Table 1: Label flipping attacks.

Consensus	Architecture	Dataset	Validation	Aggregation	Agg. Method	Rounds	% Malicious nodes	Starting round	Involved classes	Atk class accuracy	Atk to Miscl. accuracy	Total accuracy
PoW	Shallow	MNIST	IID	Pass-gradients	Mean	100	0%	–	–	–	–	0.875
PoW	Shallow	MNIST	N-IID	Pass-gradients	Mean	100	0%	–	–	–	–	0.871
PoW	Shallow	MNIST	IID	Pass-gradients	Mean	100	33%	1	0→8	0.770	0.160	0.852
PoW	Shallow	MNIST	IID	Pass-gradients	Mean	100	51%	1	0→8	0.397	0.533	0.812
PoW	Shallow	MNIST	IID	Pass-gradients	Mean	100	45%	1	0→8	0.504	0.420	0.825
PoW	Shallow	MNIST	IID	Multi-Krum (18 updates rejeted)	Mean	100	51%	1	0→8	0.280	0.604	0.804
PoW	Shallow	MNIST	IID	Multi-Krum (18 updates rejeted)	Mean	100	45%	1	0→8	0.847	0.098	0.860
PoW	Shallow	MNIST	IID	Multi-Krum (25 updates rejeted)	Mean	100	45%	1	0→8	0.900	0.056	0.864
PoW	Shallow	MNIST	IID	Pass-gradients	Mean	150	45%	51	0→8	0.699	0.243	0.860
PoW	Shallow	MNIST	IID	Multi-Krum (25 updates rejeted)	Mean	150	45%	51	0→8	0.926	0.030	0.884
PoW	Deep	CIFAR-10	IID	Pass-weights	FedAvg	100	0%	–	–	–	–	0.806
PoW	Deep	CIFAR-10	N-IID	Pass-weights	FedAvg	100	0%	–	–	–	–	0.761
PoW	Deep	CIFAR-10	IID	Pass-weights	FedAvg	100	33%	1	0→8	0.523	0.302	0.781
PoW	Deep	CIFAR-10	IID	Pass-weights	FedAvg	100	33%	1	0→5	0.682	0.036	0.794
PoW	Deep	CIFAR-10	N-IID	Pass-weights	FedAvg	100	33%	1	0→8	0.624	0.210	0.747
PoW	Deep	CIFAR-10	IID	Pass-weights	FedAvg	100	10%	1	0→8	0.788	0.085	0.804
PoW	Deep	CIFAR-10	IID	Global dataset	FedAvg	100	33%	1	0→8	0.843	0.050	0.805
PoW	Deep	CIFAR-10	IID	Pass-weights	FedAvg	150	33%	51	0→8	0.551	0.278	0.792
PoW	Deep	CIFAR-10	IID	Global dataset	FedAvg	150	33%	51	0→8	0.830	0.049	0.812
PoW	Deep	CIFAR-10	IID	Global dataset	FedAvg	150	0%	–	–	–	–	0.875
PoS	Shallow	MNIST	IID	Pass-gradients	Mean	100	33%	51	0→8	0.830	0.049	0.812
PoS	Shallow	MNIST	IID	Pass-gradients	Mean	100	0%	–	–	–	–	0.875
PoS	Shallow	MNIST	N-IID	Pass-gradients	Mean	100	0%	–	–	–	–	0.871
PoS	Shallow	MNIST	IID	Pass-gradients	Mean	100	45%	1	0→8	0.473	0.450	0.821
PoS	Shallow	MNIST	IID	Pass-gradients	Mean	100	45%	1	0→8	0.858	0.093	0.862
PoS	Shallow	MNIST	IID	Pass-gradients	Mean	100	45%	1	0→8	0.896	0.061	0.864
PoS	Shallow	MNIST	IID	Multi-Krum (18 updates rejeted)	Mean	100	45%	51	0→8	0.751	0.197	0.865
PoS	Shallow	MNIST	IID	Multi-Krum (18 updates rejeted)	Mean	100	45%	51	0→8	0.930	0.019	0.882
PoS	Shallow	MNIST	IID	Multi-Krum (25 updates rejeted)	Mean	100	0%	–	–	–	–	0.806
PoS	Shallow	MNIST	IID	Pass-gradients	Mean	150	0%	–	–	–	–	0.753
PoS	Shallow	MNIST	IID	Multi-Krum (25 updates rejeted)	Mean	150	33%	1	0→8	0.532	0.292	0.784
PoS	Deep	CIFAR-10	IID	Pass-weights	FedAvg	100	33%	1	0→8	0.827	0.057	0.805
PoS	Deep	CIFAR-10	N-IID	Pass-weights	FedAvg	100	33%	51	0→8	0.584	0.259	0.798
PoS	Deep	CIFAR-10	IID	Pass-weights	FedAvg	100	33%	51	0→8	0.827	0.045	0.811
Committee	Shallow	MNIST	IID	Pass-gradients	Mean	100	0%	–	–	–	–	0.875
Committee	Shallow	MNIST	N-IID	Pass-gradients	Mean	100	0%	–	–	–	–	0.872
Committee	Shallow	MNIST	IID	Pass-gradients	Mean	100	45%	1	0→8	0.472	0.453	0.820
Committee	Shallow	MNIST	IID	Pass-gradients	Mean	100	45%	1	0→8	0.855	0.090	0.860
Committee	Shallow	MNIST	IID	Pass-gradients	Mean	100	45%	51	0→8	0.750	0.191	0.867
Committee	Shallow	MNIST	IID	Multi-Krum (18 updates rejeted)	Mean	100	45%	51	0→8	0.873	0.058	0.878
Committee	Shallow	MNIST	IID	Multi-Krum (18 updates rejeted)	Mean	100	0%	–	–	–	–	0.804
Committee	Shallow	MNIST	IID	Multi-Krum (25 updates rejeted)	Mean	100	0%	–	–	–	–	0.757
Committee	Shallow	MNIST	IID	Pass-gradients	Mean	150	33%	1	0→8	0.521	0.302	0.780
Committee	Shallow	MNIST	IID	Multi-Krum (25 updates rejeted)	Mean	150	33%	1	0→8	0.847	0.050	0.807
Committee	Deep	CIFAR-10	IID	Pass-weights	FedAvg	100	33%	51	0→8	0.572	0.250	0.801
Committee	Deep	CIFAR-10	N-IID	Pass-weights	FedAvg	100	33%	51	0→8	0.840	0.047	0.814

Table 2: Data poisoning attacks.

Consensus	Architecture	Dataset	Validation	Aggregation	Aggregation Method	Rounds	% Malicious nodes	Starting round	Backdoor accuracy	Honest accuracy
PoW	Shallow	MNIST	IID	Pass-gradients	Mean	100	0%	–	0.875	–
PoW	Shallow	MNIST	N-IID	Pass-gradients	Mean	100	0%	–	0.871	–
PoW	Shallow	MNIST	N-IID	Pass-gradients	Mean	100	33%	1	0.481	0.824
PoW	Shallow	MNIST	N-IID	Pass-gradients	Mean	100	10%	1	0.170	0.856
PoW	Shallow	MNIST	N-IID	Multi-Krum (18 updates rejeted)	Mean	100	33%	1	0.676	0.743
PoW	Shallow	MNIST	N-IID	Multi-Krum (38 updates rejeted)	Mean	100	33%	1	0.900	0.589
PoW	Shallow	MNIST	IID	Multi-Krum (38 updates rejeted)	Mean	100	33%	1	0.110	0.871
PoW	Shallow	MNIST	IID	Multi-Krum (18 updates rejeted)	Mean	100	33%	1	0.110	0.875
PoW	Shallow	MNIST	N-IID	Pass-gradients	Mean	150	33%	51	0.475	0.842
PoW	Shallow	MNIST	IID	Multi-Krum (9 updates rejeted)	Mean	150	33%	51	0.264	0.862
PoW	Shallow	MNIST	IID	Multi-Krum (18 updates rejeted)	Mean	150	33%	51	0.109	0.887
PoW	Deep	CIFAR-10	IID	Pass-weights	FedAvg	100	0%	–	0.806	–
PoW	Deep	CIFAR-10	N-IID	Pass-weights	FedAvg	100	0%	–	0.761	–
PoW	Deep	CIFAR-10	N-IID	Pass-weights	FedAvg	100	33%	1	1.000	0.752
PoW	Deep	CIFAR-10	N-IID	Pass-weights	FedAvg	100	5%	1	0.965	0.755
PoW	Deep	CIFAR-10	N-IID	Global dataset	FedAvg	100	5%	1	0.987	0.753
PoW	Deep	CIFAR-10	IID	Global dataset	FedAvg	100	5%	1	0.898	0.805
PoW	Deep	CIFAR-10	N-IID	Pass-weights	FedAvg	150	5%	51	0.983	0.771
PoW	Deep	CIFAR-10	IID	Global dataset	FedAvg	150	5%	51	0.911	0.811
PoW	Deep	CIFAR-10	IID	Global dataset	FedAvg	150	0%	–	0.875	–
PoS	Shallow	MNIST	IID	Pass-gradients	Mean	100	5%	51	0.911	0.811
PoS	Shallow	MNIST	IID	Pass-gradients	Mean	100	0%	–	0.875	–
PoS	Shallow	MNIST	N-IID	Pass-gradients	Mean	100	0%	–	0.871	–
PoS	Shallow	MNIST	N-IID	Pass-gradients	Mean	100	33%	1	0.497	0.816
PoS	Shallow	MNIST	N-IID	Pass-gradients	Mean	100	33%	1	0.559	0.759
PoS	Shallow	MNIST	N-IID	Multi-Krum (18 updates rejeted)	Mean	100	33%	1	0.112	0.874
PoS	Shallow	MNIST	N-IID	Multi-Krum (38 updates rejeted)	Mean	100	33%	1	0.244	0.849
PoS	Shallow	MNIST	IID	Multi-Krum (38 updates rejeted)	Mean	100	33%	1	0.110	0.868
PoS	Shallow	MNIST	IID	Multi-Krum (18 updates rejeted)	Mean	100	33%	51	0.493	0.844
PoS	Shallow	MNIST	N-IID	Pass-gradients	Mean	150	33%	51	0.118	0.881
PoS	Shallow	MNIST	IID	Multi-Krum (9 updates rejeted)	Mean	150	33%	51	0.109	0.888
PoS	Shallow	MNIST	IID	Multi-Krum (18 updates rejeted)	Mean	150	0%	–	0.806	–
PoS	Deep	CIFAR-10	IID	Pass-weights	FedAvg	100	0%	–	0.753	–
PoS	Deep	CIFAR-10	N-IID	Pass-weights	FedAvg	100	5%	1	0.963	0.755
PoS	Deep	CIFAR-10	N-IID	Pass-weights	FedAvg	100	5%	1	0.909	0.805
PoS	Deep	CIFAR-10	N-IID	Pass-weights	FedAvg	100	5%	51	0.990	0.768
Committee	Shallow	MNIST	IID	Pass-gradients	Mean	100	0%	–	0.875	–
Committee	Shallow	MNIST	N-IID	Pass-gradients	Mean	100	0%	–	0.872	–
Committee	Shallow	MNIST	N-IID	Pass-gradients	Mean	100	33%	1	0.495	0.813
Committee	Shallow	MNIST	N-IID	Pass-gradients	Mean	100	33%	1	0.561	0.758
Committee	Shallow	MNIST	N-IID	Multi-Krum (18 updates rejeted)	Mean	100	33%	1	0.109	0.875
Committee	Shallow	MNIST	N-IID	Multi-Krum (38 updates rejeted)	Mean	100	33%	51	0.495	0.844
Committee	Shallow	MNIST	IID	Multi-Krum (38 updates rejeted)	Mean	100	33%	51	0.118	0.880
Committee	Shallow	MNIST	IID	Multi-Krum (18 updates rejeted)	Mean	100	33%	51	0.109	0.887
Committee	Shallow	MNIST	N-IID	Pass-gradients	Mean	150	0%	–	0.804	–
Committee	Shallow	MNIST	IID	Multi-Krum (9 updates rejeted)	Mean	150	0%	–	0.757	–
Committee	Shallow	MNIST	IID	Multi-Krum (18 updates rejeted)	Mean	150	5%	1	0.758	0.806
Committee	Deep	CIFAR-10	IID	Pass-weights	FedAvg	100	5%	51	0.820	0.810

Table 3: Additive noise attacks.

Consensus	Architecture	Dataset	Validation	Aggregation	Aggregation Method	Rounds	% Malicious nodes	Starting round	Sigma	Accuracy
PoW	Shallow	MNIST	IID	Pass-gradients	Mean	100	0%	–	–	0.875
PoW	Shallow	MNIST	N-IID	Pass-gradients	Mean	100	0%	–	–	0.871
PoW	Shallow	MNIST	N-IID	Pass-gradients	Mean	100	33%	1	0.5	0.873
PoW	Shallow	MNIST	N-IID	Pass-gradients	Mean	100	33%	1	5	0.865
PoW	Shallow	MNIST	N-IID	Pass-gradients	Mean	100	45%	1	5	0.788
PoW	Deep	CIFAR-10	IID	Pass-weights	FedAvg	100	0%	–	–	0.806
PoW	Deep	CIFAR-10	N-IID	Pass-weights	FedAvg	100	0%	–	–	0.761
PoW	Deep	CIFAR-10	N-IID	Pass-weights	FedAvg	100	33%	1	0.5	0.099
PoW	Deep	CIFAR-10	N-IID	Pass-weights	FedAvg	100	10%	1	0.5	0.101
PoW	Deep	CIFAR-10	N-IID	Global dataset	FedAvg	100	10%	1	0.5	0.099
PoW	Deep	CIFAR-10	IID	Global dataset	FedAvg	100	10%	1	0.5	0.809
PoW	Deep	CIFAR-10	N-IID	Pass-weights	FedAvg	150	10%	51	0.5	0.101
PoW	Deep	CIFAR-10	N-IID	Global dataset	FedAvg	150	10%	51	0.5	0.769
PoW	Deep	CIFAR-10	N-IID	Global dataset	FedAvg	150	0%	–	–	0.806
PoS	Deep	CIFAR-10	IID	Pass-weights	FedAvg	100	10%	51	0.5	0.769
PoS	Deep	CIFAR-10	IID	Pass-weights	FedAvg	100	0%	–	–	0.806
PoS	Deep	CIFAR-10	N-IID	Pass-weights	FedAvg	100	0%	–	–	0.753
PoS	Deep	CIFAR-10	N-IID	Pass-weights	FedAvg	100	10%	1	0.5	0.099
PoS	Deep	CIFAR-10	N-IID	Pass-weights	FedAvg	100	10%	1	0.5	0.100
PoS	Deep	CIFAR-10	N-IID	Global dataset	FedAvg	100	10%	1	0.5	0.808
PoS	Deep	CIFAR-10	IID	Global dataset	FedAvg	100	10%	51	0.5	0.099
PoS	Deep	CIFAR-10	N-IID	Pass-weights	FedAvg	150	10%	51	0.5	0.771
Committee	Deep	CIFAR-10	IID	Pass-weights	FedAvg	100	0%	–	–	0.804
Committee	Deep	CIFAR-10	N-IID	Pass-weights	FedAvg	100	0%	–	–	0.757
Committee	Deep	CIFAR-10	N-IID	Pass-weights	FedAvg	100	10%	1	0.5	0.099
Committee	Deep	CIFAR-10	N-IID	Pass-weights	FedAvg	100	10%	1	0.5	0.099
Committee	Deep	CIFAR-10	N-IID	Global dataset	FedAvg	100	10%	1	0.5	0.807
Committee	Deep	CIFAR-10	IID	Global dataset	FedAvg	100	10%	51	0.5	0.099
Committee	Deep	CIFAR-10	N-IID	Pass-weights	FedAvg	150	10%	51	0.5	0.769