Algorithm	Without Attack		ALIE	
	Total Time	Round time	Total Time	Round time
Adam	6348.24	41.14 ± 4.20	9321.00	62.14 ± 4.83
FLTrust	9418.31	62.79 ± 14.53	12685.50	84.57 ± 15.17
Recess	12983.00	86.55 ± 5.08	14782.50	98.55 ± 3.24
Zeno	7539.43	50.26 ± 4.35	10084.50	67.23 ± 8.42
CC	10035.21	66.90 ± 7.65	14208.45	94.72 ± 6.17
CC+fbm	10826.48	68.24 ± 9.81	13827.98	91.18 ± 8.95
CC+bucketing	11217.39	71.11 ± 8.71	14411.11	95.27 ± 7.12
Safeguard	7993.60	53.29 ± 5.11	10684.13	71.23 ± 4.67
VR Marina	10018.68	67.12 ± 18.24	13240.10	90.23 ± 11.85
BANT	6925.92	46.17 ± 3.17	10531.73	70.21 ± 5.13
AutoBANT	9307.05	62.05 ± 7.67	12543.45	83.62 ± 1.27
SimBANT	8320.50	55.47 ± 6.34	10873.37	72.49 ± 7.65

Table 1: ResNet1d18 on ECG (AFIB).

Algorithm	Without Attack		ALIE	
	Total Time	Round time	Total Time	Round time
Adam	3552.53	17.76 ± 1.76	6148.72	30.74 ± 1.87
FLTrust	11527.65	57.64 ± 7.55	14549.25	72.75 ± 1.82
Recess	13175.33	65.88 ± 16.02	15397.44	76.99 ± 6.27
Zeno	7626.38	38.13 ± 2.26	10975.74	54.88 ± 4.71
CC	4590.84	22.95 ± 2.30	8667.56	43.34 ± 6.28
CC+fbm	4814.73	23.44 ± 2.81	9024.16	47.16 ± 7.95
CC+bucketing	4167.23	20.18 ± 2.12	8741.74	43.46 ± 6.19
Safeguard	8652.72	43.26 ± 3.14	11658.47	58.29 ± 2.31
VR Marina	10897.72	55.84 ± 9.14	14942.06	73.91 ± 6.89
BANT	5861.51	29.31 ± 2.56	11177.08	55.89 ± 6.29
AutoBANT	9850.26	49.25 ± 5.77	13454.85	67.27 ± 3.49
SimBANT	6680.34	33.40 ± 5.00	12022.55	60.11 ± 8.70

Table 2: ResNet18 on CIFAR-10.

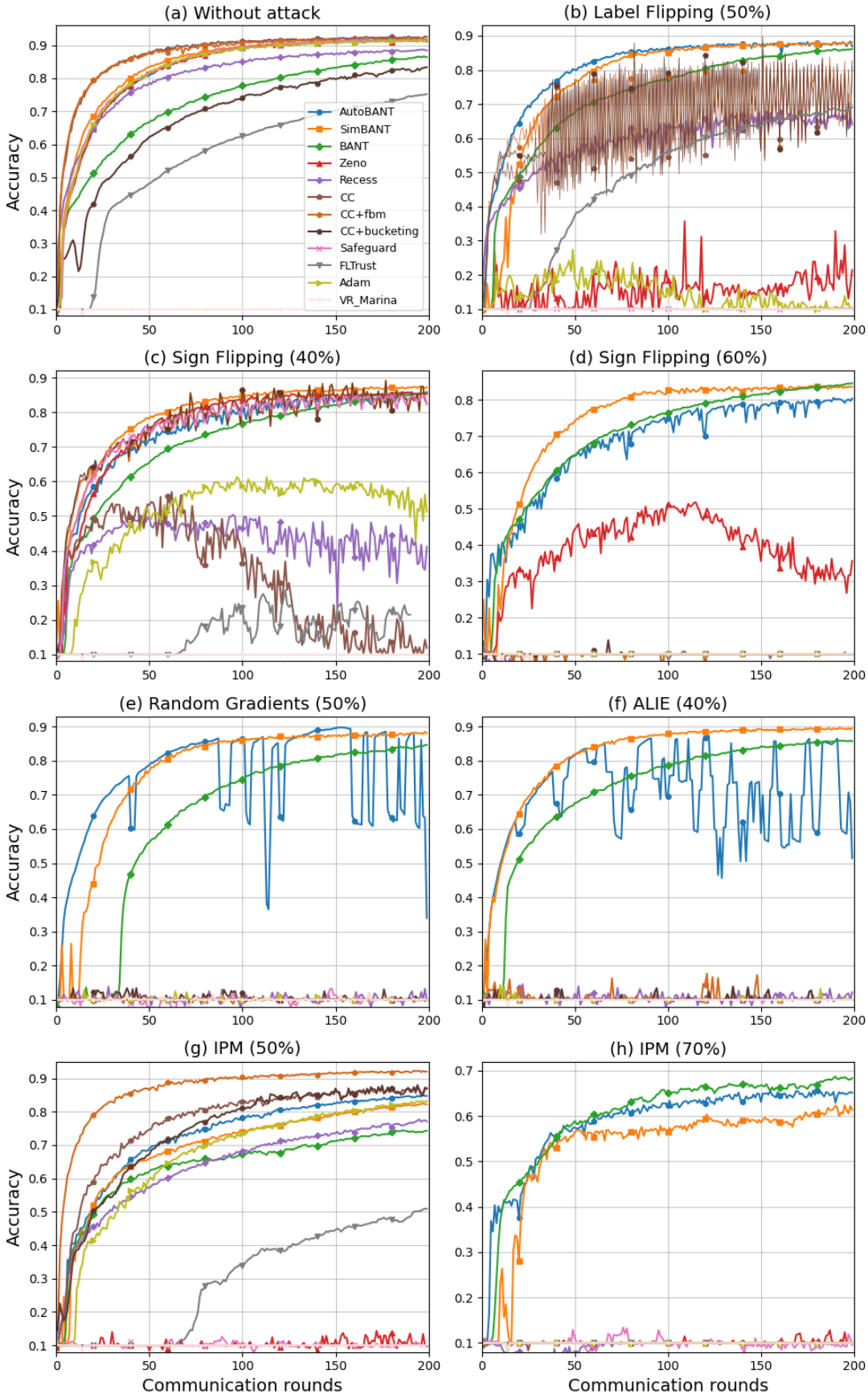

Figure 1: Test accuracy for ResNet18 on CIFAR-10. 1 additional attack scenario (Sign Flipping 60%) and 3 new techniques (CC+fbm, CC+bucketing, VR Marina) for comparison.

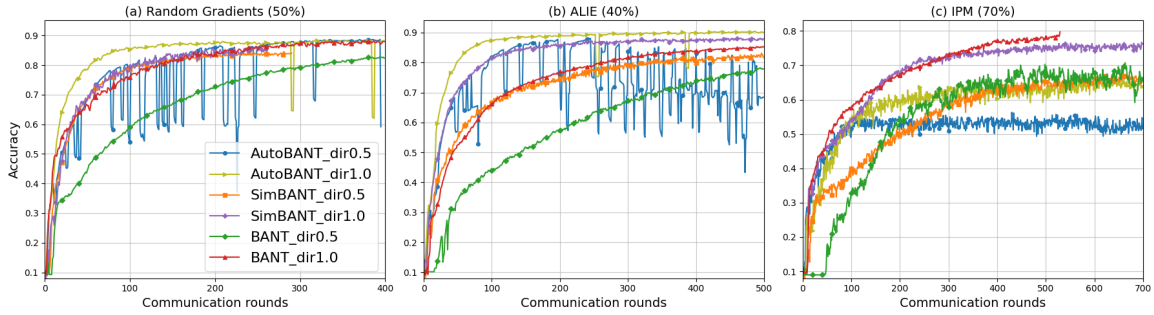

Figure 2: Test accuracy for ResNet18 on CIFAR-10 with Dirichlet heterogeneity. The suffixex dir1.0 and dir0.5 denote Dirichlet heterogeneity with $\alpha = 1.0$ and $\alpha = 0.5$, respectively.

Algorithm	Without Attack		Label Flipping		Sign Flipping		Random Gradients	
	G-mean	F1-score	G-mean	F1-score	G-mean	F1-score	G-mean	F1-score
Adam	0.956±0.017	0.811±0.016	0.262±0.023	0.041±0.019	0.304±0.015	0.116±0.018	0.348±0.011	0.126±0.016
FLTrust	0.952±0.020	0.800±0.019	0.952±0.016	0.753±0.011	0.586±0.018	0.179±0.015	0.617±0.020	0.174±0.019
Recess	0.949±0.016	0.783±0.019	0.366±0.019	0.128±0.020	0.359±0.018	0.115±0.014	0.593±0.020	0.163±0.020
Zeno	0.953±0.018	0.806±0.017	0.950±0.020	0.753±0.019	0.949±0.016	0.745±0.018	**0.954**±0.020	0.770±0.017
CC	0.949±0.020	0.772±0.019	0.285±0.018	0.114±0.020	0.479±0.020	0.124±0.017	0.580±0.019	0.155±0.020
CC+fbm	0.954±0.016	0.808±0.020	0.840±0.019	0.716±0.014	0.155±0.016	0.124±0.017	0.562±0.011	0.151±0.020
CC+bucketing	0.947±0.013	0.790±0.018	0.829±0.011	0.708±0.020	0.137±0.017	0.119±0.010	0.570±0.012	0.164±0.018
Safeguard	**0.957**±0.020	0.821±0.019	0.107±0.012	0.123±0.020	0.084±0.016	0.014±0.018	0.258±0.011	0.124±0.019
VR Marina	0.010±0.014	0.120±0.010	0.027±0.018	0.123±0.020	0.096±0.017	0.078±0.019	0.176±0.012	0.103±0.013
BANT	0.953±0.017	**0.830**±0.020	**0.956**±0.016	**0.777**±0.020	0.943±0.019	**0.792**±0.019	0.948±0.018	**0.809**±0.020
AutoBANT	0.953±0.019	0.781±0.020	0.790±0.020	0.276±0.020	0.737±0.020	0.243±0.019	0.946±0.019	0.748±0.018
SimBANT	0.956±0.020	0.790±0.018	0.949±0.020	0.774±0.020	**0.951**±0.020	0.760±0.020	0.945±0.020	0.712±0.018

Table 3: ResNet1d18 on ECG (AFIB): G-mean and F1-score for Byzantine-tolerance techniques under 4 attacks.

Algorithm	IPM (60%)		IPM (80%)		ALIE	
	G-mean	F1-score	G-mean	F1-score	G-mean	F1-score
Adam	0.952±0.014	0.738±0.011	0.197±0.027	0.036±0.015	0.125±0.011	0.123±0.020
FLTrust	0.011±0.014	0.123±0.013	0.061±0.017	0.125±0.015	0.017±0.013	0.123±0.018
Recess	0.933±0.017	0.611±0.018	0.493±0.019	0.112±0.015	0.450±0.014	0.127±0.018
Zeno	0.954±0.018	**0.783**±0.020	0.945±0.017	0.730±0.020	0.946±0.015	0.717±0.016
CC	0.945±0.020	0.710±0.016	0.084±0.019	0.014±0.020	0.530±0.018	0.154±0.020
CC+fbm	0.948±0.018	0.695±0.020	0.027±0.018	0.123±0.015	0.876±0.017	0.594±0.013
CC+bucketing	0.944±0.016	0.689±0.013	0.035±0.020	0.118±0.012	0.870±0.019	0.587±0.014
Safeguard	0.109±0.010	0.123±0.016	0.951±0.018	0.082±0.020	0.010±0.009	0.123±0.012
VR Marina	0.098±0.011	0.110±0.014	0.127±0.013	0.079±0.019	0.012±0.010	0.108±0.013
BANT	0.949±0.020	0.704±0.017	0.946±0.020	0.676±0.015	**0.947**±0.018	**0.770**±0.020
AutoBANT	0.948±0.018	0.695±0.015	0.942±0.020	0.690±0.020	0.892±0.016	0.585±0.020
SimBANT	**0.965**±0.017	0.753±0.020	**0.955**±0.020	**0.783**±0.018	0.946±0.019	0.705±0.020

Table 4: ResNet1d18 on ECG (AFIB): G-mean and F1-score for Byzantine-tolerance techniques under 3 attacks.