TABLE I
AUC VALUE OF 19 PAIRS CVDP TASKS ON TEN METHODS

Project	Version	Traditional	DBN	DPCNN	Node2defect	DTL-DP	CodeBERT	GCN2defect	UDA-DP	MVHR-DP	MVHR-CVDP
ant	1.5→1.6	70.7	68.9	67.5	58.7	51.2	61.1	72.8	60.2	81.7	81.7
	1.6→1.7	77.0	68.6	69.0	66.2	64.2	69.4	73.6	55.0	77.8	77.8
camel	1.2→1.4	66.6	58.7	59.2	65.2	64.9	61.3	65.0	57.3	68.3	68.2
	1.4→1.6	60.7	57.6	58.1	58.0	59.9	66.2	67.8	62.9	60.6	70.6
ivy	1.4→2.0	51.0	59.4	55.9	57.8	74.2	75.5	61.4	64.4	80.9	80.9
jEdit	3.2.1→4.0	79.3	76.0	70.0	77.6	76.7	76.7	77.8	57.4	80.8	81.8
	4.0→4.1	80.6	71.1	70.1	70.6	77.6	76.4	77.1	59.3	83.5	84.5
log4j	1.1→1.2	80.8	72.8	72.7	80.8	79.5	70.2	76.3	70.0	81.9	81.6
	1.2→1.3	61.0	54.4	54.4	52.0	59.9	58.0	57.4	50.1	62.4	62.5
lucene	2.0→2.2	64.5	57.4	61.6	54.9	55.5	59.9	49.9	55.9	61.9	61.9
	2.2→2.4	64.5	58.7	59.6	60.0	69.6	59.1	63.2	68.2	73.9	73.9
poi	2.0→2.5.1	34.3	51.8	45.1	38.5	65.4	54.6	33.2	55.7	35.8	35.8
	2.5.1→3.0	72.7	62.0	60.5	62.2	73.8	62.5	64.8	76.6	84.6	85.6
velocity	1.4→1.5	42.9	51.1	42.6	57.7	63.2	38.8	65.7	62.6	33.0	33.0
	1.5→1.6.1	57.2	63.8	63.4	69.2	58.6	67.5	68.7	50.0	68.8	68.8
xalan	2.4→2.5	58.7	53.1	54.4	63.1	50.0	57.8	56.2	57.2	57.2	67.2
	2.5→2.6	60.5	50.6	63.9	57.7	62.0	51.4	56.5	67.1	59.5	69.5
xerces	1.2→1.3	56.4	47.6	46.4	59.4	61.3	70.1	66.3	62.1	76.2	76.7
	1.3→1.4	50.1	70.2	47.8	60.7	52.3	62.1	62.4	71.4	67.5	65.9
AVG	-	62.6	60.7	59.1	61.6	64.2	63.1	64.0	61.2	68.2	69.9

TABLE II
F-MEASURE VALUE OF 19 PAIRS CVDP TASKS ON TEN METHODS

Project	Version	Traditional	DBN	DPCNN	Node2defect	DTL-DP	CodeBERT	GCN2defect	UDA-DP	MVHR-DP	MVHR-CVDP
ant	1.5→1.6	46.0	53.8	42.2	35.6	38.4	41.1	40.6	60.2	59.0	60.4
	1.6→1.7	48.2	49.2	49.6	43.0	25.8	41.5	40.7	55.0	54.1	53.1
camel	1.2→1.4	32.8	32.8	33.3	32.0	35.5	27.7	30.5	17.3	31.4	31.0
	1.4→1.6	35.5	35.1	36.1	32.2	57.3	34.1	35.0	28.9	36.5	35.5
ivy	1.4→2.0	15.9	25.1	16.5	23.4	17.4	21.5	11.8	44.4	33.5	31.8
jEdit	3.2.1→4.0	53.6	60.8	53.8	55.4	52.7	35.2	42.8	47.4	59.8	59.5
	4.0→4.1	52.8	56.2	50.6	47.1	43.5	39.3	41.0	59.3	60.9	59.5
log4j	1.1→1.2	67.5	65.9	64.9	66.7	63.3	62.3	59.7	72.7	66.7	65.1
	1.2→1.3	58.9	62.5	62.5	55.4	42.5	57.8	58.5	53.6	59.1	65.0
lucene	2.0→2.2	65.7	57.4	64.1	59.1	75.9	65.8	71.5	65.9	68.9	70.4
	2.2→2.4	75.7	60.9	64.0	70.9	76.2	71.2	74.7	68.2	76.4	76.4
poi	2.0→2.5.1	45.5	51.4	56.2	34.1	79.8	43.2	73.5	55.7	68.0	79.1
	2.5.1→3.0	77.6	66.1	66.2	73.4	55.1	73.2	75.8	76.6	81.2	81.8
velocity	1.4→1.5	75.4	62.1	42.7	73.3	65.6	69.8	78.4	62.6	79.7	79.7
	1.5→1.6.1	53.2	55.2	55.1	53.5	46.6	49.7	49.3	50.0	52.3	51.0
xalan	2.4→2.5	55.5	49.2	58.9	52.6	54.5	50.1	64.4	47.2	57.3	60.6
	2.5→2.6	63.6	47.9	61.6	59.8	56.2	57.8	59.2	67.1	59.0	63.4
xerces	1.2→1.3	25.1	20.9	22.1	30.8	11.6	29.9	42.0	29.1	33.1	35.8
	1.3→1.4	50.2	66.3	60.9	34.8	34.1	53.3	42.5	51.4	61.4	67.2
AVG	-	52.6	51.5	50.6	49.1	49.0	48.7	52.2	53.3	57.8	59.3

TABLE III
MCC VALUE OF 19 PAIRS CVDP TASKS ON TEN METHODS

Project	Version	Traditional	DBN	DPCNN	Node2defect	DTL-DP	CodeBERT	GCN2defect	UDA-DP	MVHR-DP	MVHR-CVDP
ant	1.5→1.6	28.2	33.9	13.3	9.6	31.8	7.2	32.0	27.0	43.5	44.1
	1.6→1.7	31.9	31.3	31.9	21.8	26.1	-3.5	26.9	18.4	35.2	37.6
camel	1.2→1.4	15.0	13.1	14.0	11.1	13.0	17.1	11.2	10.5	15.6	17.7
	1.4→1.6	9.2	12.3	-13.1	7.6	18.9	22.6	19.6	18.3	18.5	6.6
ivy	1.4→2.0	-0.4	-11.3	13.3	12.0	13.1	26.4	8.4	27.5	29.2	28.1
jEdit	3.2.1→4.0	40.0	45.7	35.1	38.2	-0.2	41.0	33.8	39.3	38.7	43.3
	4.0→4.1	33.0	37.4	27.8	25.4	24.1	36.5	35.4	35.8	46.1	44.2
log4j	1.1→1.2	48.3	43.6	45.5	52.1	41.3	30.1	35.8	19.4	44.4	42.6
	1.2→1.3	7.3	3.5	3.5	1.9	10.1	0.3	18.1	-0.1	10.6	11.1
lucene	2.0→2.2	16.0	14.7	22.7	7.1	14.8	15.5	-4.7	18.8	22.3	16.4
	2.2→2.4	15.3	17.0	18.7	15.7	2.1	16.7	13.8	13.3	0.0	14.3
poi	2.0→2.5.1	-16.0	3.5	-4.1	-20.0	13.5	-2.2	-19.0	-7.7	-19.2	10.1
	2.5.1→3.0	22.1	23.1	12.7	17.7	9.6	16.7	25.1	26.2	41.7	36.2
velocity	1.4→1.5	-6.7	2.1	4.4	8.5	29.8	-10.3	17.1	11.0	-2.4	-4.9
	1.5→1.6.1	15.7	26.1	25.5	18.9	17.0	27.2	27.7	14.3	25.4	22.4
xalan	2.4→2.5	11.6	6.2	12.1	17.6	20.7	15.8	10.6	10.1	13.8	8.4
	2.5→2.6	15.7	1.2	27.7	11.9	3.6	-1.2	10.8	16.5	25.5	21.8
xerces	1.2→1.3	2.5	-3.3	-5.8	16.1	-4.5	11.7	31.0	11.3	23.6	27.5
	1.3→1.4	25.8	39.7	-4.3	7.3	7.1	11.1	7.5	23.4	18.3	25.4
AVG	-	16.6	17.9	14.8	14.8	15.4	14.7	18.0	17.5	22.7	23.8