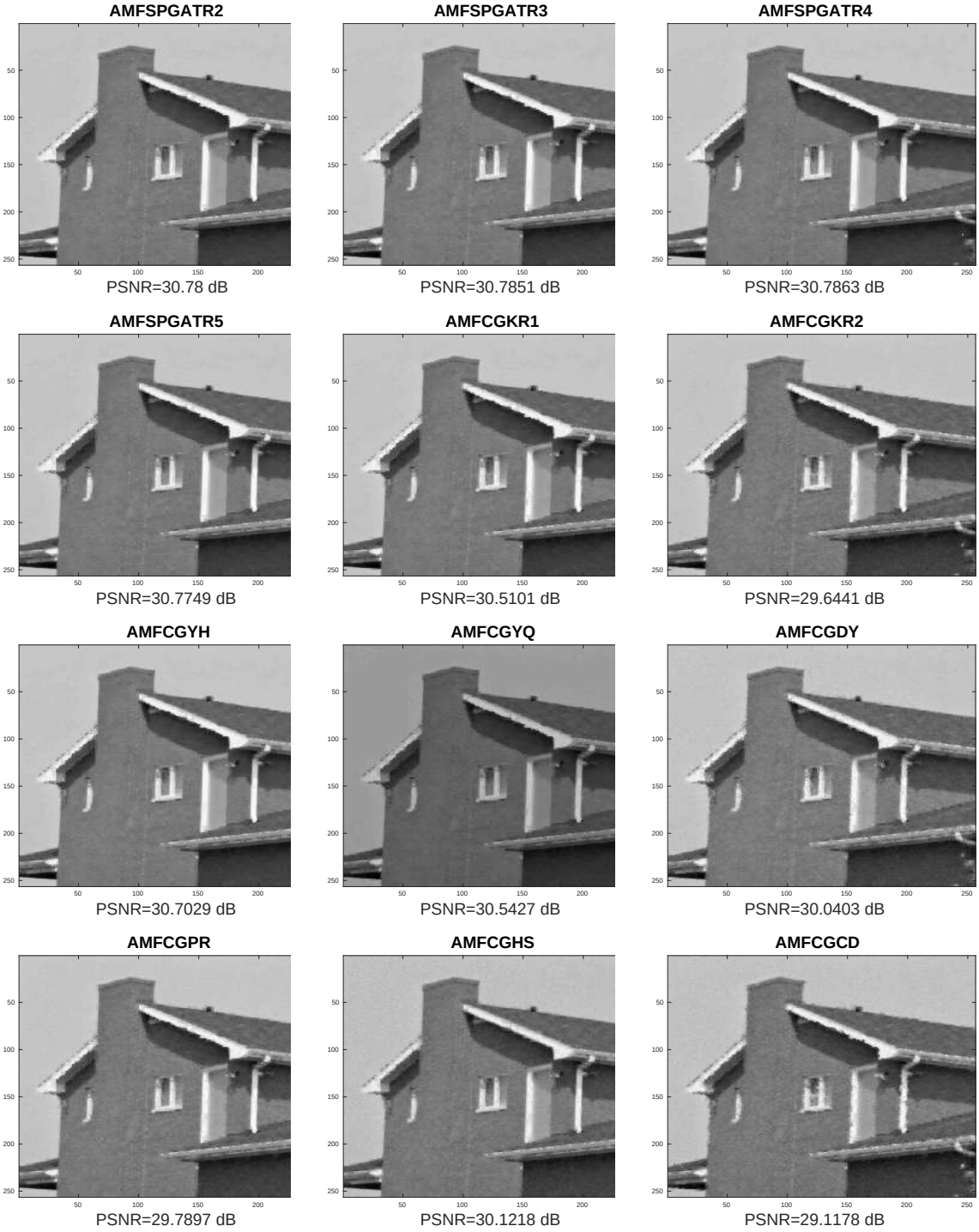
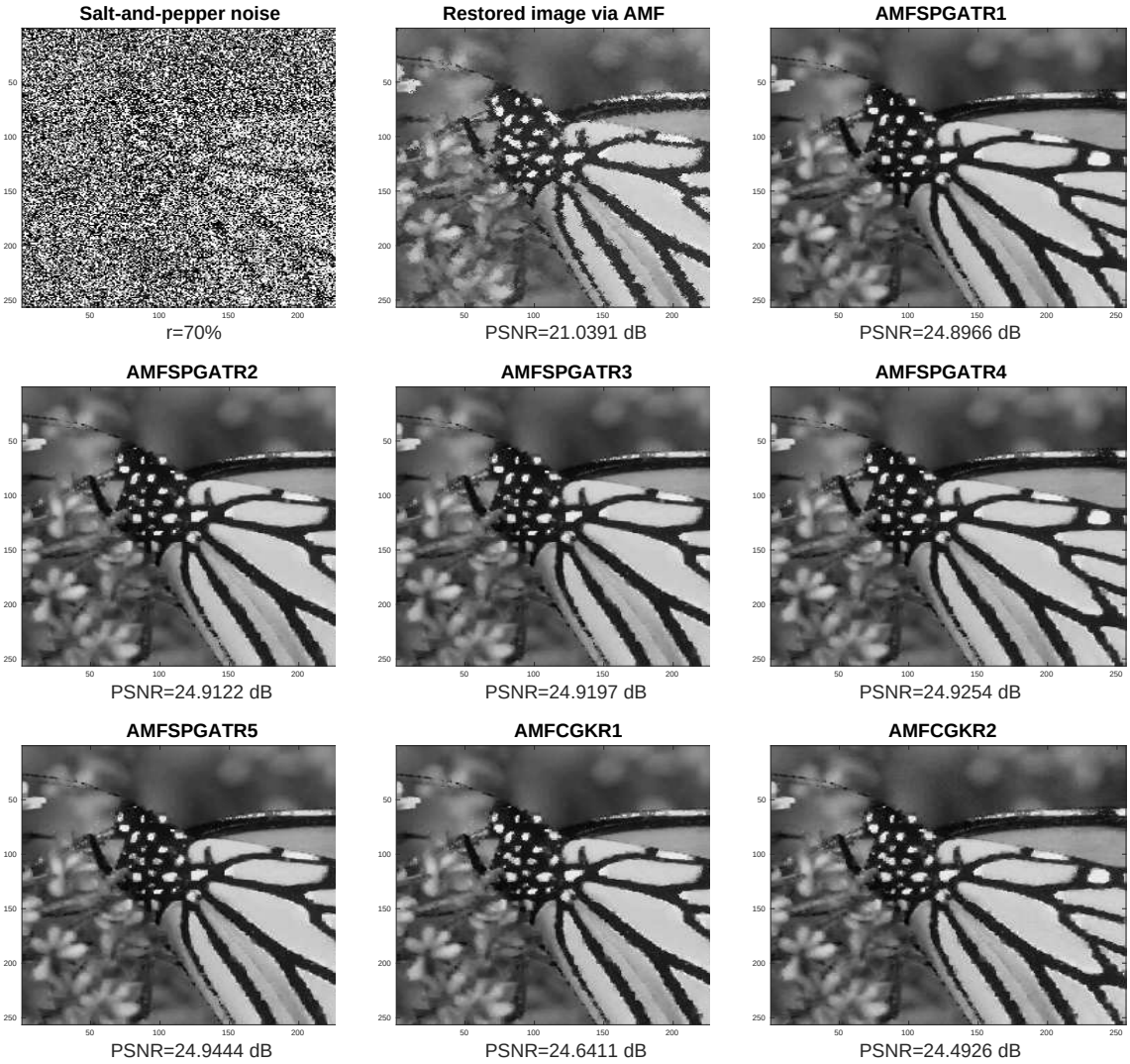


Table 23: The noise image by salt-and-paper noise with ratio 70%/the restored image by AMF/the restored images by all proposed algorithms

Continued on next page

Table 24: The noise image by salt-and-paper noise with ratio 70%/the restored image by AMF/the restored images by all proposed algorithms



Continued on next page

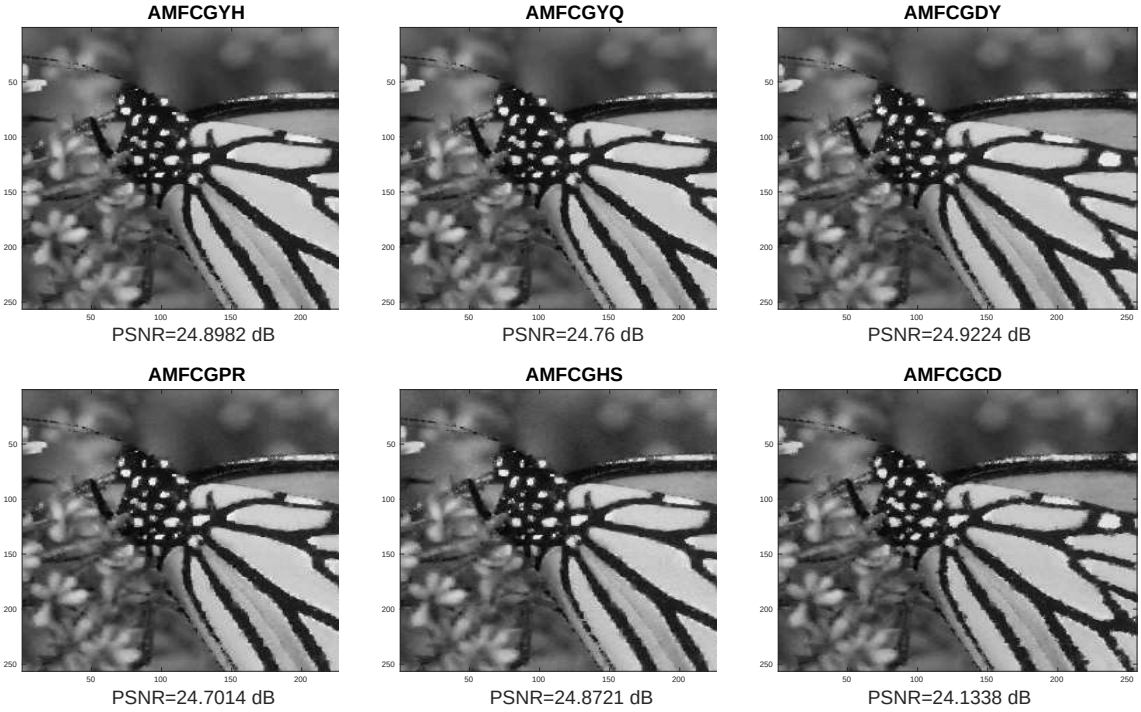
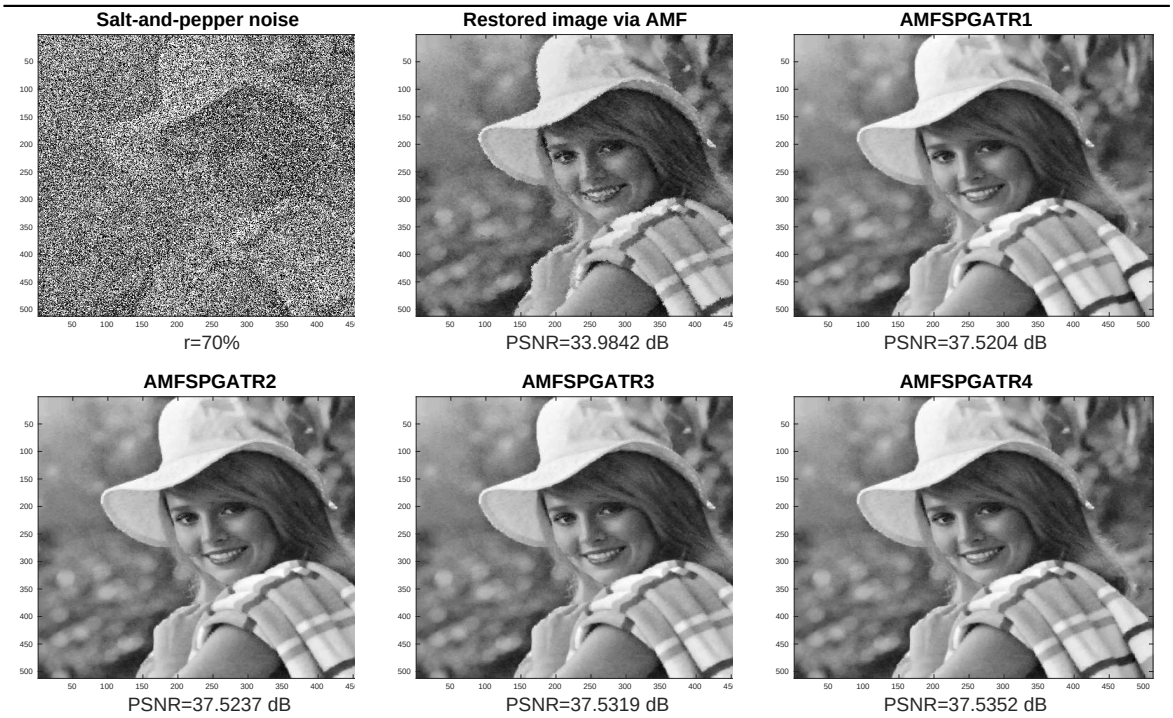


Table 25: The noise image by salt-and-paper noise with ratio 70%/the restored image by AMF/the restored images by all proposed algorithms



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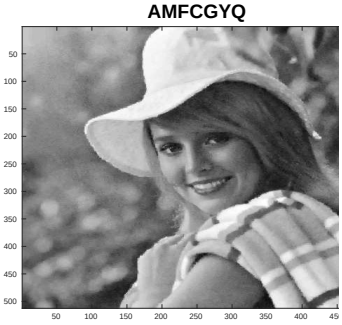
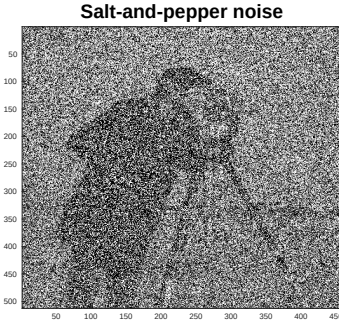
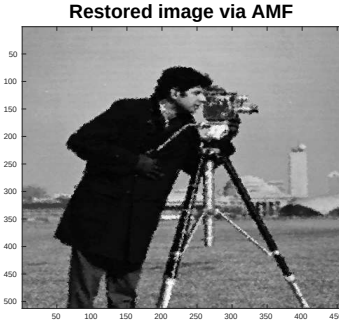
AMFSPGATR5 PSNR=37.5334 dB	**AMFCGKR1** PSNR=37.299 dB	**AMFCGKR2** PSNR=36.4295 dB
AMFCGYH PSNR=37.4543 dB	**AMFCGYQ**  PSNR=37.2443 dB	**AMFCGDY** PSNR=36.9311 dB
AMFCGPR PSNR=36.4532 dB	**AMFCGHS** PSNR=36.7522 dB	**AMFCGCD** PSNR=36.4353 dB

Table 26: The noise image by salt-and-paper noise with ratio 70%/the restored image by AMF/the restored images by all proposed algorithms

Salt-and-pepper noise  r=70%	**Restored image via AMF**  PSNR=32.0383 dB	**AMFSPGATR1** PSNR=36.254 dB

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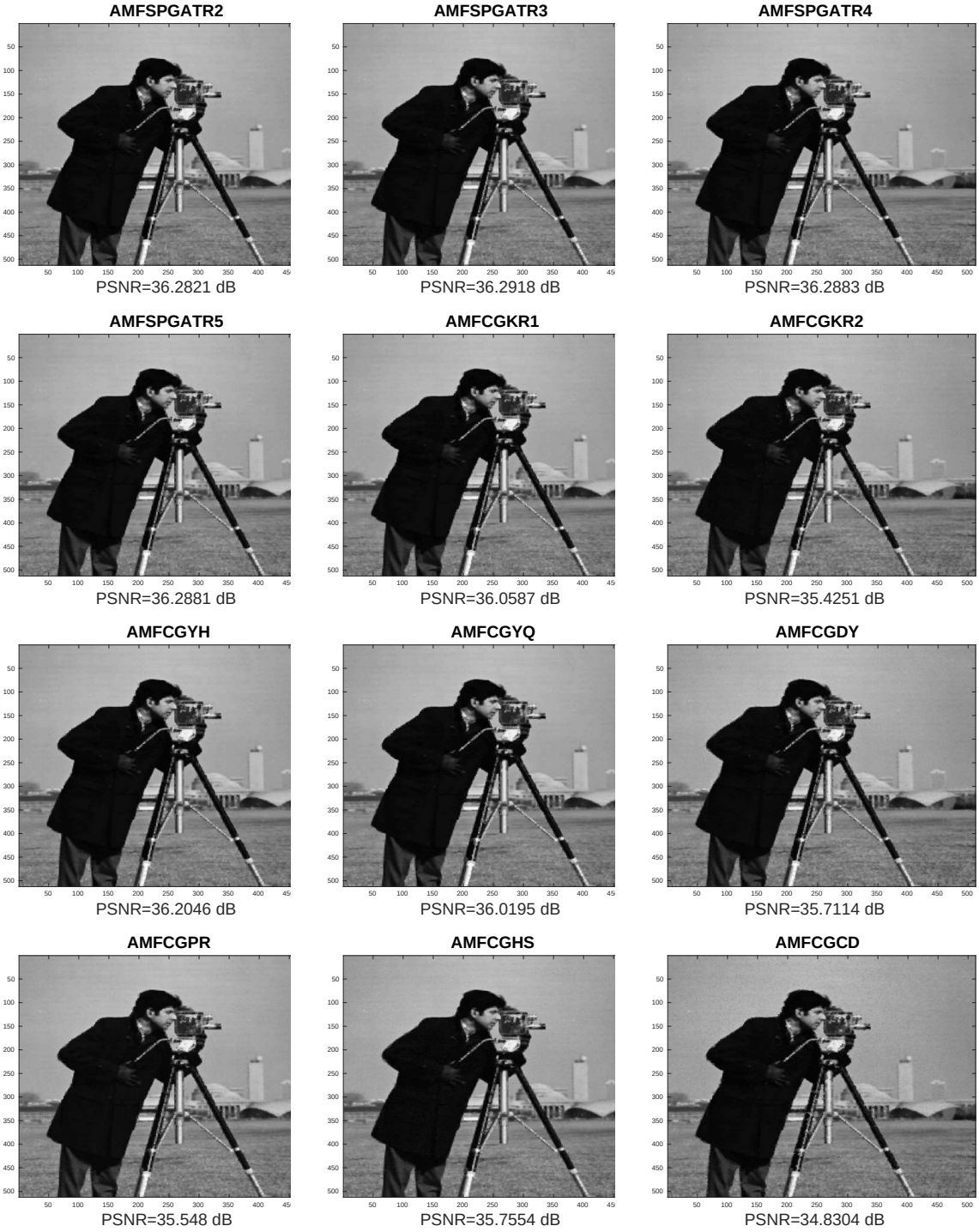
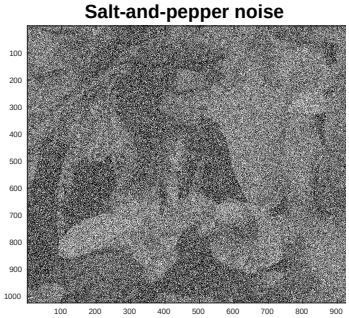
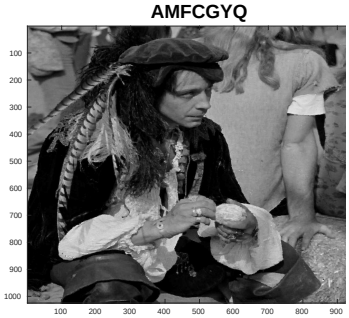


Table 27: The noise image by salt-and-paper noise with ratio 70%/the restored image by AMF/the restored images by all proposed algorithms

Salt-and-pepper noise  r=70%	**Restored image via AMF** PSNR=37.7857 dB	**AMFSPGATR1** PSNR=41.1899 dB
AMFSPGATR2 PSNR=41.1932 dB	**AMFSPGATR3** PSNR=41.2001 dB	**AMFSPGATR4** PSNR=41.1987 dB
AMFSPGATR5 PSNR=41.1909 dB	**AMFCGKR1** PSNR=41.0302 dB	**AMFCGKR2** PSNR=40.5831 dB
AMFCGYH PSNR=41.1595 dB	**AMFCGYQ**  PSNR=41.0279 dB	**AMFCGDY** PSNR=41.03 dB

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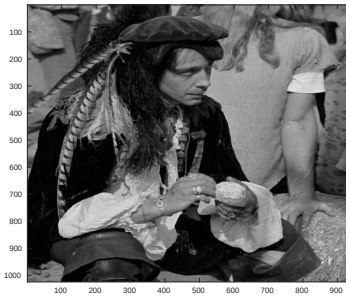
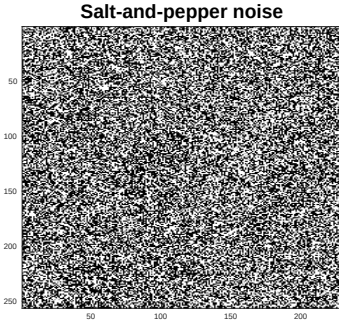
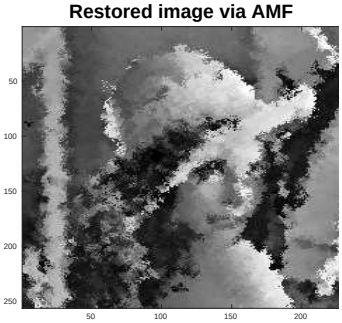
AMFCGPR	AMFCGHS	AMFCGCD
		
PSNR=40.7521 dB	PSNR=40.8792 dB	PSNR=40.4161 dB

Table 28: The noise image by salt-and-paper noise with ratio 70%/the restored image by AMF/the restored images by all proposed algorithms

Salt-and-pepper noise	Restored image via AMF	AMFSPGATR1
		
r=90%	PSNR=18.8405 dB	PSNR=22.1867 dB
AMFSPGATR2	**AMFSPGATR3**	**AMFSPGATR4**
PSNR=22.1879 dB	PSNR=22.1808 dB	PSNR=22.1882 dB
AMFSPGATR5	**AMFCGKR1**	**AMFCGKR2**
PSNR=22.1941 dB	PSNR=22.2855 dB	PSNR=22.1257 dB

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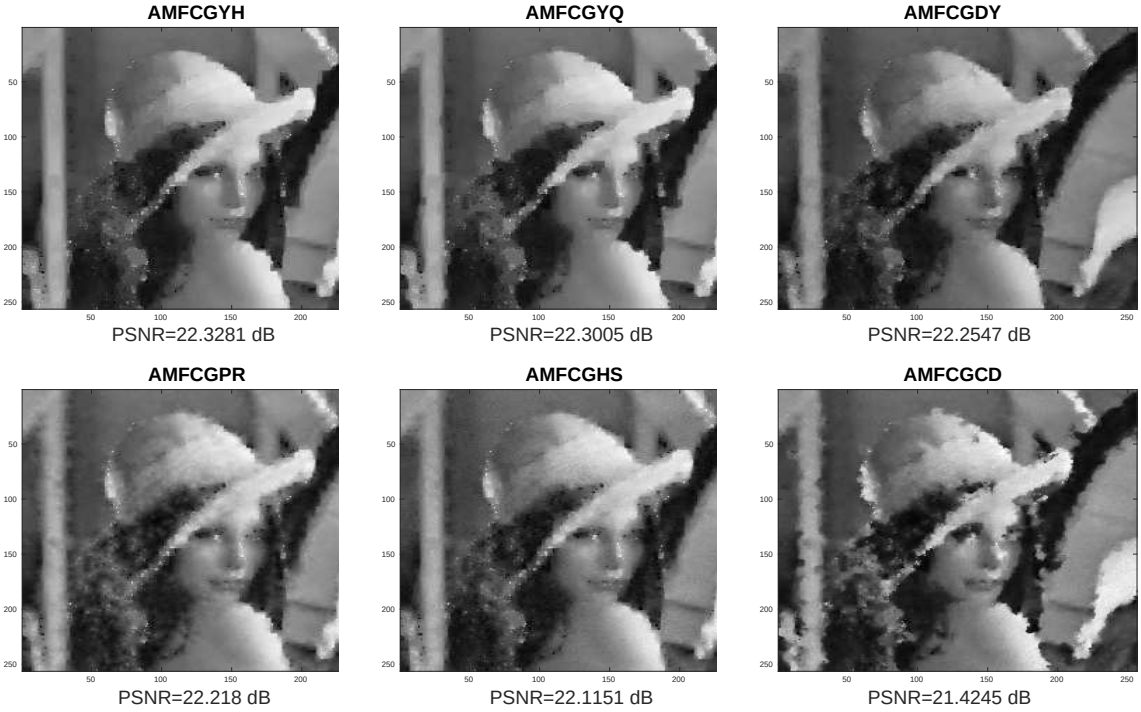
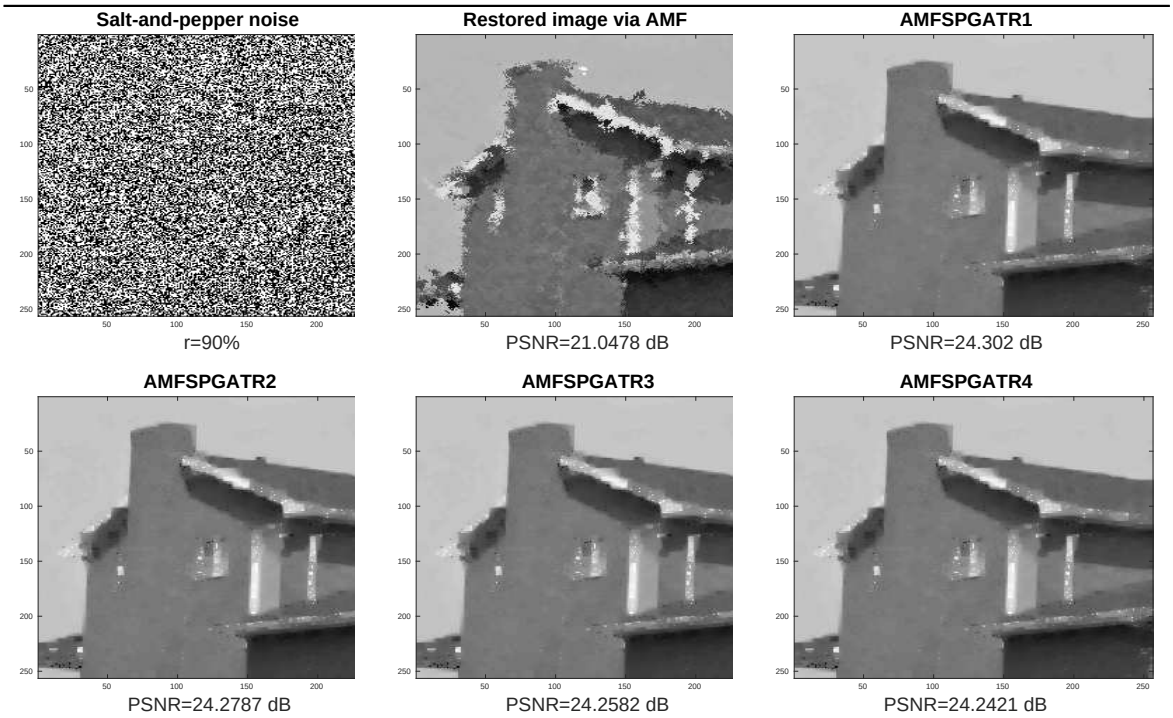


Table 29: The noise image by salt-and-paper noise with ratio 90%/the restored image by AMF/the restored images by all proposed algorithms



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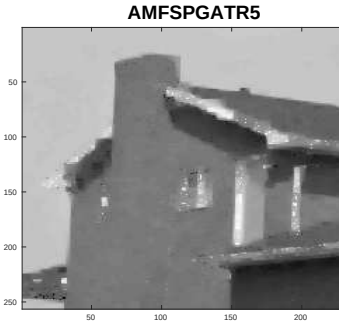
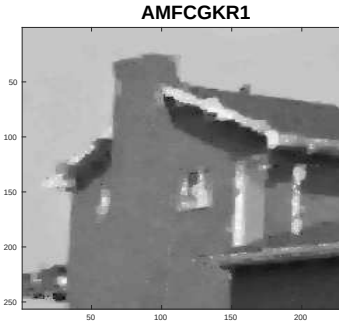
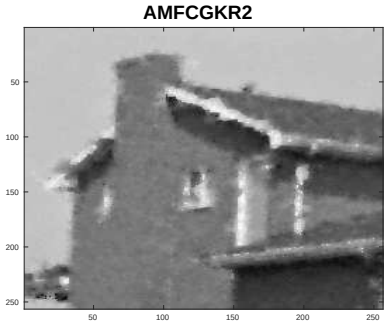


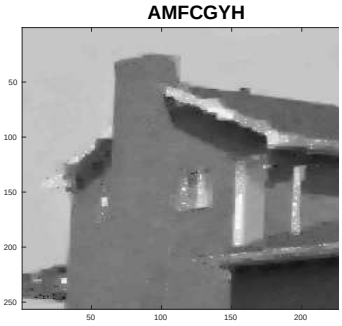
PSNR=24.256 dB



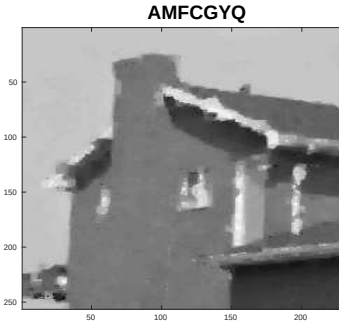
PSNR=24.7751 dB



PSNR=24.4755 dB

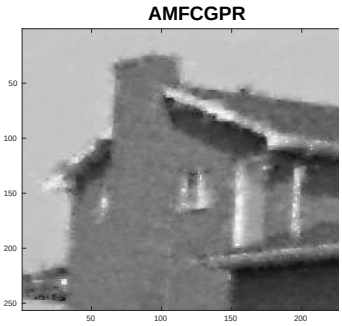


PSNR=24.6403 dB

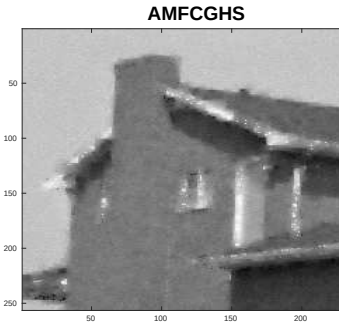


PSNR=24.6609 dB

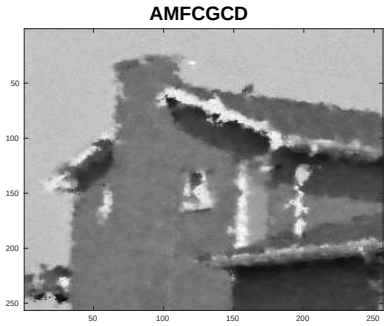
PSNR=24.5719 dB



PSNR=24.4607 dB

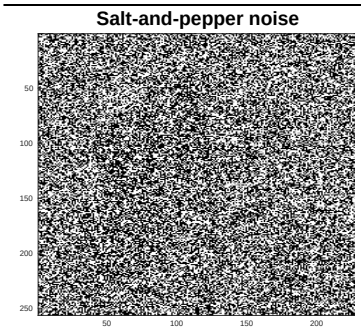


PSNR=24.1501 dB

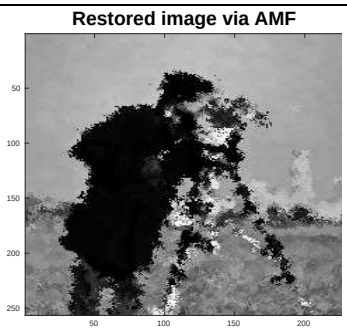


PSNR=23.447 dB

Table 30: The noise image by salt-and-paper noise with ratio 90%/the restored image by AMF/the restored images by all proposed algorithms



r=90%



PSNR=17.6868 dB

PSNR=20.8428 dB

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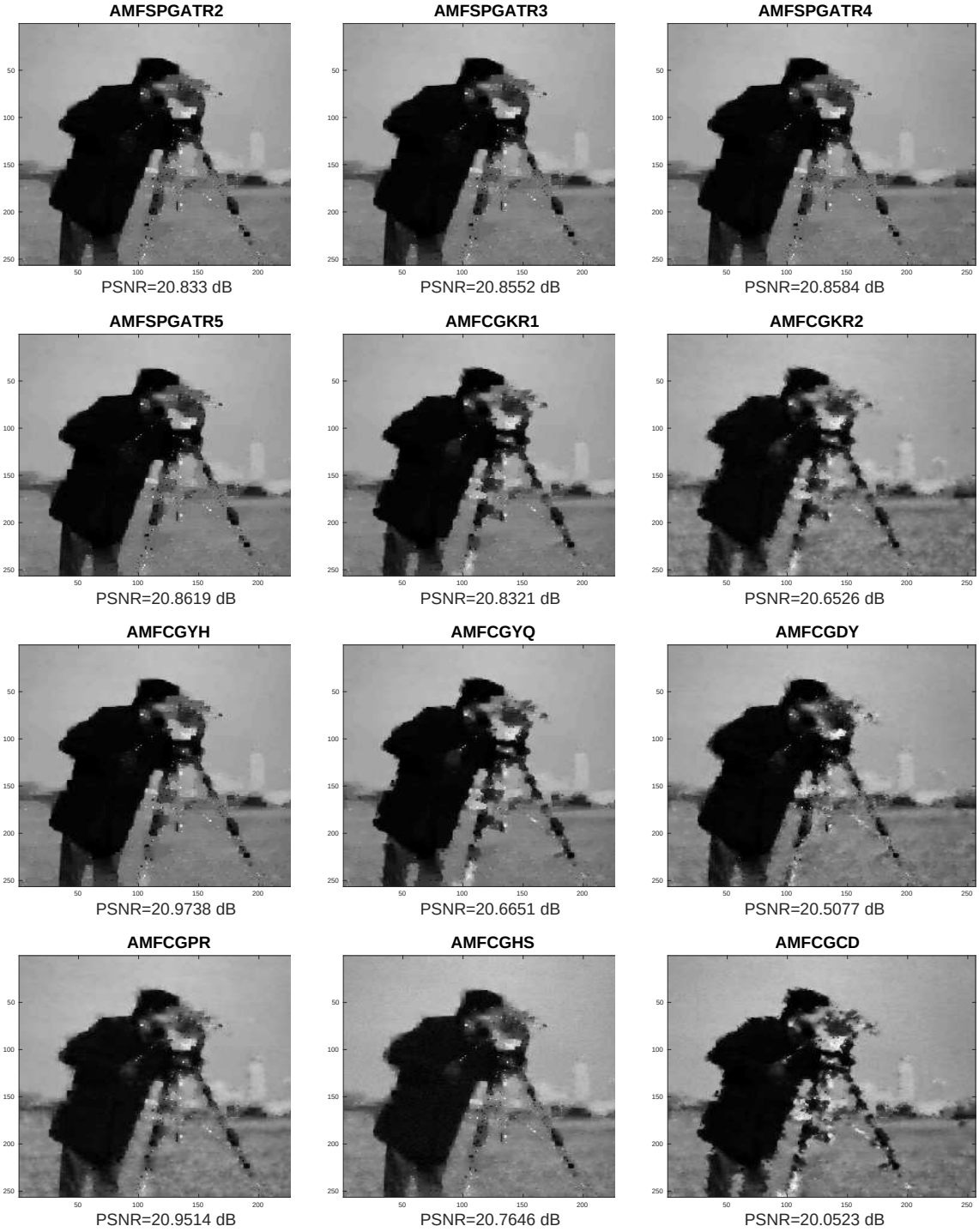
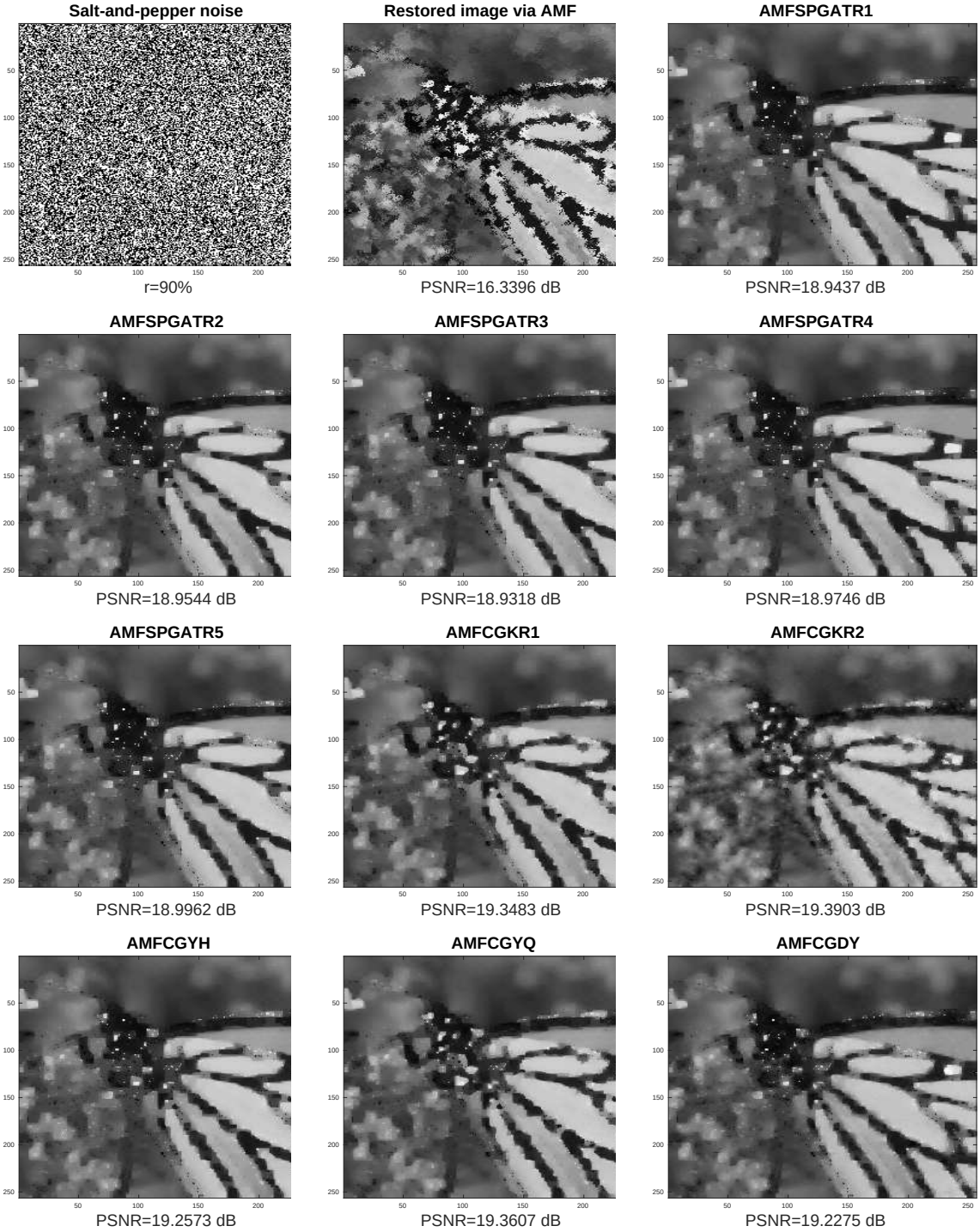


Table 31: The noise image by salt-and-paper noise with ratio 90%/the restored image by AMF/the restored images by all proposed algorithms



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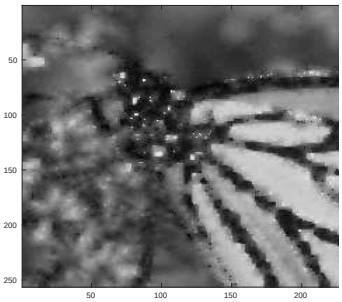
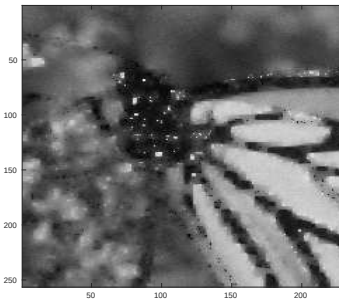
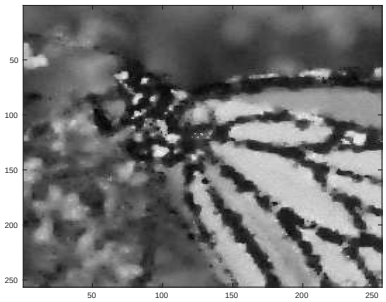
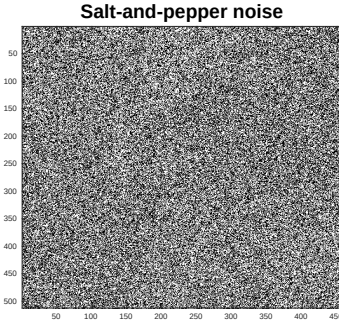
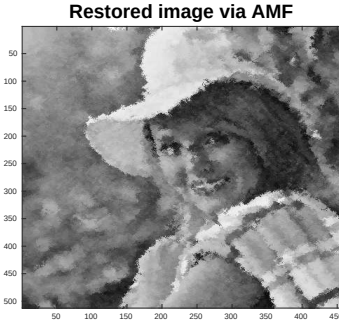
AMFCGPR	AMFCGHS	AMFCGCD
		
PSNR=19.4912 dB	PSNR=18.968 dB	PSNR=19.2684 dB

Table 32: The noise image by salt-and-paper noise with ratio 90%/the restored image by AMF/the restored images by all proposed algorithms

Salt-and-pepper noise	Restored image via AMF	AMFSPGATR1
		
r=90%	PSNR=29.4232 dB	PSNR=33.5902 dB
AMFSPGATR2	**AMFSPGATR3**	**AMFSPGATR4**
PSNR=33.5869 dB	PSNR=33.596 dB	PSNR=33.5956 dB
AMFSPGATR5	**AMFCGKR1**	**AMFCGKR2**
PSNR=33.593 dB	PSNR=33.4667 dB	PSNR=32.9124 dB

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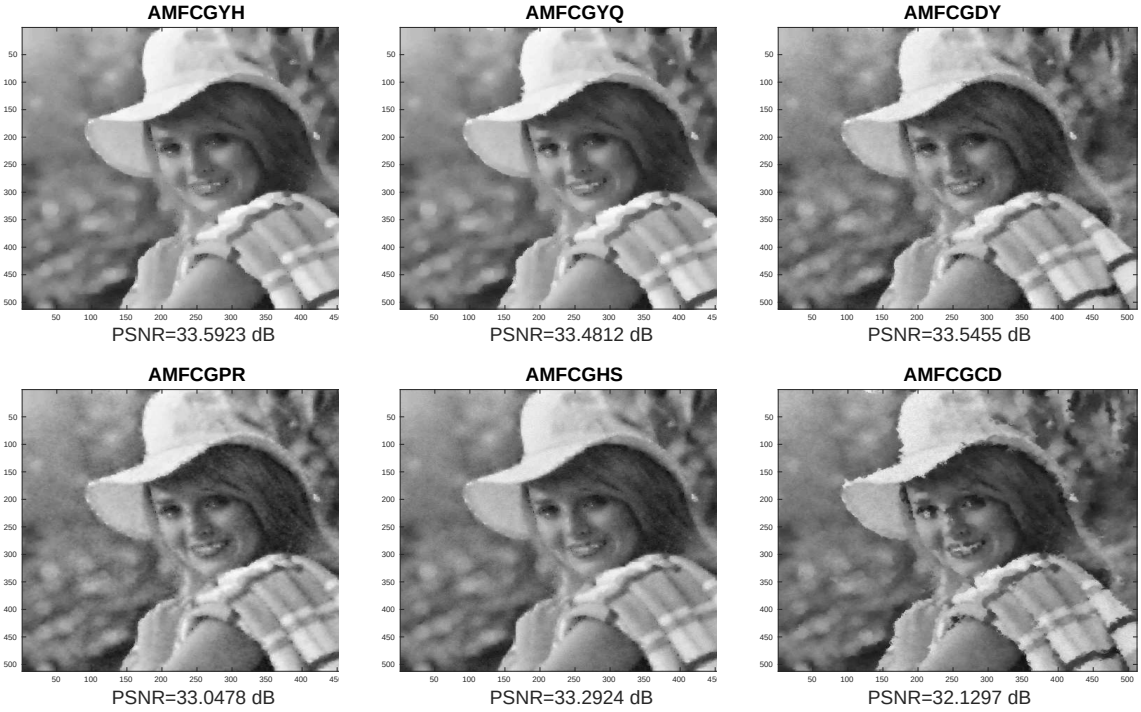
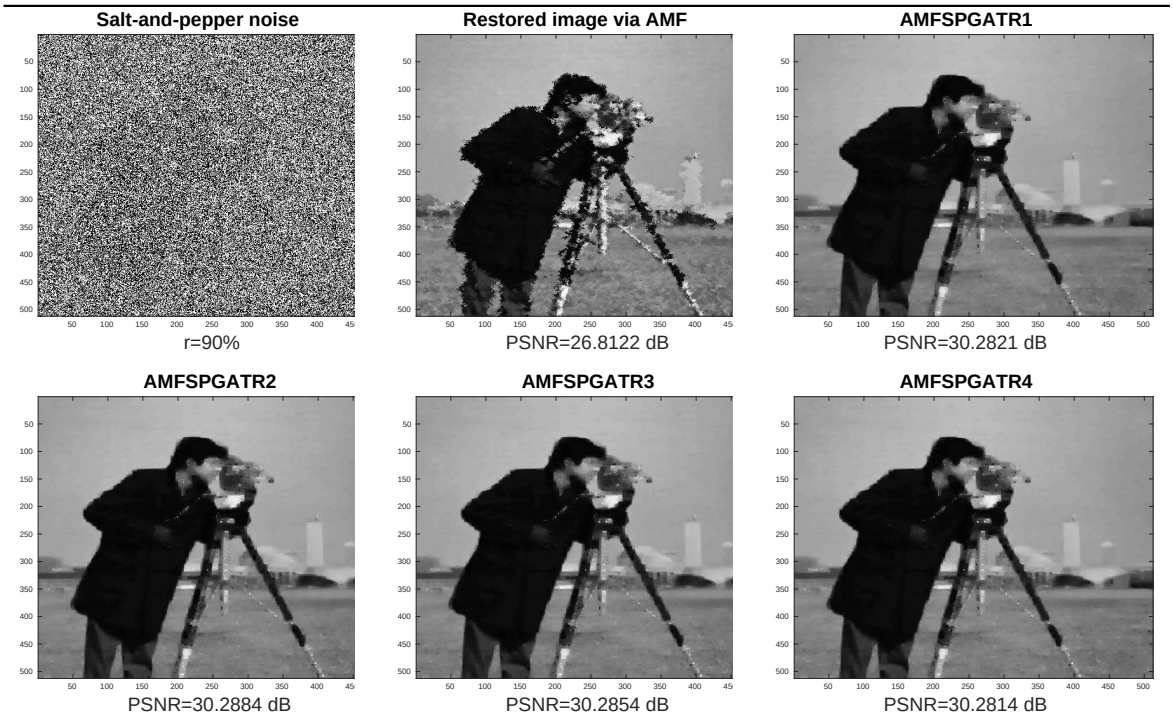


Table 33: The noise image by salt-and-paper noise with ratio 90%/the restored image by AMF/the restored images by all proposed algorithms



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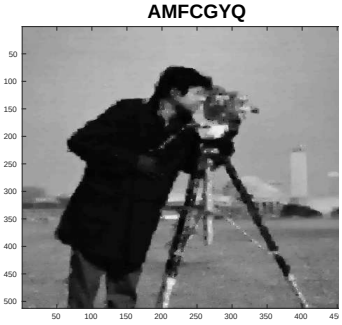
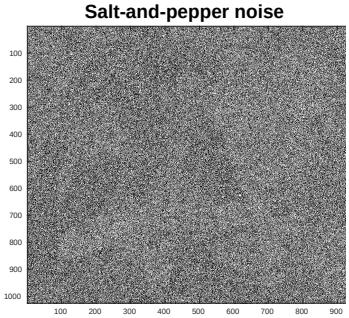
AMFSPGATR5 PSNR=30.2825 dB	**AMFCGKR1** PSNR=30.2004 dB	**AMFCGKR2** PSNR=30.0171 dB
AMFCGYH PSNR=30.3658 dB	**AMFCGYQ**  PSNR=30.2833 dB	**AMFCGDY** PSNR=30.3726 dB
AMFCGPR PSNR=30.2533 dB	**AMFCGHS** PSNR=30.092 dB	**AMFCGCD** PSNR=29.4294 dB

Table 34: The noise image by salt-and-paper noise with ratio 90%/the restored image by AMF/the restored images by all proposed algorithms

Salt-and-pepper noise  r=90%	**Restored image via AMF** PSNR=33.4086 dB	**AMFSPGATR1** PSNR=36.7747 dB

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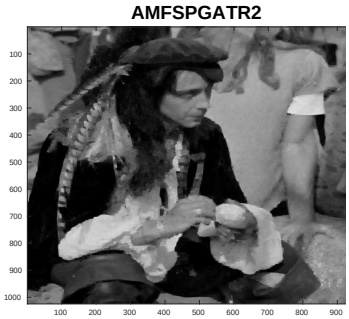

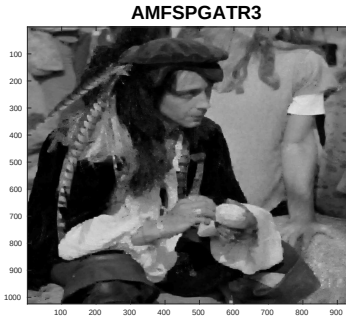

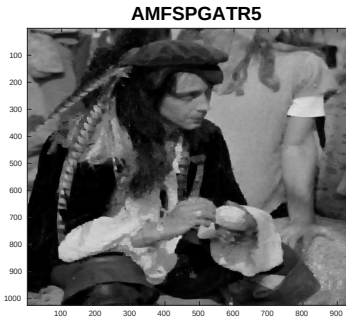

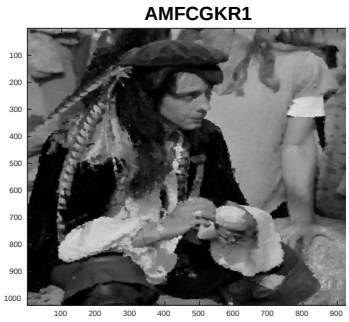

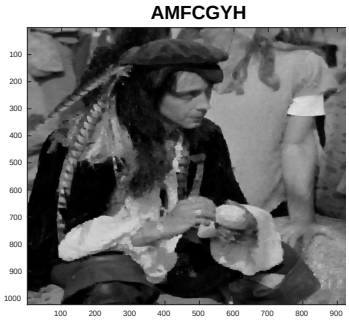

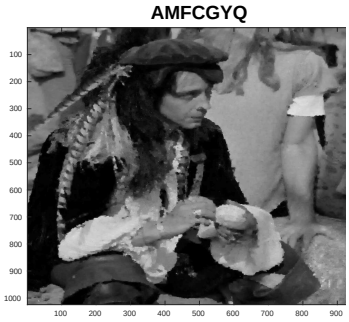

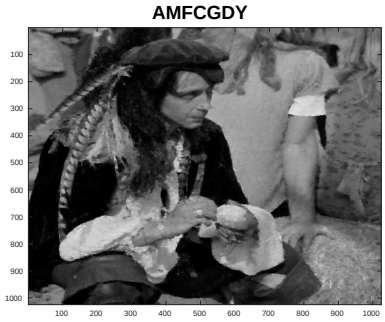

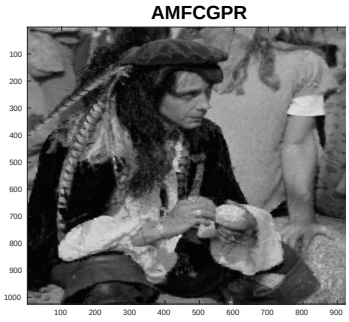

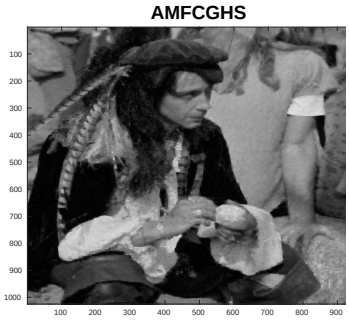

Table 35: The noise image by salt-and-paper noise with ratio 90%/the restored image by AMF/the restored images by all proposed algorithms

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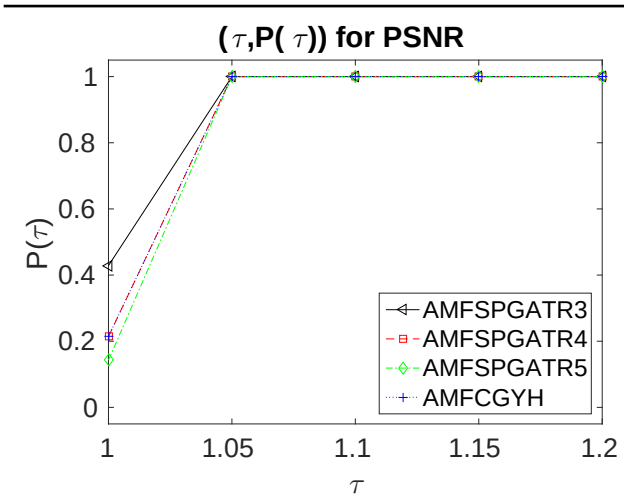

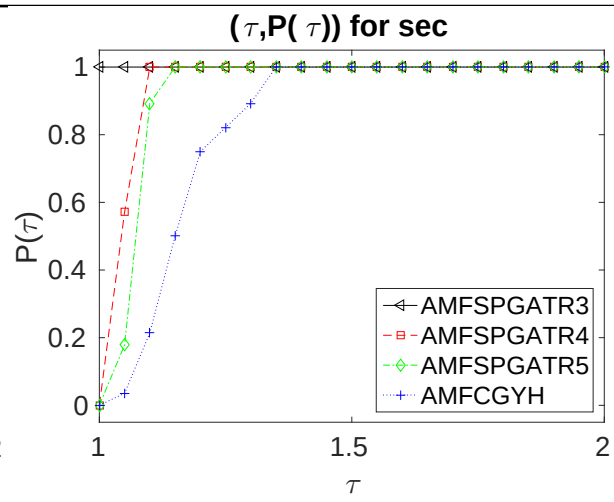

Table 36: A comparison among all proposed algorithms in performance measures `PSNR` and `Ct`