SNIP: Single-Shot Network Pruning Based on Connection Sensitivity
CS-439 Optimization for Machine Learning – Class Project

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***Abstract*—TBA**

I. Introduction

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II. Neural Network Pruning

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III. Experiments

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A. Comparisons under Varied Sparsity

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IV. Conclusion

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References

[1] N. Lee, T. Ajanthan, and P. H. S. Torr, "SNIP: Single-shot network pruning based on connection sensitivity," in *Proc. ICLR*, 2019.

Architecture	Model	Sparsity (%)	# Parameters	Error (%)	Δ
Convolutional	AlexNet-s	90.0	$5.07 \times 10^6 \rightarrow 5.07 \times 10^5$	tba	tba
	AlexNet-b	90.0	$8.49 \times 10^6 \rightarrow 8.49 \times 10^5$	tba	tba
	VGG-C	95.0	$1.05 \times 10^7 \rightarrow 5.26 \times 10^5$	tba	tba
	VGG-D	95.0	$1.52 \times 10^7 \rightarrow 7.62 \times 10^5$	tba	tba
	VGG-like	97.0	$1.50 \times 10^7 \rightarrow 4.49 \times 10^5$	tba	tba
Residual	ResNet-18	95.0	$1.10 \times 10^7 \rightarrow 5.50 \times 10^5$	$8.32 \rightarrow 8.47$	$+0.15$
	ResNet-34	95.0	$2.11 \times 10^7 \rightarrow 1.06 \times 10^6$	tba	tba
Squeeze	SqueezeNet-vanilla	95.0	$7.41 \times 10^5 \rightarrow 3.70 \times 10^4$	tba	tba
	SqueezeNet-bypass	95.0	$7.41 \times 10^5 \rightarrow 3.70 \times 10^4$	tba	tba
Inception	GoogLeNet	95.0	$2.75 \times 10^6 \rightarrow 1.38 \times 10^5$	tba	tba
Dense	DenseNet-121	95.0	$4.40 \times 10^6 \rightarrow 2.20 \times 10^5$	tba	tba
	DenseNet-169	95.0	$7.84 \times 10^6 \rightarrow 3.92 \times 10^5$	tba	tba
	DenseNet-201	95.0	$1.11 \times 10^7 \rightarrow 5.55 \times 10^5$	tba	tba
	DenseNet-264	95.0	$1.87 \times 10^7 \rightarrow 9.33 \times 10^5$	tba	tba

Table I: Pruning results of the introduced approach on various modern architectures (before $\rightarrow$ after).