	MegaDepth											ScanNet											Planar							IMC PhotoTourism																		
Pipeline	Filtered	Precision	Recall	$\text{AUC}^F_{@5}$	$\text{AUC}^F_{@10}$	$\text{AUC}^F_{@20}$	$\text{AUC}^F_{\measuredangle}$	$\text{AUC}^E_{@5}$	$\text{AUC}^E_{@10}$	$\text{AUC}^E_{@20}$	$\text{AUC}^E_{\measuredangle}$	Filtered	Precision	Recall	$\text{AUC}^F_{@5}$	$\text{AUC}^F_{@10}$	$\text{AUC}^F_{@20}$	$\text{AUC}^F_{\measuredangle}$	$\text{AUC}^E_{@5}$	$\text{AUC}^E_{@10}$	$\text{AUC}^E_{@20}$	$\text{AUC}^E_{\measuredangle}$	Filtered	Precision	Recall	$\text{AUC}^H_{@5}$	$\text{AUC}^H_{@10}$	$\text{AUC}^H_{@15}$	$\text{AUC}^H_{\square}$	Filtered	Precision	Recall	$\text{AUC}^F_{@5}$	$\text{AUC}^F_{@10}$	$\text{AUC}^F_{@20}$	$\text{AUC}^F_{\measuredangle}$	$\text{AUC}^F_{@(5,\frac{1}{2})}$	$\text{AUC}^F_{@(10,1)}$	$\text{AUC}^F_{@(20,2)}$	$\text{AUC}^F_{\square}$	$\text{AUC}^E_{@5}$	$\text{AUC}^E_{@10}$	$\text{AUC}^E_{@20}$	$\text{AUC}^E_{\measuredangle}$	$\text{AUC}^E_{@(5,\frac{1}{2})}$	$\text{AUC}^E_{@(10,1)}$	$\text{AUC}^E_{@(20,2)}$	$\text{AUC}^E_{\square}$
Key.Net+AffNet+HardNet	0.00	55.25	**100.00**	0.00	0.11	0.73	0.28	42.88	59.51	73.52	58.64	0.00	35.32	**99.14**	0.04	0.21	0.99	0.41	10.80	22.44	36.13	23.12	0.00	61.39	97.68	0.95	2.25	4.29	26.29	0.00	49.95	**99.98**	0.02	0.23	1.43	0.56	0.05	0.25	1.21	0.50	45.66	62.62	75.56	61.28	18.70	31.72	46.83	32.42
+ACNe	44.49	88.17	89.73	8.62	21.30	41.20	23.71	40.36	58.93	74.72	58.00	57.15	58.68	71.79	2.02	7.79	20.16	9.99	10.62	23.07	38.42	24.04	39.88	75.03	76.36	24.14	34.89	40.15	43.88	52.28	87.51	85.05	6.64	18.32	37.84	20.94	2.53	6.48	13.77	7.59	46.20	63.55	76.53	62.10	17.55	30.72	46.48	31.58
+ACNe+MAGSAC$_\uparrow$	58.65	94.88	72.18	30.43	46.57	61.87	46.29	42.14	60.52	75.64	59.43	74.24	64.58	46.79	6.48	15.98	29.50	17.32	10.22	22.97	37.94	23.71	73.41	84.85	38.13	38.58	53.48	60.11	47.58	63.20	93.91	69.45	28.19	43.55	59.36	43.70	10.72	19.35	30.83	20.30	45.88	63.38	76.53	61.93	17.34	30.40	46.29	31.34
+ACNe+MAGSAC$_\downarrow$	63.78	95.58	63.78	30.17	46.24	61.54	45.98	41.35	60.17	75.38	58.97	77.67	64.54	40.44	6.37	15.65	29.15	17.06	10.79	23.47	38.72	24.33	81.25	85.18	26.91	38.11	52.75	59.77	44.39	67.49	94.41	61.66	28.92	44.28	**59.91**	44.37	11.09	19.87	31.25	20.74	46.06	63.54	76.74	62.11	17.42	30.78	46.58	31.59
+AdaLAM	**94.16**	89.61	8.72	10.49	17.51	26.64	18.21	17.37	28.75	41.08	29.07	**96.86**	43.96	4.36	0.48	1.57	3.64	1.89	1.34	3.42	6.91	3.89	87.24	69.75	14.92	25.11	36.91	43.39	30.08	**97.26**	77.95	4.21	4.93	8.61	13.94	9.16	2.51	4.65	8.00	5.06	10.04	16.70	24.62	17.12	4.72	8.66	13.98	9.12
+AdaLAM+MAGSAC$_\uparrow$	**94.83**	73.42	7.72	13.53	21.74	31.16	22.14	16.20	27.42	39.16	27.60	**97.72**	27.00	3.22	0.97	2.36	4.91	2.74	1.30	3.45	6.59	3.78	92.10	67.11	9.69	28.72	40.59	47.52	31.63	**97.58**	50.08	3.65	5.77	9.60	14.84	10.07	3.01	5.44	8.83	5.76	9.62	16.16	23.63	16.47	4.43	8.30	13.60	8.78
+AdaLAM+MAGSAC$_\downarrow$	**95.20**	73.66	7.22	13.34	21.89	31.60	22.28	16.19	28.24	40.26	28.23	**97.89**	26.96	2.97	0.88	2.39	5.07	2.78	1.19	3.16	6.49	3.61	**94.11**	67.55	7.31	27.95	40.06	46.60	30.48	**97.71**	50.15	3.47	5.74	9.65	15.02	10.14	3.02	5.48	8.88	5.79	9.71	16.28	23.72	16.57	4.59	8.46	13.76	8.94
+CC	43.30	88.22	88.13	11.50	21.36	35.48	22.78	40.40	58.24	72.72	57.12	44.18	58.68	74.80	1.60	4.71	11.09	5.80	7.92	17.28	29.67	18.29	18.88	75.06	96.56	37.88	51.71	59.03	**61.29**	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
+CC+MAGSAC$_\uparrow$	59.28	95.09	69.70	31.74	46.30	60.39	46.14	39.37	57.69	73.04	56.70	76.00	65.09	42.71	4.39	10.73	20.06	11.73	7.45	17.56	30.01	18.34	69.24	84.47	43.38	43.41	**57.54**	**64.16**	52.12	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
+CC+MAGSAC$_\downarrow$	64.27	**95.75**	61.71	31.42	45.98	60.42	45.94	40.28	58.31	73.49	57.36	79.11	65.11	37.20	4.40	11.01	20.52	11.98	7.56	17.75	30.19	18.50	78.60	85.03	30.41	43.48	57.09	63.63	48.65	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
+CLNet	46.58	87.22	84.85	1.64	4.47	13.39	6.50	35.36	54.49	71.23	53.69	70.26	62.57	52.58	0.50	1.91	6.20	2.87	6.39	16.33	29.00	17.24	31.70	76.53	86.03	28.22	41.82	48.50	51.14	54.46	88.22	81.60	4.23	9.42	18.91	10.85	1.04	2.59	6.04	3.22	41.23	59.06	73.19	57.83	15.03	27.23	42.40	28.22
+CLNet+MAGSAC$_\uparrow$	61.14	94.55	66.88	21.38	34.44	49.38	35.07	36.03	54.96	71.26	54.08	79.49	65.69	37.92	2.05	6.53	14.79	7.79	6.49	16.00	28.70	17.06	69.95	84.08	42.18	43.11	56.52	62.29	51.02	65.27	94.04	65.61	22.16	35.31	50.71	36.06	8.36	15.50	25.17	16.35	41.78	59.57	73.63	58.33	15.24	27.49	42.72	28.48
+CLNet+MAGSAC$_\downarrow$	66.01	95.26	59.00	21.69	35.25	50.33	35.76	35.45	54.64	71.06	53.71	82.09	65.51	33.11	2.00	6.37	14.38	7.58	6.73	16.03	28.05	16.94	78.99	84.89	29.78	43.01	56.05	61.99	47.71	69.33	94.51	58.20	22.54	35.60	50.78	36.31	8.47	15.69	25.33	16.50	41.57	59.26	73.34	58.06	15.04	27.26	42.48	28.26
+ConvMatch	57.31	86.27	74.90	11.79	22.25	35.94	23.32	34.81	52.73	67.85	51.80	65.30	63.01	65.15	1.84	6.49	15.91	8.08	8.67	20.75	34.85	21.42	76.05	69.98	37.41	17.87	30.02	36.50	30.45	59.83	87.73	77.27	12.93	24.68	40.62	26.08	3.64	8.29	16.30	9.41	42.33	59.58	73.26	58.39	14.39	27.02	42.90	28.10
+ConvMatch+MAGSAC$_\uparrow$	68.56	91.76	59.30	22.44	35.79	49.97	36.07	35.24	53.48	68.78	52.50	77.95	66.65	42.85	4.65	12.61	24.68	13.98	9.77	21.99	36.31	22.69	89.65	71.94	18.21	20.11	33.95	41.10	28.34	69.55	93.46	61.43	25.57	39.83	54.95	40.12	8.63	16.43	27.13	17.40	42.61	59.99	73.75	58.78	14.44	27.02	43.04	28.17
+ConvMatch+MAGSAC$_\downarrow$	72.51	92.39	52.28	22.87	36.00	50.06	36.31	35.66	53.63	68.68	52.66	80.77	66.58	37.29	5.03	12.60	24.34	13.99	9.55	21.48	35.89	22.31	**92.46**	72.21	13.21	19.44	33.90	41.18	26.94	73.15	93.95	54.37	25.93	40.14	55.28	40.45	8.72	16.58	27.41	17.57	42.91	60.22	73.76	58.97	14.67	27.42	43.33	28.47
+DeMatch	51.71	87.83	80.18	9.80	19.34	32.64	20.59	34.20	53.24	69.86	52.43	65.89	61.71	62.60	1.37	4.99	13.01	6.46	7.82	18.89	32.90	19.87	61.52	76.10	52.04	24.73	38.97	46.92	40.66	58.34	87.40	77.96	11.36	22.43	38.17	23.99	3.37	7.81	15.55	8.91	42.43	60.05	74.00	58.83	14.87	27.67	43.42	28.65
+DeMatch+MAGSAC$_\uparrow$	64.47	94.67	63.28	21.56	34.72	49.46	35.25	34.55	53.75	70.61	52.97	78.37	65.74	41.41	4.10	10.58	21.80	12.16	8.39	19.80	33.78	20.66	82.03	83.60	26.97	32.00	48.71	56.89	41.14	68.48	93.66	61.97	24.71	38.84	54.02	39.19	8.70	16.44	27.14	17.43	42.18	59.91	73.89	58.66	14.93	27.76	43.44	28.71
+DeMatch+MAGSAC$_\downarrow$	68.90	95.29	55.81	22.10	35.12	49.69	35.64	35.30	54.36	70.76	53.47	81.18	65.71	35.95	4.22	10.72	21.73	12.22	8.01	19.14	33.19	20.11	86.97	83.94	19.24	31.25	48.78	57.03	39.07	72.20	94.16	54.87	24.87	38.93	54.28	39.36	8.78	16.71	27.36	17.62	42.06	59.86	73.96	58.63	14.84	27.41	43.11	28.45
+FC-GNN	50.48	94.36	84.27	14.17	24.83	40.23	26.41	47.31	64.37	77.49	63.06	72.49	**67.84**	49.91	3.67	9.09	17.87	10.21	12.12	25.21	39.24	25.52	36.22	81.78	85.89	37.34	50.20	56.91	57.59	56.45	92.47	79.84	12.10	20.06	31.18	21.11	5.77	10.01	16.01	10.60	**51.67**	**67.75**	**79.38**	**66.27**	**21.55**	**35.83**	**51.80**	**36.39**
+FC-GNN+MAGSAC$_\uparrow$	53.48	**96.74**	80.97	**45.32**	**59.82**	**73.04**	**59.39**	46.52	63.96	77.35	62.61	75.83	**69.67**	45.03	8.05	17.36	29.32	18.25	11.92	24.42	38.96	25.10	52.89	84.58	65.55	40.89	54.65	61.89	55.75	59.11	**95.43**	76.76	**37.39**	**51.50**	**64.83**	**51.24**	**17.26**	**27.49**	**39.14**	**27.96**	51.19	**67.30**	**79.01**	**65.84**	21.26	35.36	51.20	35.94
+FC-GNN+MAGSAC$_\downarrow$	54.82	**96.96**	78.76	**46.16**	**60.66**	**73.36**	**60.06**	47.06	63.97	77.16	62.73	77.10	**69.71**	42.76	**8.36**	17.93	30.10	18.80	11.70	24.90	39.15	25.25	61.49	85.02	53.93	40.73	54.47	61.65	52.69	60.24	**95.65**	74.71	**37.99**	**52.12**	**65.47**	**51.86**	**17.54**	**27.91**	**39.61**	**28.35**	50.91	67.11	78.99	65.67	21.14	35.10	50.95	35.73
+GMS	53.37	81.82	67.79	8.34	15.81	27.97	17.38	35.72	51.47	64.65	50.61	78.99	57.76	33.96	1.39	4.18	9.24	4.94	5.40	12.01	21.93	13.12	50.28	72.06	56.97	33.04	46.20	52.22	47.11	64.39	84.36	57.23	5.43	11.18	20.36	12.32	2.22	4.75	9.20	5.39	33.11	47.97	60.38	47.16	13.09	23.39	35.86	24.11
+GMS+MAGSAC$_\uparrow$	65.89	86.38	53.61	31.42	44.19	56.25	43.95	36.95	52.12	64.73	51.27	85.31	55.69	24.85	3.20	8.03	15.13	8.78	5.14	12.53	21.96	13.21	76.67	76.05	29.42	37.87	49.18	54.50	42.74	72.42	86.59	46.86	21.75	32.52	44.14	32.80	9.24	15.85	24.50	16.53	33.73	48.23	60.48	47.48	13.38	23.60	36.27	24.42
+GMS+MAGSAC$_\downarrow$	70.04	86.94	47.51	31.31	43.87	55.99	43.72	37.85	53.13	65.44	52.14	87.09	55.67	21.95	3.22	7.92	14.74	8.62	5.20	12.19	21.34	12.91	83.45	76.57	21.17	37.82	49.11	54.53	40.66	75.52	86.98	41.87	21.78	32.68	44.41	32.96	9.36	16.08	24.67	16.70	33.56	48.09	60.49	47.38	13.34	23.36	35.79	24.16
+MAGSAC$_\uparrow$	56.23	92.17	74.07	31.16	44.71	57.66	44.51	43.86	60.96	74.95	59.92	70.66	60.62	49.87	6.64	15.30	26.76	16.24	11.34	23.72	37.73	24.26	69.38	84.63	43.67	**44.30**	**57.76**	**64.59**	52.58	59.19	88.39	72.45	26.36	38.67	51.65	38.89	10.74	18.31	28.31	19.12	46.60	63.08	76.06	61.91	19.05	32.26	47.33	32.88
+MAGSAC$_\downarrow$	61.91	92.95	64.99	32.73	46.01	59.03	45.92	43.23	60.95	75.20	59.79	74.80	60.51	42.62	6.79	15.31	26.67	16.26	11.27	23.34	36.96	23.86	78.55	85.17	30.71	43.42	56.22	62.86	48.30	64.40	88.99	63.53	27.35	39.89	52.88	40.04	11.18	19.12	29.31	19.87	45.91	62.22	75.25	61.13	19.07	31.76	46.47	32.43
+**MOP**	38.34	83.94	93.61	3.12	7.31	16.46	8.96	44.94	62.08	75.46	60.83	54.02	56.65	74.07	0.69	2.80	8.53	4.01	11.61	24.05	37.72	24.46	26.64	75.28	91.72	36.71	50.38	57.54	59.09	46.48	84.12	89.41	3.70	8.60	17.47	9.92	1.48	3.50	7.52	4.17	46.71	63.00	75.32	61.68	18.74	32.04	47.37	32.71
+**MOP**+MAGSAC$_\uparrow$	57.18	93.60	72.89	37.06	51.23	64.60	50.96	44.58	62.30	75.78	60.89	74.24	64.17	46.86	7.52	16.13	27.38	17.01	11.73	23.78	37.75	24.42	69.50	84.36	43.06	**43.65**	**57.47**	63.80	52.00	61.42	92.39	70.71	30.65	43.87	57.33	43.95	13.41	22.07	32.56	22.68	46.72	62.92	75.27	61.64	18.92	32.05	47.28	32.75
+**MOP**+MAGSAC$_\downarrow$	62.56	94.27	64.33	37.53	52.07	65.39	51.66	44.39	61.60	75.20	60.40	77.90	64.28	40.36	7.37	15.94	27.62	16.98	12.02	24.36	38.10	24.83	78.72	84.71	30.16	43.14	57.22	63.77	48.57	66.08	92.94	62.58	31.31	44.70	58.06	44.69	13.44	22.38	33.10	22.97	46.52	62.77	75.19	61.50	18.65	31.83	47.07	32.52
+**MOP**+**MiHo**	33.27	79.44	96.57	0.67	2.29	7.45	3.47	45.92	63.06	76.50	61.83	40.56	50.01	85.87	0.15	0.78	3.88	1.60	12.03	24.92	39.62	25.52	24.30	73.88	93.49	27.18	38.37	44.39	50.86	40.04	77.67	93.72	0.90	3.06	8.71	4.23	0.59	1.63	4.22	2.15	48.39	64.95	77.16	63.50	19.36	33.10	48.81	33.76
+**MOP**+**MiHo**+MAGSAC$_\uparrow$	56.65	93.92	74.36	35.54	50.21	64.17	49.97	45.16	62.67	76.08	61.31	72.00	64.04	50.51	7.44	16.21	28.28	17.31	12.33	24.94	39.24	25.50	69.55	**85.50**	43.96	**44.07**	57.41	63.47	52.23	60.41	91.78	72.39	31.07	44.12	57.22	44.14	13.41	22.01	32.62	22.68	47.53	63.92	76.49	62.65	19.45	32.67	47.95	33.36
+**MOP**+**MiHo**+MAGSAC$_\downarrow$	62.18	94.68	65.50	36.48	51.19	65.26	50.98	44.02	61.28	75.49	60.26	75.88	63.95	43.44	7.38	16.41	28.54	17.45	11.88	24.95	39.07	25.30	78.65	**86.01**	31.35	43.10	56.31	62.45	48.30	65.28	92.35	63.89	32.03	45.15	58.19	45.12	13.76	22.66	33.51	23.31	47.40	63.83	76.37	62.53	19.41	32.65	47.82	33.29
+**MOP**+**MiHo**+**NCC**	33.27	80.15	**98.83**	0.74	2.37	7.26	3.46	**49.28**	**66.52**	**79.35**	**65.05**	40.56	50.18	**87.34**	0.07	0.55	3.77	1.46	**14.33**	**27.80**	**42.44**	**28.19**	24.30	77.76	**103.31**	27.82	38.87	45.40	53.85	40.04	77.40	**94.30**	0.85	2.93	8.51	4.10	0.54	1.57	4.11	2.07	**52.72**	**68.47**	**79.78**	**66.99**	**21.80**	**36.34**	**52.63**	**36.92**
+**MOP**+**MiHo**+**NCC**+MAGSAC$_\uparrow$	51.30	94.96	85.05	39.85	53.77	66.74	53.45	**47.93**	**65.32**	**78.47**	**63.91**	68.69	65.17	58.15	**8.42**	**18.58**	**31.09**	**19.37**	**13.82**	**27.62**	**42.10**	**27.85**	47.43	85.08	78.33	41.97	56.99	63.70	**60.25**	57.08	92.61	79.57	32.06	45.07	57.83	44.99	14.33	23.02	33.47	23.61	51.24	67.20	78.92	65.78	21.20	35.33	51.17	35.90
+**MOP**+**MiHo**+**NCC**+MAGSAC$_\downarrow$	54.20	95.46	80.34	**41.13**	**55.20**	**67.93**	**54.75**	47.69	65.18	**78.46**	**63.77**	71.64	65.23	52.50	**8.32**	**18.93**	**31.37**	**19.54**	**13.71**	**27.15**	**41.93**	**27.60**	55.55	**85.42**	66.94	42.29	57.02	63.65	57.47	59.71	93.07	74.90	33.17	46.13	58.79	46.03	14.81	23.70	34.27	24.26	50.93	66.83	78.62	65.46	21.14	35.15	50.79	35.69
+**MOP**+**NCC**	38.34	84.51	95.58	2.84	6.66	15.22	8.24	**48.20**	**65.19**	77.62	63.67	54.02	56.59	74.81	0.82	2.71	8.26	3.93	13.47	26.77	41.34	27.20	26.64	78.54	**99.50**	36.82	50.46	57.84	**61.16**	46.48	83.71	89.89	3.09	7.61	16.23	8.98	1.24	3.21	6.94	3.80	**51.38**	67.04	78.40	65.60	**21.50**	**35.57**	**51.31**	**36.13**
+**MOP**+**NCC**+MAGSAC$_\uparrow$	51.89	94.45	83.19	39.24	52.89	65.44	52.52	45.81	63.32	76.81	61.98	70.95	64.92	53.70	8.09	18.04	29.90	18.68	13.68	26.94	40.86	27.16	48.10	84.24	74.70	41.97	56.68	63.58	59.23	58.21	93.07	77.51	32.59	45.61	58.38	45.53	14.58	23.49	33.88	23.98	50.14	66.05	77.79	64.66	20.90	34.64	50.18	35.24
+**MOP**+**NCC**+MAGSAC$_\downarrow$	54.75	94.89	78.53	40.65	54.38	66.91	53.98	46.94	64.47	77.45	62.95	73.64	65.06	48.80	**8.44**	**18.41**	**30.40**	**19.08**	13.00	26.04	40.28	26.44	56.51	84.74	63.01	41.58	57.06	**64.15**	56.45	60.63	93.47	73.23	**33.68**	**46.72**	59.35	**46.58**	**15.23**	**24.18**	**34.82**	**24.74**	49.96	65.79	77.43	64.39	20.60	34.38	50.12	35.03
+MS^{2}DG-Net	66.10	78.94	54.24	0.00	0.12	0.63	0.25	30.49	47.29	62.76	46.85	64.34	52.34	55.52	0.00	0.08	0.64	0.24	6.56	15.37	27.44	16.46	72.55	70.11	36.57	0.00	0.00	0.00	9.14	65.93	76.79	58.20	0.04	0.23	1.61	0.63	0.02	0.13	0.86	0.34	33.17	49.87	64.12	49.05	11.03	21.44	35.41	22.63
+MS^{2}DG-Net+MAGSAC$_\uparrow$	77.25	91.45	43.00	22.64	36.06	51.09	36.60	30.13	46.88	63.08	46.70	81.94	64.02	34.44	3.02	8.09	16.79	9.30	6.29	15.20	27.10	16.20	88.95	83.71	18.20	25.45	43.55	52.39	34.90	76.63	88.14	46.25	19.52	31.17	44.42	31.70	6.48	12.86	21.75	13.70	32.82	49.30	63.70	48.61	11.14	21.28	35.02	22.48
+MS^{2}DG-Net+MAGSAC$_\downarrow$	79.99	92.06	38.10	22.55	36.59	51.91	37.02	30.74	48.00	63.66	47.47	84.09	63.83	30.25	3.31	8.73	17.24	9.76	6.72	15.72	27.63	16.69	91.89	84.14	13.58	24.01	44.00	52.81	33.60	79.27	88.61	41.18	19.83	31.56	44.91	32.10	6.58	12.92	22.00	13.83	32.81	49.17	63.52	48.50	11.23	21.35	34.88	22.49
+**NCC**	0.00	54.90	**100.22**	0.00	0.11	0.72	0.27	46.11	63.14	76.30	61.85	0.00	35.09	**100.19**	0.04	0.19	0.98	0.40	11.06	23.39	37.59	24.01	0.00	61.91	**99.26**	0.98	2.27	4.42	26.73	0.00	49.27	**98.93**	0.02	0.23	1.43	0.56	0.05	0.26	1.21	0.51	48.33	64.23	76.47	63.01	19.94	33.43	48.89	34.09
+**NCC**+MAGSAC$_\uparrow$	52.85	92.79	80.83	31.76	44.41	56.42	44.20	45.02	62.50	76.23	61.25	68.79	61.24	54.00	7.20	16.52	28.58	17.43	11.95	24.91	39.30	25.39	58.94	84.17	59.09	42.51	57.24	64.02	55.71	57.39	88.54	75.93	25.65	37.49	49.96	37.70	10.60	17.96	27.46	18.68	47.55	63.48	76.07	62.36	19.65	32.55	47.78	33.33
+**NCC**+MAGSAC$_\downarrow$	56.68	93.49	74.68	33.15	46.84	59.19	46.39	44.59	62.55	76.40	61.18	72.41	61.25	47.54	7.42	17.01	28.85	17.76	12.23	25.18	39.45	25.62	68.01	84.64	46.78	42.62	56.56	63.14	52.28	60.97	89.17	69.80	26.88	39.04	51.40	39.11	11.28	18.99	28.62	19.63	46.85	62.86	75.58	61.76	19.52	32.34	47.36	33.07
+NCMNet	46.21	87.41	85.76	2.12	5.11	14.01	7.08	35.81	55.26	71.41	54.16	69.70	61.60	52.19	0.99	3.15	8.35	4.17	7.30	16.54	29.33	17.72	31.96	76.36	85.87	29.62	42.18	48.66	51.58	53.75	88.72	83.73	5.70	11.61	21.98	13.10	1.35	3.32	7.26	3.98	42.39	60.06	73.95	58.80	15.39	27.89	43.17	28.82
+NCMNet+MAGSAC$_\uparrow$	60.83	94.64	67.61	22.05	35.06	50.41	35.84	35.22	54.28	70.94	53.48	78.97	64.38	37.65	2.82	7.77	16.48	9.02	6.66	16.61	28.99	17.42	69.96	84.05	42.36	43.31	56.47	62.72	51.22	64.75	94.31	67.13	22.87	35.99	51.09	36.65	8.24	15.26	25.10	16.20	42.22	59.92	73.92	58.68	15.11	27.40	42.61	28.37
+NCMNet+MAGSAC$_\downarrow$	65.73	95.34	59.69	21.63	35.12	50.59	35.78	36.74	55.35	71.37	54.48	81.56	64.37	33.04	3.09	7.89	16.37	9.12	6.77	16.42	28.76	17.32	79.05	84.62	29.90	42.98	56.45	62.79	48.03	68.88	**94.81**	59.50	23.15	36.36	51.35	36.96	8.47	15.64	25.34	16.48	42.21	59.81	73.85	58.62	15.57	27.67	42.62	28.62
+OANet	68.16	89.98	56.89	6.92	16.05	29.29	17.42	31.55	50.09	67.06	49.57	81.07	59.83	35.22	1.53	5.36	12.83	6.58	5.17	13.09	25.28	14.51	81.87	75.55	28.75	11.50	20.23	24.90	21.35	72.65	90.84	55.55	10.32	19.84	32.79	20.98	2.42	6.06	12.57	7.01	35.31	53.37	68.83	52.50	11.13	21.91	36.70	23.25
+OANet+MAGSAC$_\uparrow$	74.91	94.58	47.17	16.44	29.12	45.18	30.25	31.15	49.81	67.11	49.36	86.20	61.84	26.14	2.66	7.62	16.60	8.96	6.05	14.67	26.06	15.59	90.61	83.61	15.81	22.97	38.35	47.32	31.11	77.50	94.11	46.80	18.15	31.05	45.95	31.72	5.54	11.46	20.52	12.50	35.19	53.32	68.73	52.41	10.86	21.84	36.80	23.17
+OANet+MAGSAC$_\downarrow$	77.96	95.18	41.75	16.54	29.10	45.19	30.28	30.08	49.48	66.48	48.68	87.64	61.71	23.32	2.95	7.82	16.96	9.24	5.72	14.36	26.02	15.37	**93.06**	83.96	11.62	23.03	38.18	46.76	29.90	79.98	94.55	41.79	18.43	31.28	46.27	31.99	5.58	11.63	20.84	12.68	35.43	53.35	68.73	52.50	11.08	21.94	36.75	23.26