Table 1: Table presents accuracy of non-targeted attacks on DNN classifiers after being attacked by each method along with the l_2 distance and non-normalized residual of the adversarial patch. We provide the mean and variance of each metric over 10 runs.

	VGG-16			ResNet-50		
Attack	Accuracy	l_2	Non-	Accuracy	l_2	Non-
Method			Normalized			Normalized
			Residual			Residual
-	73.36%	-	-	76.12%	-	
CamoPatch	9.70% (0.03)	$0.09 \ (0.02)^{\dagger}$	$0.11 \ (0.02)^{\dagger}$	$10.00\% \ (0.02)^{\dagger}$	$0.08 \ (0.01)^{\dagger}$	$0.10 \ (0.01)^{\dagger}$
Patch-RS*	6.82 % (0.04)	$0.42 (0.02)^{\ddagger}$	$0.30 (0.05)^{\ddagger}$	$15.92\% (0.02)^{\ddagger}$	$0.45 (0.04)^{\ddagger}$	$0.31 (0.04)^{\ddagger}$
Patch-RS	6.82 % (0.04)	$0.63 (0.01)^{\ddagger}$	$0.61 (0.07)^{\ddagger}$	$15.92\% (0.02)^{\ddagger}$	$0.67 (0.08)^{\ddagger}$	$0.69 (0.07)^{\ddagger}$
TPA	47.11% (1.30) [‡]	$0.61 (0.13)^{\ddagger}$	$0.55 (0.05)^{\ddagger}$	38.98% (1.41) [‡]	$0.61 (0.07)^{\ddagger}$	$0.58(0.07)^{\ddagger}$
OPA	$32.19\% (0.10)^{\ddagger}$	$0.71 (0.20)^{\ddagger}$	$0.64 (0.06)^{\ddagger}$	27.91% (1.12) [‡]	$0.71 (0.14)^{\ddagger}$	$0.66 (0.04)^{\ddagger}$
LOAP	$37.99\% (0.40)^{\ddagger}$	$0.68 (0.02)^{\ddagger}$	$0.63 (0.05)^{\ddagger}$	$47.99\% (0.10)^{\ddagger}$	$0.78 (0.12)^{\ddagger}$	$0.67 (0.05)^{\ddagger}$
Adv-watermark	$32.00\% (0.10)^{\ddagger}$	$0.13(0.08)^{\ddagger}$	$0.25(0.05)^{\ddagger}$	$35.00\% (0.40)^{\ddagger}$	$0.16(0.01)^{\ddagger}$	$0.31(0.07)^{\ddagger}$
	A	Γ-WideResNet-50-	2)	AT-ResNet-50		
Attack	Accuracy	l_2	Non-	Accuracy	l_2	Non-
Method			I Normalized			NT
	1					Normalized
			Residual			Residual
-	68.46%		Residual -	64.02%	-	Residual
- CamoPatch	68.46% 12.98% (0.01) [†]	- 0.14 (0.05) [†]	Residual - 0.12 (0.07) [†]	64.02% 6.00% (0.03) [†]	- 0.15 (0.03) [†]	Residual 0.13 (0.03) [†]
CamoPatch Patch-RS*	$\begin{array}{r} 68.46\% \\ \hline 12.98\% \ (0.01)^{\dagger} \\ 14.42\% \ (0.01)^{\ddagger} \end{array}$	$\begin{array}{c} 0.14 \ (0.05)^{\dagger} \\ 0.43 \ (0.07)^{\ddagger} \end{array}$	Residual - $0.12 (0.07)^{\dagger}$ $0.30 (0.05)^{\ddagger}$	$\begin{array}{c} 64.02\% \\ \hline \mathbf{6.00\%} \ (0.03)^{\dagger} \\ 12.00\% \ (0.02)^{\ddagger} \end{array}$	$\begin{array}{c} - \\ 0.15 \ (0.03)^{\dagger} \\ 0.41 \ (0.12)^{\ddagger} \end{array}$	Normalized Residual 0.13 (0.03) [†] 0.33 (0.05) [‡]
CamoPatch Patch-RS* Patch-RS	$\begin{array}{c} 68.46\% \\ \hline 12.98\% \ (0.01)^{\dagger} \\ 14.42\% \ (0.01)^{\ddagger} \\ \hline 14.42\% \ (0.01)^{\ddagger} \end{array}$	0.14 (0.05) [†] 0.43 (0.07) [‡] 0.74 (0.08) [‡]	$\begin{array}{c} \text{Residual} \\ \hline & & \\ \hline & & \\ 0.12 & (0.07)^{\dagger} \\ \hline & & \\ 0.30 & (0.05)^{\ddagger} \\ \hline & & \\ 0.42 & (0.07)^{\ddagger} \end{array}$	$\begin{array}{c} 64.02\% \\ \hline 6.00\% \ (0.03)^{\dagger} \\ 12.00\% \ (0.02)^{\ddagger} \\ 12.00\% \ (0.02)^{\ddagger} \end{array}$	$\begin{array}{c} \textbf{0.15} \ (\textbf{0.03})^{\dagger} \\ \hline \textbf{0.41} \ (\textbf{0.12})^{\ddagger} \\ \hline \textbf{0.74} \ (\textbf{0.09})^{\ddagger} \end{array}$	$\begin{array}{c} \text{Normalized} \\ \text{Residual} \\ \hline \\ 0.13 \ (0.03)^{\dagger} \\ \hline \\ 0.33 \ (0.05)^{\ddagger} \\ \hline \\ 0.43 \ (0.07)^{\ddagger} \end{array}$
CamoPatch Patch-RS* Patch-RS TPA	$\begin{array}{c} 68.46\% \\ \hline 12.98\% \ (0.01)^{\dagger} \\ 14.42\% \ (0.01)^{\ddagger} \\ 14.42\% \ (0.01)^{\ddagger} \\ 51.66\% \ (1.3)^{\ddagger} \end{array}$	$\begin{matrix} 0.14 & (0.05)^{\dagger} \\ 0.43 & (0.07)^{\ddagger} \\ 0.74 & (0.08)^{\ddagger} \\ 0.82 & (1.21)^{\ddagger} \end{matrix}$	$\begin{array}{c} \text{Residual} \\ \hline & & \\ \hline & & \\ 0.12 \ (0.07)^{\dagger} \\ \hline & & \\ 0.30 \ (0.05)^{\ddagger} \\ \hline & & \\ 0.42 \ (0.07)^{\ddagger} \\ \hline & & \\ 0.82 \ (0.07)^{\ddagger} \end{array}$	$\begin{array}{c} 64.02\% \\ \hline 6.00\% \ (0.03)^{\dagger} \\ 12.00\% \ (0.02)^{\ddagger} \\ 12.00\% \ (0.02)^{\ddagger} \\ 34.82\% \ (1.41)^{\ddagger} \end{array}$	$\begin{matrix} 0.15 & (0.03)^{\dagger} \\ 0.41 & (0.12)^{\ddagger} \\ 0.74 & (0.09)^{\ddagger} \\ 0.92 & (0.05)^{\ddagger} \end{matrix}$	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$
CamoPatch Patch-RS* Patch-RS TPA OPA	$\begin{array}{c} 68.46\% \\ \hline 12.98\% \ (0.01)^{\dagger} \\ 14.42\% \ (0.01)^{4} \\ 14.42\% \ (0.01)^{4} \\ 51.66\% \ (1.3)^{4} \\ 36.88\% \ (0.1)^{4} \end{array}$	$\begin{array}{c} 0.14 \ (0.05)^{\dagger} \\ 0.43 \ (0.07)^{\ddagger} \\ 0.74 \ (0.08)^{\ddagger} \\ 0.82 \ (1.21)^{\ddagger} \\ 0.76 \ (0.20)^{\ddagger} \end{array}$	$\begin{array}{c} \text{Residual} \\ \hline \\ 0.12 \ (0.07)^{\dagger} \\ 0.30 \ (0.05)^{\dagger} \\ 0.42 \ (0.07)^{\dagger} \\ 0.82 \ (0.07)^{\dagger} \\ 0.74 \ (0.05)^{\dagger} \end{array}$	$\begin{array}{c} 64.02\%\\ \textbf{6.00\%} \ \textbf{(0.03)}^{\dagger}\\ 12.00\% \ \textbf{(0.02)}^{\ddagger}\\ 12.00\% \ \textbf{(0.02)}^{\ddagger}\\ 34.82\% \ \textbf{(1.41)}^{\ddagger}\\ 24.83\% \ \textbf{(1.12)}^{\ddagger} \end{array}$	$\begin{matrix} 0.15 & (0.03)^{\dagger} \\ 0.41 & (0.12)^{3} \\ 0.74 & (0.09)^{3} \\ 0.92 & (0.05)^{3} \\ 0.77 & (0.14)^{3} \end{matrix}$	$\begin{array}{c} \text{Normalized} \\ \text{Residual} \\ \hline 0.13 \ (0.03)^{\dagger} \\ \hline 0.33 \ (0.05)^{\ddagger} \\ \hline 0.43 \ (0.07)^{\ddagger} \\ \hline 0.87(0.09)^{\ddagger} \\ \hline 0.75 \ (0.04)^{\ddagger} \end{array}$
CamoPatch Patch-RS* Patch-RS TPA OPA LOAP	$\begin{array}{c} 68.46\% \\ \hline 12.98\% \ (0.01)^{\dagger} \\ 14.42\% \ (0.01)^{\ddagger} \\ 14.42\% \ (0.01)^{\ddagger} \\ 51.66\% \ (1.3)^{\ddagger} \\ 36.88\% \ (0.1)^{\ddagger} \\ 38.85\% \ (0.4)^{\ddagger} \end{array}$	$\begin{array}{c} \textbf{0.14} \ (\textbf{0.05})^{\dagger} \\ 0.43 \ (0.07)^{\sharp} \\ 0.74 \ (0.08)^{\sharp} \\ 0.82 \ (1.21)^{\sharp} \\ 0.76 \ (0.20)^{\sharp} \\ 0.56 \ (0.02)^{\sharp} \end{array}$	$\begin{array}{c} \text{Residual} \\ \hline \\ 0.12 \ (0.07)^{\dagger} \\ 0.30 \ (0.05)^{\ddagger} \\ 0.42 \ (0.07)^{\ddagger} \\ 0.82 \ (0.07)^{\ddagger} \\ 0.74 \ (0.05)^{\ddagger} \\ 0.46 \ (0.03)^{\ddagger} \end{array}$	$\begin{array}{c} 64.02\%\\ \textbf{6.00\%} \ (\textbf{0.03})^{\dagger}\\ 12.00\% \ (0.02)^{\ddagger}\\ 12.00\% \ (0.02)^{\ddagger}\\ 34.82\% \ (1.41)^{\ddagger}\\ 24.83\% \ (1.12)^{\ddagger}\\ \textbf{48.89\%} \ (0.1)^{\ddagger} \end{array}$	$\begin{matrix} \textbf{0.15} & (\textbf{0.03})^{\dagger} \\ 0.41 & (0.12)^{3} \\ 0.74 & (0.09)^{3} \\ 0.92 & (0.05)^{3} \\ 0.77 & (0.14)^{3} \\ 0.72 & (0.18)^{3} \end{matrix}$	$\begin{array}{c} \text{Residual} \\ \hline \\ \hline 0.13 \ (0.03)^{\dagger} \\ \hline 0.33 \ (0.05)^{\ddagger} \\ \hline 0.43 \ (0.07)^{\ddagger} \\ \hline 0.87 (0.09)^{\ddagger} \\ \hline 0.75 \ (0.04)^{\ddagger} \\ \hline 0.64 \ (0.03)^{\ddagger} \end{array}$
CamoPatch Patch-RS* Patch-RS TPA OPA LOAP Adv-watermark	$\begin{array}{c} 68.46\% \\ \hline 12.98\% & (0.01)^{\dagger} \\ 14.42\% & (0.01)^{\ddagger} \\ 14.42\% & (0.01)^{\ddagger} \\ \hline 51.66\% & (1.3)^{\ddagger} \\ 36.88\% & (0.1)^{\ddagger} \\ 38.85\% & (0.4)^{\ddagger} \\ \hline 52.00\% & (0.3)^{\ddagger} \end{array}$	$\begin{array}{c} \textbf{0.14} \hspace{0.1cm} (\textbf{0.05})^{\dagger} \\ \hline 0.43 \hspace{0.1cm} (0.07)^{\ddagger} \\ \hline 0.74 \hspace{0.1cm} (0.08)^{\ddagger} \\ \hline 0.82 \hspace{0.1cm} (1.21)^{\ddagger} \\ \hline 0.76 \hspace{0.1cm} (0.20)^{\ddagger} \\ \hline 0.56 \hspace{0.1cm} (0.02)^{\ddagger} \\ \hline 0.37 (0.05)^{\ddagger} \end{array}$	$\begin{array}{c} \text{Residual} \\ \hline \\ 0.12 \ (0.07)^{\dagger} \\ 0.30 \ (0.05)^{\ddagger} \\ 0.42 \ (0.07)^{\ddagger} \\ 0.82 \ (0.07)^{\ddagger} \\ 0.74 \ (0.05)^{\ddagger} \\ 0.46 \ (0.03)^{\ddagger} \\ 0.23 (0.07)^{\ddagger} \end{array}$	$\begin{array}{c} 64.02\%\\ \textbf{6.00\%} \ (\textbf{0.03})^{\dagger}\\ 12.00\% \ (\textbf{0.02})^{\ddagger}\\ 12.00\% \ (\textbf{0.02})^{\ddagger}\\ 34.82\% \ (1.41)^{\ddagger}\\ 24.83\% \ (1.12)^{\ddagger}\\ 48.89\% \ (\textbf{0.1})^{\ddagger}\\ 44.00\% \ (\textbf{0.3})^{\ddagger}\\ \end{array}$	$\begin{array}{c} \textbf{0.15} \hspace{0.1cm} (\textbf{0.03})^{\dagger} \\ \hline 0.41 \hspace{0.1cm} (0.12)^{3} \\ \hline 0.74 \hspace{0.1cm} (0.09)^{3} \\ \hline 0.92 \hspace{0.1cm} (0.05)^{3} \\ \hline 0.77 \hspace{0.1cm} (0.14)^{3} \\ \hline 0.72 \hspace{0.1cm} (0.18)^{3} \\ \hline 0.42 \hspace{0.1cm} (0.02)^{3} \end{array}$	$\begin{array}{c} \text{Normalized} \\ \text{Residual} \\ \hline \\ \hline \\ 0.13 \ (0.03)^{\dagger} \\ 0.33 \ (0.05)^{\frac{3}{2}} \\ 0.43 \ (0.07)^{\frac{3}{2}} \\ 0.87 (0.09)^{\frac{5}{2}} \\ 0.75 \ (0.04)^{\frac{5}{2}} \\ 0.64 \ (0.03)^{\frac{3}{2}} \\ 0.29 \ (0.07)^{\frac{5}{2}} \end{array}$
CamoPatch Patch-RS* Patch-RS TPA OPA LOAP Adv-watermark	$\begin{array}{c} 68.46\% \\ \hline 12.98\% & (0.01)^{\dagger} \\ 14.42\% & (0.01)^{\ddagger} \\ \hline 14.42\% & (0.01)^{\ddagger} \\ \hline 51.66\% & (1.3)^{\ddagger} \\ \hline 36.88\% & (0.1)^{\ddagger} \\ \hline 38.85\% & (0.4)^{\ddagger} \\ \hline 52.00\% & (0.3)^{\ddagger} \end{array}$	$\begin{array}{c} \textbf{0.14} \hspace{0.1cm} (\textbf{0.05})^{\dagger} \\ 0.43 \hspace{0.1cm} (0.07)^{\sharp} \\ 0.74 \hspace{0.1cm} (0.08)^{\sharp} \\ 0.82 \hspace{0.1cm} (1.21)^{\sharp} \\ 0.76 \hspace{0.1cm} (0.20)^{\sharp} \\ 0.56 \hspace{0.1cm} (0.02)^{\sharp} \\ 0.37 (0.05)^{\sharp} \end{array}$	$\begin{array}{c} \text{Residual} \\ \hline 0.12 \ (0.07)^{\dagger} \\ 0.30 \ (0.05)^{\ddagger} \\ 0.42 \ (0.07)^{\ddagger} \\ 0.74 \ (0.05)^{\ddagger} \\ 0.74 \ (0.03)^{\ddagger} \\ 0.23 (0.07)^{\ddagger} \end{array}$	$\begin{array}{c} 64.02\%\\ \hline 6.00\% \ (0.03)^{\dagger}\\ 12.00\% \ (0.02)^{\dagger}\\ 12.00\% \ (0.02)^{\dagger}\\ 34.82\% \ (1.41)^{\dagger}\\ 24.83\% \ (1.12)^{\dagger}\\ 48.89\% \ (0.1)^{\dagger}\\ 44.00\% \ (0.3)^{\dagger}\\ \end{array}$	$\begin{array}{c} \textbf{0.15} \ (\textbf{0.03})^{\dagger} \\ 0.41 \ (0.12)^{\sharp} \\ 0.74 \ (0.09)^{\sharp} \\ 0.92 \ (0.05)^{\sharp} \\ 0.77 \ (0.14)^{\sharp} \\ 0.72 \ (0.18)^{\sharp} \\ 0.42 \ (0.02)^{\sharp} \end{array}$	$\begin{array}{c} \textbf{0.07mail2ed}\\ \textbf{Residual}\\ \hline \textbf{0.13} \ \textbf{(0.03)}^{\dagger}\\ \textbf{0.33} \ \textbf{(0.05)}^{\dagger}\\ \textbf{0.43} \ \textbf{(0.07)}^{\dagger}\\ \textbf{0.87(0.09)}^{\dagger}\\ \textbf{0.75} \ \textbf{(0.04)}^{\dagger}\\ \textbf{0.64} \ \textbf{(0.03)}^{\dagger}\\ \textbf{0.29} \ \textbf{(0.07)}^{\dagger}\\ \end{array}$

	ViT-B/16			BagNet9 with PatchGuard			
Attack	Accuracy	l_2	Non-	Accuracy	l_2	Non-	
Method			Normalized			Normalized	
			Residual			Residual	
-	77.91%	-	-	55.1%	-		
CamoPatch	$8.00\% \ (0.05)^\dagger$	0.09 (0.02)	0.12 (0.02)	$3.20\% (0.01)^{\dagger}$	$0.07(0.03)^{\ddagger}$	$0.11 \ (0.01)^{\dagger}$	
Patch-RS*	$19.00\% (0.10)^{\ddagger}$	$0.68 (0.05)^{\dagger}$	$0.39 (0.07)^{\ddagger}$	$5.80\% (0.02)^{\ddagger}$	$0.42 (0.05)^{\ddagger}$	$0.30 (0.05)^{\dagger}$	
Patch-RS	$19.00\% (0.10)^{\ddagger}$	$0.71 (0.12)^{\dagger}$	$0.41 (0.09)^{\ddagger}$	$5.80\% (0.02)^{\ddagger}$	$0.62 (0.18)^{\ddagger}$	$0.57 (0.11)^{\dagger}$	
TPA	$38.12\% (0.91)^{\ddagger}$	$0.59 (0.08)^{\ddagger}$	$0.54 (0.09)^{\ddagger}$	32.87% (1.45) [‡]	$0.62 (0.11)^{\ddagger}$	$0.61(0.09)^{\ddagger}$	
OPA	$33.09\% (0.17)^{\ddagger}$	$0.68 (0.23)^{\ddagger}$	$0.68 (0.07)^{\ddagger}$	$57.89\% (2.01)^{\ddagger}$	$0.61 (0.16)^{\ddagger}$	$0.67 (0.04)^{\ddagger}$	
LOAP	$43.91\% (0.80)^{\ddagger}$	$0.63 (0.05)^{\ddagger}$	$0.50 (0.13)^{\ddagger}$	72.82% (0.14) [‡]	$0.89 (0.23)^{\ddagger}$	$0.78 (0.11)^{\ddagger}$	
Adv-watermark	$36.01\% (0.12)^{\ddagger}$	$0.17(0.04)^{\ddagger}$	$0.28(0.03)^{\ddagger}$	$42.00\% (0.45)^{\ddagger}$	$0.14(0.01)^{\ddagger}$	$0.29(0.05)^{\ddagger}$	

 † denotes the performance of the method significantly outperforms the compared methods according to the Wilcoxon signed-rank test at the 5% significance level; ‡ denotes the corresponding method is significantly outperformed by the best performing method (shaded).

Table 2: Table presents accuracy of targeted attacks on DNN classifiers after being attacked by each method along with the l_2 distance and non-normalized residual of the adversarial patch. We provide the mean and variance of each metric over 10 runs.

		VGG-16		AT-ResNet-50			
Attack	Accuracy	l_2	Non-	Accuracy	l_2	Non-	
Method			Normalized			Normalized	
			Residual			Residual	
-	73.36%	-	-	68.46%	-	-	
CamoPatch	$\mathbf{32.82\%}\ (3.20)^\dagger$	$0.22 (0.12)^{\dagger}$	$0.2 \ (0.03)^{\dagger}$	$58.28\% \ (4.03)^\dagger$	$0.34 \ (0.02)^{\dagger}$	$0.28 \ (0.05)^{\dagger}$	
Patch-RS*	$41.49\% (5.10)^{\ddagger}$	$0.47 (0.27)^{\ddagger}$	$0.32 (0.06)^{\ddagger}$	$90\% (2.4)^{\ddagger}$	$0.73 (0.01)^{\ddagger}$	$0.42 (0.07)^{\ddagger}$	
Patch-RS	41.49% (5.10) [‡]	$0.75 (0.04)^{\ddagger}$	$0.47 (0.02)^{\ddagger}$	$90\% (2.4)^{\ddagger}$	$0.78 (0.01)^{\ddagger}$	$0.43 (0.02)^{\ddagger}$	

 † denotes the performance of the method significantly outperforms the compared methods according to the Wilcoxon signed-rank test at the 5% significance level; ‡ denotes the corresponding method is significantly outperformed by the best performing method (shaded).

					VGG-16				
Π	li	t	N	σ	ASR	l_2	SSIM	Runtime(s)	
Π	-	-	-	-	76.12%	-	-	-	
Π	1	300	100	0.1	87.12%(1.0)	0.09(0.04)	0.98(0.00)	440.03(10.32)	
Г	4	100	100	0.1	89.21%(1.5)	0.09(0.07)	0.98(0.00)	440.01(10.05)	
Г	4	300	100	0.1	90.36%(1.0)	0.09(0.05)	0.98(0.00)	440.03(10.32)	
П	4	300	100	0.3	88.34%(2.0)	0.09(0.06)	0.98(0.00)	439.13(10.56)	

Table 3: Table presents the attack statistics of the top four performing parameters configurations (in terms of attack success rate (ASR)) of the proposed method. The mean and variance of each metric is calculated over 5 runs. According to the Wilcoxon signed-rank test, no configuration is able to outperform another.



Figure 1: Success Attack success over queries for non-targeted attacks. Figure shows the convergence plots of CamoPatch (blue), Patch-RS* (Red), Adv-watermark (yellow), TPA (black), OPA (green) and LOAP (orange).