Table 1: Label flipping attacks.

Consensus Arch	Consensus Architecture Dataset	Valid	lation Aggregation	Agg. Method Rour	nds % Malicic	ous nodes Starting r	ound Involved clas	Agg. Method Rounds % Malicious nodes Starting round Involved classes Atk class accuracy Atk to Miscl. accuracy Total accuracy	Atk to Miscl. accurac	y Total accuracy
PoW Shallow	llow MNIST		Pass-gradients	Mean 100		200	1	1	1	0.875
PoW Shallow	llow MNIST	OII-N	Pass-gradients	Mean 100	%0 0	1	1	ı	ı	0.871
PoW Shallow	llow MNIST		Pass-gradients	_		7% 1	8 [↑] 0	0.770	0.160	0.852
			Pass-gradients			7%	8←0	0.397	0.533	0.812
			Pass-gradients	Mean		%	8↑0	0.504	0.420	0.825
				Mean	_	%	8↑0	0.280	0.604	0.804
				Mean		%	8↑0	0.847	0.098	0.860
			Multi-Krum (25 updates rejeted)	Mean 1		%	8↑0	0.900	0.056	0.864
			Pass-gradients		•		8↑0	0.699	0.243	0.860
PoW Shallow			Multi-Krum (25 updates rejeted)	Mean	7	% 51	8↑0	0.926	0.030	0.884
PoW Deep	_	10 IID	Pass-weights			- %0	ı	ı	ı	908.0
PoW Deep		10 N-IID	Pass-weights			- %0	ı	I	I	0.761
PoW Deep	_	10 IID	Pass-weights			.1	8↑0	0.523	0.302	0.781
PoW Deep		10 IID	Pass-weights				0→5	0.682	0.036	0.794
PoW Deep		10 N-IID	Pass-weights			%	8↑0	0.624	0.210	0.747
PoW Deep		10 IID	Pass-weights			.1	8↑0	0.788	0.085	0.804
PoW Deep		10 IID	Global dataset			7% 1	8↑0	0.843	0.050	0.805
PoW Deep		10 IID	Pass-weights			33% 51	8↑0	0.551	0.278	0.792
PoW Deep		10 IID	Global dataset				8←0	0.830	0.049	0.812
PoW Deep	p CIFAR-10 IID	10 IID	Global dataset	FedAvg 150		- 1	ı	ı	ı	0.875
			Pass-gradients		0 33%	% 51	8←0	0.830	0.049	0.812
			Pass-gradients	Mean 100		1 %	ı	ı	ı	0.875
		N-IID	Pass-gradients			1 %	ı	1	1	0.871
PoS Shallow	llow MNIST	IID	Pass-gradients	Mean 100			8 [↑] 0	0.473	0.450	0.821
	llow MNIST		Pass-gradients	Mean 100		7%	8↑0	0.858	0.093	0.862
PoS Shallow	llow MNIST		Pass-gradients	Mean 100		7% 1	8↑0	0.896	0.061	0.864
PoS Shallow			Multi-Krum (18 updates rejeted)	Mean	0 45%		8↑0	0.751	0.197	0.865
			Multi-Krum (18 updates rejeted)	Mean		% 51	8↑0	0.930	0.019	0.882
			Multi-Krum (25 updates rejeted)	Mean	%0 0	l 200	ı	ı	ı	908.0
			Pass-gradients	Mean		- l	ı	ı	ı	0.753
PoS Shallow			Multi-Krum (25 updates rejeted)	Mean		%	8↑0	0.532	0.292	0.784
	_	10 IID	Pass-weights				8↑0	0.827	0.057	0.805
PoS Deep		10 N-IID	Pass-weights				8↑0	0.584	0.259	0.798
PoS Deep	_	10 IID	Pass-weights	5.0		% 51	8↑0	0.827	0.045	0.811
Committee Shallow			Pass-gradients			- %0	ı	ı	ı	0.875
Committee Shallow		N-IID	Pass-gradients	Mean 100		- %0	ı	ı	ı	0.872
Committee Shallow			Pass-gradients	Mean 100		7%	8↑0	0.472	0.453	0.820
Committee Shallow	llow MNIST		Pass-gradients	Mean 100	0 45%	7%	8 [↑] 0	0.855	0.090	0.860
Committee Shallow	llow MNIST	IID	Pass-gradients	Mean 100	0 45%	% 51	8 [↑] 0	0.750	0.191	0.867
Committee Shallow	llow MNIST		Multi-Krum (18 updates rejeted)	d) Mean 100	7	% 51	8 ↑ 0	0.873	0.058	0.878
Committee Shallow	llow MNIST		Multi-Krum (18 updates rejeted)	d) Mean 100		1 %	ı	ı	ı	0.804
Committee Shallow	llow MNIST	ΠD	Multi-Krum (25 updates rejeted)	Mean		- %	I	ı	ı	0.757
Committee Shallow	llow MNIST		Pass-gradients	Mean 150		7% 1	8←0	0.521	0.302	0.780
Committee Shallow			Multi-Krum (25 updates rejeted)		0 33%	7%	s ↑0	0.847	0.050	0.807
Committee Deep	-	10 IID	Pass-weights			% 51	8↑0	0.572	0.250	0.801
Committee Deep	p CIFAR-10 N-II	10 N-IID	Pass-weights	FedAvg 100	0 33%		8←0	0.840	0.047	0.814

Table 2: Data poisoning attacks.

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PoW	Shallow	TOTATIAT		Fass-gradients	Mean	100	0/0	I	0.8/3	
PoW	Shallow	MNIST	N-IID	Pass-gradients	Mean	100	%0	I	0.871	I
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	updates rejeted)	Mean	100	33%	-1	0.676	0.743
PoW	Shallow	MNIST	N-IID	updates rejeted)	Mean	100	33%	1	0.900	0.589
PoW	Shallow	MNIST			Mean	100	33%	1	0.110	0.871
PoW	Shallow	MNIST		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		Multi-Krum (9 updates rejeted)	Mean	150	33%	51	0.264	0.862
PoW	Shallow	MNIST	П	Multi-Krum (18 updates rejeted)	Mean	150	33%	51	0.109	0.887
PoW	Deep	CIFAR-10	0 1110	Pass-weights	FedAvg	100	%0	1	908.0	I
PoW	Deep	CIFAR-10 N-IID	0 N-IID	Pass-weights	FedAvg	100	%0	I	0.761	I
PoW	Deep	CIFAR-10 N-IIL	0 N-IID	Pass-weights	FedAvg	100	33%	П	1.000	0.752
PoW	Deep	CIFAR-10	0 N-IID	Pass-weights	FedAvg	100	2%	1	0.965	0.755
PoW	Deep	CIFAR-10 N-IIL	0 N-IID	at	FedAvg	100	2%	1	0.987	0.753
PoW	Deep	CIFAR-10 IID	0 1110	Global dataset	FedAvg	100	2%	1	0.898	0.805
PoW	Deep	CIFAR-10 N-IID	0 N-IID	Pass-weights	FedAvg	150	2%	51	0.983	0.771
PoW	Deep	CIFAR-10 IID	0 IID	Global dataset	FedAvg	150	2%	51	0.911	0.811
PoW	Deep	CIFAR-10 IID	0 IID	Global dataset	FedAvg	150	%0	I	0.875	I
PoS	Shallow	MNIST	II	Pass-gradients	Mean	100	2%	51	0.911	0.811
PoS	Shallow	MNIST	П	Pass-gradients	Mean	100	%0	1	0.875	I
PoS	Shallow	MNIST	N-IID	Pass-gradients	Mean	100	%0	I	0.871	I
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%	П	0.559	0.759
PoS	Shallow	MNIST	N-IID	updates rejeted)	Mean	100	33%	1	0.112	0.874
PoS	Shallow	MNIST	N-IID	updates rejeted)	Mean	100	33%	1	0.244	0.849
PoS	Shallow	MNIST			Mean	100	33%		0.110	0.868
PoS	Shallow	MNIST		8 updates rejeted)	Mean	100	33%	51	0.493	0.844
PoS	Shallow	MNIST	N-IID		Mean	150	33%	51	0.118	0.881
PoS	Shallow	MNIST			Mean	150	33%	51	0.109	0.888
PoS	Shallow	MNIST IID		(18 updates rejeted)	Mean	150	%0	I	908.0	I
PoS	Deep	CIFAR-1	0 110	Pass-weights	FedAvg	100	%0	ı	0.753	I
PoS	Deep	CIFAR-10	0 N-IID	Pass-weights	FedAvg	100	2%	1	0.963	0.755
PoS	Deep	CIFAR-10	0 N-IID	Pass-weights	FedAvg	100	2%	1	0.909	0.805
PoS	Deep	CIFAR-10	0 N-IID	Pass-weights	FedAvg	100	2%	51	0.990	0.768
Committe	Committee Shallow	MNIST	П	Pass-gradients	Mean	100	%0	I	0.875	I
Committe	Committee Shallow	MNIST	N-IID	Pass-gradients	Mean	100	%0	ı	0.872	I
Committe	Committee Shallow	MNIST	N-IID	Pass-gradients	Mean	100	33%	1	0.495	0.813
Committe	Committee Shallow	MNIST	N-IID		Mean	100	33%	1	0.561	0.758
Committe	Committee Shallow	MNIST	N-IID	updates rejeted)	Mean	100	33%	1	0.109	0.875
Committe	Committee Shallow	MNIST	N-IID		Mean	100	33%	51	0.495	0.844
Committe	Committee Shallow	MNIST		Multi-Krum (38 updates rejeted)	Mean	100	33%	51	0.118	0.880
Committe	Committee Shallow	MNIST		Multi-Krum (18 updates rejeted)	Mean	100	33%	51	0.109	0.887
Committe	Committee Shallow	MNIST	N-IID	Pass-gradients	Mean	150	%0	I	0.804	I
Committe	Committee Shallow	MNIST		Multi-Krum (9 updates rejeted)	Mean	150	%0	I	0.757	I
Committee Shallow	· Challour	CITI	E	Manh: IV (10 dates maintain	7.6	150	101	,		0 0
	SE SHAHOW	MINIST	Ħ		Mean	007	0%0	_	0.758	908.0

Table 3: Additive noise attacks.

Consensus	Consensus Architecture Dataset	Dataset	Validatio	Validation Aggregation	Aggregation Method Rounds % Malicious nodes Starting round Sigma Accuracy	Rounds % M	alicious nodes St	arting round	Sigma	Accuracy
$_{\rm PoW}$	Shallow	MNIST	IID	Pass-gradients	Mean	100	%0	_	ı	0.875
$_{\rm PoW}$	Shallow	MNIST	N-IID	Pass-gradients	Mean	100	0%	ı	I	0.871
$_{\rm PoW}$	Shallow	MNIST	N-IID	Pass-gradients	Mean	100	33%	1	0.5	0.873
$_{\rm PoW}$	Shallow	MINIST	N-IID	Pass-gradients	Mean	100	33%	1	2	0.865
$_{\rm PoW}$	Shallow	MNIST	N-IID	Pass-gradients	Mean	100	45%	1	2	0.788
PoW	Deep	CIFAR-10]		Pass-weights	FedAvg	100	%0	I	ı	0.806
$_{\rm PoW}$	Deep	CIFAR-10 N-III	OII-N	Pass-weights	FedAvg	100	%0	I	I	0.761
PoW	Deep	CIFAR-10 N-III	OII-N	Pass-weights	FedAvg	100	33%	1	0.5	0.099
PoW	Deep	CIFAR-10 N-IIL	OII-N	Pass-weights	FedAvg	100	10%	1	0.5	0.101
$_{\rm PoW}$	Deep	CIFAR-10 N-III	OII-N	Global dataset FedAvg	FedAvg	100	10%	1	0.5	0.099
$_{\rm PoW}$	Deep	CIFAR-10 IID		Global dataset FedAvg	FedAvg	100	70%	1	0.5	0.809
$_{\rm PoW}$	Deep	CIFAR-10 N-IID	OII-N	Pass-weights	FedAvg	150	10%	51	0.5	0.101
PoW	Deep	CIFAR-10 N-III	N-IID	Global dataset FedAvg	FedAvg	150	10%	51	0.5	0.769
PoW	Deep	CIFAR-10 N-IID	OII-N	Global dataset FedAvg	FedAvg	150	%0	I	I	0.806
$_{\rm PoS}$	Deep	CIFAR-10 IID		Pass-weights	FedAvg	100	10%	51	0.5	0.769
$_{\rm PoS}$	Deep	CIFAR-10 IID		Pass-weights	FedAvg	100	%0	I	I	0.806
$_{\rm PoS}$	Deep	CIFAR-10 N-IIL	OII-N	Pass-weights	FedAvg	100	%0	I	I	0.753
$_{\rm PoS}$	Deep	CIFAR-10 N-III	N-IID	Pass-weights	FedAvg	100	10%	1	0.5	0.099
$_{\rm PoS}$	Deep	CIFAR-10 N-IID	OII-N	Pass-weights	FedAvg	100	10%	1	0.5	0.100
$_{ m PoS}$	Deep	CIFAR-10 N-III	OII-N	Global dataset FedAvg	FedAvg	100	70%	П	0.5	0.808
$_{ m PoS}$	Deep	CIFAR-10 IID		Global dataset	FedAvg	100	10%	51	0.5	0.099
$_{\rm PoS}$	Deep	CIFAR-10 N-III	OII-N	Pass-weights	FedAvg	150	10%	51	0.5	0.771
Committee Deep	Deep	CIFAR-10 IID		Pass-weights	FedAvg	100	%0	l	ı	0.804
Committee Deep	Deep	CIFAR-10 N-III	OII-N	Pass-weights	FedAvg	100	%0	I	I	0.757
Committee Deep	Deep	CIFAR-10 N-III	OII-N	Pass-weights	FedAvg	100	70%	1	0.5	0.099
Committee Deep	Deep	CIFAR-10 N-III	OII-N	Pass-weights	FedAvg	100	10%	1	0.5	0.099
Committee Deep	Deep	CIFAR-10 N-III	OII-N	Global dataset FedAvg	FedAvg	100	10%	1	0.5	0.807
Committee Deep	Deep	CIFAR-10 IID		Global dataset FedAvg	FedAvg	100	10%	51	0.5	0.099
Committee Deep	Deep	CIFAR-10 N-IID	OII-N	Pass-weights	FedAvg	150	10%	51	0.5	0.769