Table 1: Summary of Welch's t-test results for AUC, Rec, GM, and F_1 between CIL approaches and AROSS at a significance level of 0.05 (win-tie-lose).

			Random	Synthetic sampling										Cluster based				
	Skewness	ORIG	ROS	S	AS	DS	SMPD	SENN	STL	NARS	GS	RWO	ANS	DBS	CS	KS	SOMO	AROS
Decision tree																		
	IR <= 5	20-2-0	20-1-1	18-4-0	17-5-0	19-3-0	21-1-0	12-8-2	17-5-0	22-0-0	19-3-0	16-6-0	20-2-0	21-1-0	20-2-0	20-2-0	21-1-0	20-2-0
recall	IR <= 10	23-2-0	21-4-0	19-6-0	20-5-0	19-6-0	19-6-0	13-10-2	21-4-0	25-0-0	20-5-0	22-3-0	17-8-0	20-5-0	23-2-0	18-7-0	22-3-0	16-9-0
	10 <IR	19-4-0	20-3-0	17-4-2	15-6-2	16-7-0	19-4-0	15-5-3	16-6-1	21-2-0	18-5-0	16-7-0	18-5-0	20-3-0	20-3-0	20-3-0	16-7-0	17-6-0
	IR <= 5	13-9-0	13-7-2	13-7-2	10-10-2	12-8-2	14-7-1	7-12-3	11-9-2	14-8-0	11-10-1	10-11-1	10-12-0	11-10-1	10-11-1	13-9-0	11-9-2	14-8-0
f1_score	IR <= 10	10-13-2	9-14-2	9-15-1	10-13-2	11-13-1	10-13-2	7-17-1	9-15-1	7-17-1	10-14-1	10-13-2	8-15-2	9-13-3	9-15-1	7-16-2	9-14-2	7-18-0
	10 <IR	11-11-1	10-10-3	9-10-4	10-7-6	9-12-2	11-11-1	8-12-3	9-11-3	14-8-1	11-10-2	8-13-2	8-13-2	12-9-2	12-9-2	12-10-1	8-13-2	12-10-1
	IR <= 5	17-5-0	15-6-1	14-8-0	13-9-0	11-11-0	18-4-0	9-8-5	12-10-0	19-3-0	14-8-0	12-10-0	13-9-0	16-6-0	14-8-0	16-6-0	14-8-0	16-6-0
g_mean	IR <= 10	17-7-1	18-7-0	15-10-0	16-9-0	15-10-0	14-10-1	9-14-2	16-9-0	18-7-0	17-7-1	16-8-1	12-13-0	16-8-1	18-7-0	14-10-1	19-6-0	14-11-0
	10 <IR	19-4-0	19-3-1	16-4-3	14-6-3	15-7-1	19-4-0	15-4-4	15-6-2	19-4-0	17-5-1	14-8-1	17-6-0	19-4-0	18-5-0	17-6-0	16-6-1	18-5-0
	IR <= 5	17-5-0	14-7-1	13-9-0	14-6-2	12-10-0	18-4-0	8-9-5	12-10-0	18-4-0	14-8-0	13-9-0	16-6-0	17-5-0	16-6-0	17-5-0	14-8-0	17-5-0
auc	IR <= 10	18-6-1	19-6-0	20-5-0	18-6-1	18-7-0	16-8-1	11-14-0	15-10-0	18-7-0	16-9-0	15-9-1	12-13-0	17-7-1	19-6-0	14-10-1	20-5-0	13-12-0
	10 <IR	19-4-0	17-5-1	14-8-1	15-5-3	15-7-1	19-4-0	16-6-1	15-7-1	20-3-0	17-5-1	15-7-1	16-7-0	20-3-0	20-3-0	17-6-0	15-7-1	16-7-0
Random forest																		
	IR <= 5	19-3-0	12-8-2	11-9-2	9-10-3	12-8-2	20-2-0	8-7-7	11-9-2	22-0-0	10-10-2	11-9-2	14-7-1	15-7-0	16-6-0	18-4-0	16-6-0	11-11-0
recall	IR <= 10	20-4-1	12-12-1	3-21-1	4-19-2	7-17-1	20-4-1	2-13-10	3-21-1	21-4-0	4-20-1	7-17-1	12-11-2	19-5-1	18-6-1	14-10-1	15-9-1	8-16-1
	10 <IR	20-3-0	15-6-2	7-9-7	10-7-6	9-12-2	20-3-0	6-10-7	7-9-7	21-2-0	12-10-1	4-18-1	13-9-1	18-5-0	18-5-0	18-5-0	17-5-1	11-12-0
	IR <= 5	7-13-2	7-13-2	6-15-1	7-13-2	7-14-1	7-14-1	7-14-1	6-15-1	13-9-0	6-15-1	6-16-0	8-12-2	8-12-2	9-12-1	9-12-1	9-13-0	7-15-0
f1_score	IR <= 10	6-16-3	7-16-2	7-16-2	9-15-1	7-16-2	7-16-2	9-14-2	7-16-2	5-19-1	7-16-2	5-17-3	6-18-1	9-15-1	6-17-2	3-20-2	6-16-3	3-22-0
	10 <IR	12-9-2	7-13-3	5-12-6	6-12-5	5-15-3	11-10-2	6-11-6	5-13-5	13-9-1	6-13-4	5-15-3	7-12-4	10-10-3	8-12-3	9-11-3	9-11-3	5-17-1
	IR <= 5	13-9-0	8-13-1	8-12-2	10-10-2	8-12-2	14-8-0	8-11-3	8-12-2	16-6-0	8-13-1	8-13-1	10-11-1	12-10-0	11-11-0	14-8-0	12-10-0	10-12-0
g_mean	IR <= 10	16-8-1	9-15-1	6-17-2	7-15-3	7-16-2	16-8-1	5-13-7	5-18-2	15-10-0	5-19-1	6-18-1	6-17-2	15-9-1	12-12-1	9-15-1	11-13-1	7-18-0
	10 <IR	20-3-0	14-6-3	6-11-6	8-10-5	8-13-2	20-3-0	6-10-7	6-10-7	21-2-0	9-11-3	4-17-2	10-12-1	16-6-1	14-9-0	16-7-0	15-7-1	11-12-0
	IR <= 5	1-20-1	1-18-3	2-17-3	3-16-3	2-18-2	1-18-3	5-14-3	2-17-3	6-14-2	1-18-3	0-20-2	1-20-1	2-17-3	2-18-2	1-19-2	1-20-1	0-22-0
auc	IR <= 10	2-18-5	1-24-0	1-18-6	4-16-5	0-20-5	1-20-4	5-16-4	2-18-5	9-13-3	0-19-6	0-24-1	0-22-3	1-21-3	0-20-5	1-20-4	0-24-1	0-25-0
	10 <IR	4-13-6	4-11-8	4-12-7	5-8-10	3-13-7	5-11-7	5-9-9	4-13-6	11-8-4	3-10-10	1-16-6	4-13-6	5-11-7	3-14-6	3-17-3	4-13-6	1-22-0
SVM																		
	IR <= 5	19-1-2	2-13-7	4-12-6	2-8-12	3-12-7	18-2-2	3-8-11	4-11-7	17-3-2	4-11-7	3-12-7	12-7-3	11-7-4	12-7-3	16-5-1	10-9-3	14-8-0
recall	IR <= 10	25-0-0	9-11-5	10-12-3	8-11-6	10-14-1	24-1-0	7-13-5	10-12-3	17-8-0	10-11-4	6-14-5	20-4-1	19-5-1	20-4-1	20-5-0	20-5-0	6-19-0
	10 <IR	21-2-0	9-9-5	11-4-8	11-5-7	9-10-4	21-2-0	10-5-8	11-6-6	17-6-0	12-4-7	8-8-7	14-7-2	17-5-1	15-8-0	20-3-0	20-3-0	10-13-0
	IR <= 5	11-10-1	3-15-4	3-14-5	5-14-3	4-12-6	9-12-1	3-16-3	4-13-5	6-15-1	2-16-4	2-16-4	6-11-5	6-14-2	5-13-4	9-13-0	3-18-1	7-15-0
f1_score	IR <= 10	10-13-2	8-16-1	8-15-2	12-12-1	12-12-1	10-13-2	11-13-1	8-15-2	8-12-5	8-16-1	7-17-1	7-16-2	11-11-3	5-19-1	10-13-2	8-16-1	2-23-0
	10 <IR	15-6-2	7-10-6	6-11-6	7-9-7	8-9-6	13-7-3	6-11-6	6-11-6	12-8-3	8-7-8	7-12-4	6-9-8	6-9-8	7-8-8	12-8-3	11-9-3	6-17-0
	IR <= 5	15-7-0	0-17-5	2-15-5	4-12-6	2-14-6	14-8-0	1-16-5	1-16-5	9-12-1	0-18-4	0-17-5	6-13-3	5-13-4	7-11-4	10-12-0	8-12-2	8-14-0
g_mean	IR <= 10	20-5-0	10-12-3	11-11-3	11-11-3	11-13-1	20-5-0	9-13-3	11-11-3	14-9-2	10-12-3	8-14-3	14-9-2	14-9-2	14-10-1	19-6-0	16-9-0	7-18-0
	10 <IR	18-5-0	8-8-7	8-9-6	10-6-7	9-9-5	18-5-0	6-11-6	7-10-6	16-7-0	8-9-6	5-12-6	10-11-2	12-10-1	11-11-1	17-6-0	15-8-0	9-14-0
	IR <= 5	3-16-3	1-15-6	2-14-6	2-13-7	1-15-6	2-18-2	5-13-4	2-14-6	5-15-2	1-15-6	1-16-5	1-17-4	3-15-4	1-17-4	3-19-0	2-18-2	0-22-0
auc	IR <= 10	3-17-5	4-17-4	4-18-3	8-13-4	6-17-2	4-16-5	4-19-2	4-18-3	5-16-4	4-19-2	4-17-4	4-18-3	6-14-5	3-18-4	6-15-4	1-23-1	1-24-0
	10 <IR	8-8-7	8-9-6	8-9-6	9-7-7	6-12-5	7-9-7	9-7-7	8-9-6	9-10-4	9-8-6	6-11-6	5-12-6	9-9-5	6-13-4	7-10-6	8-11-4	4-18-1
KNN																		
	IR <= 5	16-6-0	2-9-11	2-8-12	1-6-15	2-8-12	15-6-1	3-3-16	2-8-12	11-9-2	2-6-14	1-10-11	6-10-6	6-14-2	5-12-5	9-13-0	6-13-3	11-11-0
recall	IR <= 10	22-3-0	2-15-8	2-14-9	2-11-12	1-16-8	22-3-0	1-13-11	1-15-9	8-16-1	2-14-9	1-14-10	6-14-5	17-6-2	10-14-1	13-11-1	10-14-1	10-15-0
	10 <IR	19-4-0	3-15-5	3-8-12	3-6-14	3-12-8	19-4-0	2-8-13	3-9-11	16-5-2	3-11-9	2-11-10	10-10-3	13-10-0	9-10-4	15-7-1	13-10-0	11-12-0
	IR <= 5	7-14-1	5-15-2	3-17-2	7-11-4	2-18-2	7-14-1	4-14-4	3-17-2	6-16-0	2-19-1	4-16-2	2-18-2	5-17-0	2-19-1	7-15-0	4-17-1	5-17-0
f1_score	IR <= 10	12-12-1	15-9-1	16-8-1	19-5-1	17-7-1	12-12-1	18-7-0	18-6-1	11-13-1	15-9-1	13-11-1	13-11-1	12-13-0	12-13-0	10-15-0	10-15-0	9-16-0
	10 <IR	13-10-0	9-10-4	9-8-6	11-6-6	10-8-5	12-10-1	11-7-5	9-8-6	10-13-0	9-9-5	10-9-4	6-15-2	9-12-2	7-13-3	12-11-0	11-12-0	9-14-0
	IR <= 5	11-11-0	4-15-3	2-15-5	6-11-5	2-16-4	11-11-0	3-15-4	3-14-5	8-14-0	2-15-5	3-15-4	3-17-2	5-16-1	6-15-1	8-14-0	7-14-1	6-16-0
g_mean	IR <= 10	19-6-0	6-14-5	4-16-5	4-15-6	3-20-2	19-6-0	4-15-6	4-16-5	8-16-1	5-16-4	3-16-6	7-15-3	16-7-2	9-15-1	11-13-1	10-14-1	9-16-0
	10 <IR	18-5-0	5-14-4	4-8-11	5-7-11	5-12-6	18-5-0	4-9-10	5-7-11	15-8-0	4-12-7	4-12-7	7-14-2	13-10-0	8-12-3	15-8-0	12-11-0	10-13-0
	IR <= 5	1-20-1	7-15-0	3-18-1	8-11-3	3-18-1	1-20-1	8-13-1	4-17-1	11-11-0	1-20-1	2-19-1	0-19-3	6-15-1	1-20-1	0-22-0	1-20-1	1-21-0
auc	IR <= 10	4-21-0	10-14-1	6-18-1	10-12-3	4-20-1	4-21-0	9-15-1	6-18-1	11-14-0	8-17-0	5-19-1	3-20-2	7-18-0	4-21-0	2-23-0	5-20-0	1-24-0
	10 <IR	7-16-0	12-10-1	8-10-5	9-9-5	7-11-5	9-14-0	9-10-4	8-10-5	10-12-1	8-11-4	4-15-4	6-16-1	8-15-0	6-15-2	8-15-0	7-15-1	3-20-0