Table 5: Experimental results (%) of decision-making performance at **image-level**. The term *HiMT (CFA)*, for instance, denotes the HiMT framework using CFA model as the score function. The ↑ indicates larger values are better and vice versa. Bold indicates the best results.

Method	MVTec				VisA				BTAD			
	TPR↑	FPR↓	Pr↑	F1↑	TPR↑	FPR↓	Pr↑	F1↑	TPR↑	FPR↓	Pr↑	F1↑
EDM (CFA)	48.9	**0**	**100**	59.2	18.8	0.1	95.8	26.7	68.7	0.3	97.2	78.9
ATT (CFA)	64.2	55.0	74.4	68.3	54.4	83.6	45.9	49.1	69.6	60.8	60.8	58.0
ATH (CFA)	50.0	**0**	**100**	60.4	18.8	0.1	95.8	26.7	68.7	0.3	97.2	78.9
ATCS (CFA)	28.6	3.3	96.2	40.4	18.0	**0**	**100**	29.8	28.1	**0**	**100**	39.8
HiMT (CFA)	**97.1**	31.5	91.8	**94.0**	**95.0**	42.1	77.7	**84.5**	**89.3**	33.4	94.6	**91.4**
EDM (CFLOW)	65.4	14.0	94.8	72.8	43.3	9.1	87.4	56.4	52.4	5.4	81.0	48.4
ATT (CFLOW)	**98.6**	99.8	72.1	82.8	**99.0**	100	56.3	71.5	**98.3**	100	55.2	63.6
ATH (CFLOW)	65.8	14.0	94.8	73.2	43.3	9.1	87.4	56.4	52.4	5.4	81.0	48.4
ATCS (CFLOW)	30.1	**0**	**98.1**	43.9	16.8	**0**	**100**	28.1	29.9	**0**	**100**	42.2
HiMT (CFLOW)	95.0	45.7	86.2	**90.1**	90.4	45.2	74.6	**80.7**	96.7	33.9	91.7	**94.1**
EDM (DMAD)	16.2	**0**	**100**	22.7	31.6	0.4	**99.0**	45.5	48.3	0.1	98.7	64.2
ATT (DMAD)	38.7	16.0	86.4	51.8	37.2	13.6	80.0	49.6	39.5	46.0	58.9	43.1
ATH (DMAD)	16.2	**0**	**100**	22.7	31.8	0.4	**99.0**	45.9	48.3	0.1	98.7	64.2
ATCS (DMAD)	27.5	3.3	98.1	39.0	16.6	**0.1**	97.9	27.5	23.9	**0**	**100**	35.8
HiMT (DMAD)	**97.3**	16.4	93.7	**95.1**	**87.5**	10.5	92.6	**88.7**	**95.5**	36.0	86.4	**90.5**
EDM (DRAEM)	**98.8**	46.4	84.6	90.2	**90.8**	45.7	78.4	82.1	56.8	11.9	82.9	63.8
ATT (DRAEM)	91.2	24.6	90.2	90.1	64.8	30.3	83.8	66.2	37.9	**0**	**100**	45.4
ATH (DRAEM)	**98.8**	46.4	84.6	90.2	**90.8**	45.7	78.4	82.1	56.8	11.9	82.9	63.8
ATCS (DRAEM)	34.4	**4.2**	**97.8**	46.6	21.1	**0**	**100**	33.3	34.7	**0**	**100**	41.9
HiMT (DRAEM)	97.4	10.9	94.6	**95.8**	90.4	27.9	83.4	**86.0**	**91.5**	37.1	80.3	**85.0**
EDM (PaDiM)	27.1	**0.2**	**99.9**	37.2	15.1	0.8	85.6	22.4	30.9	1.4	89.7	26.4
ATT (PaDiM)	**98.5**	99.8	72.0	82.7	**99.0**	100	56.3	71.5	**98.3**	100	55.2	63.6
ATH (PaDiM)	28.1	**0.2**	**99.9**	38.1	15.1	0.8	85.6	22.4	30.9	1.4	89.7	26.4
ATCS (PaDiM)	23.5	1.7	97.3	35.3	20.1	**0.2**	**97.4**	32.7	15.7	**0**	**100**	25.2
HiMT (PaDiM)	98.0	31.3	88.6	**92.7**	94.2	41.4	75.8	**83.1**	87.1	10.6	92.7	**89.7**
EDM (PatchCore)	59.6	**0.7**	**99.7**	68.1	52.2	1.3	92.3	64.5	74.7	0.6	95.1	81.0
ATT (PatchCore)	97.9	87.0	74.4	83.8	**96.6**	93.7	57.3	71.7	96.3	82.5	59.3	65.3
ATH (PatchCore)	59.6	**0.7**	**99.7**	68.1	52.2	1.3	92.3	64.5	74.7	0.6	95.1	81.0
ATCS (PatchCore)	31.4	3.8	96.7	44.1	22.8	**0.3**	**95.8**	35.8	27.7	**0**	**100**	39.4
HiMT (PatchCore)	**98.0**	18.8	93.1	**95.3**	92.3	27.8	83.4	**86.9**	**96.5**	33.3	95.7	**95.8**
EDM (ReContrast)	97.3	16.4	93.4	95.1	84.3	6.8	94.0	88.4	82.2	4.1	84.2	79.2
ATT (ReContrast)	94.5	33.9	87.0	89.9	76.6	56.4	63.3	68.6	88.6	53.0	66.2	66.0
ATH (ReContrast)	97.3	16.4	93.4	95.1	84.3	6.8	94.0	88.4	82.2	4.1	84.2	79.2
ATCS (ReContrast)	28.9	**5.3**	97.3	41.4	20.2	**0**	**100**	31.8	24.5	**0**	**100**	36.0
HiMT (ReContrast)	**97.7**	**5.3**	**97.6**	**97.6**	**91.2**	8.2	93.0	**91.9**	**96.3**	26.6	88.8	**92.1**
EDM (RRD)	**98.2**	42.5	85.4	91.0	**92.6**	23.8	85.3	88.5	**87.7**	23.0	71.1	71.2
ATT (RRD)	85.9	29.7	87.0	85.8	69.0	54.6	61.2	64.6	78.2	53.6	64.2	63.6
ATH (RRD)	**98.2**	42.5	85.4	91.0	**92.6**	23.8	85.3	88.5	**87.7**	23.0	71.1	71.2
ATCS (RRD)	26.8	**5.6**	**97.8**	39.6	15.5	**0**	**100**	25.8	25.0	**0**	**100**	35.6
HiMT (RRD)	97.2	12.4	94.5	**95.7**	91.9	12.6	90.3	**91.0**	82.5	3.6	96.7	**87.9**

Table 6: Experimental results (%) of decision-making performance at **pixel-level**. The term *HiMT (CFA)*, for instance, denotes the HiMT framework using CFA model as the score function. The ↑ indicates larger values are better and vice versa. Bold indicates the best results.

Method	MVTec				VisA				BTAD			
	TPR↑	FPR↓	Pr↑	F1↑	TPR↑	FPR↓	Pr↑	F1↑	TPR↑	FPR↓	Pr↑	F1↑
EDM (CFA)	81.5	6.1	35.8	42.9	68.6	2.5	16.5	25.5	98.5	16.6	14.0	22.9
ATT (CFA)	**99.9**	58.6	5.4	10.0	**97.9**	20.8	2.9	5.5	**99.7**	56.5	4.8	8.9
ATH (CFA)	19.6	**0.4**	**72.9**	23.3	10.3	**0.1**	**64.8**	13.3	53.7	**2.3**	**56.1**	49.0
ATCS (CFA)	56.9	2.0	33.2	35.2	66.7	2.7	7.9	12.9	39.3	2.4	21.3	20.8
HiMT (CFA)	63.3	2.4	50.7	**54.8**	46.4	0.8	37.0	**38.7**	63.0	2.9	49.8	**55.6**
EDM (CFLOW)	88.0	15.9	15.3	23.3	83.0	6.1	8.0	14.0	94.4	19.1	11.4	19.5
ATT (CFLOW)	**99.9**	99.6	3.3	6.3	**99.6**	99.4	0.6	1.2	**100**	99.2	3.1	5.9
ATH (CFLOW)	13.7	**0.3**	**65.1**	12.3	9.2	**0.1**	**34.7**	11.9	31.1	**0.4**	**44.8**	18.7
ATCS (CFLOW)	54.6	2.1	31.3	33.4	68.0	2.7	7.9	12.9	31.3	2.5	16.3	15.3
HiMT (CFLOW)	75.0	6.1	32.5	**41.0**	46.3	1.5	22.7	**28.3**	65.2	6.3	31.3	**40.4**
EDM (DMAD)	44.0	1.1	51.3	36.9	71.0	1.4	30.4	32.4	97.1	11.9	19.1	31.2
ATT (DMAD)	**98.3**	27.9	14.1	23.4	**93.1**	33.3	5.9	9.6	**99.0**	27.6	7.8	14.1
ATH (DMAD)	1.5	**0**	**82.5**	2.1	1.0	**0.0**	**71.9**	1.9	0.2	**0.0**	**84.3**	0.4
ATCS (DMAD)	58.4	2.0	32.4	34.8	74.9	2.7	8.1	13.5	40.7	2.4	20.8	20.6
HiMT (DMAD)	71.1	2.7	47.3	**55.0**	70.6	1.2	32.8	**40.6**	67.1	2.5	50.5	**57.0**
EDM (DRAEM)	**97.3**	28.8	11.2	19.2	**92.9**	33.9	2.8	5.2	**55.0**	13.1	15.4	19.1
ATT (DRAEM)	86.7	5.9	36.3	48.4	62.7	9.3	17.7	21.9	26.7	3.6	**19.9**	13.8
ATH (DRAEM)	61.8	**1.4**	**66.6**	54.6	45.5	2.8	33.4	27.9	18.6	**2.8**	16.1	9.7
ATCS (DRAEM)	59.6	1.9	36.8	38.4	62.0	2.7	7.5	12.1	6.8	**2.8**	7.5	6.1
HiMT (DRAEM)	67.5	**1.4**	65.2	**65.4**	48.2	**1.2**	**35.5**	**38.5**	43.7	8.3	18.3	**25.1**
EDM (PaDiM)	**77.1**	5.4	35.4	41.9	76.0	2.6	15.1	23.8	**97.4**	12.6	17.8	27.6
ATT (PaDiM)	76.1	94.7	2.7	5.0	**89.7**	88.8	0.6	1.2	85.1	76.0	3.3	6.3
ATH (PaDiM)	2.2	**0.0**	**67.8**	3.8	1.0	**0**	**78.1**	1.9	7.3	**0.0**	**93.2**	11.4
ATCS (PaDiM)	56.1	2.0	32.3	34.4	67.0	2.7	7.8	12.7	38.3	2.4	19.5	19.2
HiMT (PaDiM)	51.1	2.1	50.5	**44.5**	55.6	1.6	28.3	**31.4**	46.8	1.9	51.7	**47.5**
EDM (PatchCore)	83.4	5.9	34.4	43.4	87.7	4.4	10.5	17.4	98.3	18.6	13.3	21.8
ATT (PatchCore)	**100**	99.9	3.3	6.3	**100.0**	99.9	0.6	1.2	**100**	99.7	3.1	5.8
ATH (PatchCore)	30.0	**0.5**	**72.7**	34.6	29.8	**0.2**	**58.7**	31.0	37.1	**0.4**	**53.0**	30.2
ATCS (PatchCore)	59.0	2.0	34.4	36.6	70.2	2.7	8.5	13.9	33.7	2.5	18.3	17.9
HiMT (PatchCore)	65.1	2.2	52.3	**56.4**	48.4	0.6	42.7	**43.6**	60.4	3.4	44.2	**51.0**
EDM (ReContrast)	96.9	17.9	14.8	24.3	96.9	9.7	5.3	9.8	99.4	22.0	10.4	18.0
ATT (ReContrast)	**100**	99.9	3.3	6.3	**99.2**	99.9	0.6	1.2	**100**	99.9	3.1	5.8
ATH (ReContrast)	66.7	**1.8**	**53.3**	54.3	42.9	**0.4**	**42.7**	38.4	70.8	2.2	50.0	55.1
ATCS (ReContrast)	59.3	2.0	34.6	37.0	75.0	2.7	8.9	14.7	42.1	2.4	21.2	20.8
HiMT (ReContrast)	71.1	2.7	52.7	**59.7**	59.3	0.8	40.8	**47.0**	61.2	**1.8**	**59.2**	**59.8**
EDM (RRD)	98.0	30.0	10.6	18.3	**98.7**	15.9	3.8	7.0	99.5	29.7	8.3	14.8
ATT (RRD)	**99.6**	53.4	7.3	13.0	97.9	39.5	2.9	5.5	**99.7**	38.2	6.2	11.4
ATH (RRD)	65.8	2.1	**49.6**	**49.1**	52.1	**0.5**	**40.7**	**41.9**	91.6	7.4	28.1	42.8
ATCS (RRD)	58.8	**2.0**	34.0	36.3	74.8	2.7	8.9	14.6	41.9	**2.4**	21.8	21.3
HiMT (RRD)	74.1	5.3	32.9	41.7	84.9	6.2	10.3	17.7	68.0	8.1	**33.5**	**44.2**

Table 7: Experimental results of Dice coefficient (Dice) which ranges from 0 to 1. The term *HiMT (CFA)*, for instance, denotes the HiMT framework using CFA model as the score function. The ↑ indicates that larger values are better.

Method	MVTec Dice↑	VisA Dice↑	BTAD Dice↑
EDM (CFA)	0.59	0.35	0.08
ATT (CFA)	0.63	0.68	0.72
ATH (CFA)	0.91	0.95	0.96
ATCS (CFA)	0.11	0.49	0.29
HiMT (CFA)	1.00	1.00	1.00
EDM (CFLOW)	0.47	0.53	0.21
ATT (CFLOW)	0.99	0.99	1.00
ATH (CFLOW)	0.68	0.82	0.85
ATCS (CFLOW)	0.12	0.48	0.22
HiMT (CFLOW)	1.00	1.00	1.00
EDM (DMAD)	0.28	0.21	0.06
ATT (DMAD)	0.39	0.32	0.43
ATH (DMAD)	0.88	0.85	0.83
ATCS (DMAD)	0.94	0.45	0.28
HiMT (DMAD)	1.00	1.00	1.00
EDM (DRAEM)	0.90	0.57	0.06
ATT (DRAEM)	0.81	0.81	0.90
ATH (DRAEM)	0.89	0.91	0.95
ATCS (DRAEM)	0.13	0.56	0.18
HiMT (DRAEM)	1.00	1.00	1.00
EDM (PaDiM)	0.38	0.28	0.12
ATT (PaDiM)	0.99	0.99	1.00
ATH (PaDiM)	0.90	0.94	0.96
ATCS (PaDiM)	0.85	0.57	0.23
HiMT (PaDiM)	1.00	1.00	1.00
EDM (PatchCore)	0.65	0.47	0.11
ATT (PatchCore)	0.96	0.95	0.98
ATH (PatchCore)	0.90	0.85	0.95
ATCS (PatchCore)	0.12	0.61	0.24
HiMT (PatchCore)	1.00	1.00	1.00
EDM (ReContrast)	0.77	0.70	0.17
ATT (ReContrast)	0.78	0.69	0.81
ATH (ReContrast)	0.95	0.83	0.91
ATCS (ReContrast)	0.11	0.52	0.25
HiMT (ReContrast)	1.00	1.00	1.00
EDM (RRD)	0.80	0.77	0.35
ATT (RRD)	0.72	0.62	0.75
ATH (RRD)	0.86	0.77	0.81
ATCS (RRD)	0.11	0.42	0.21
HiMT (RRD)	1.00	1.00	1.00