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	authors	• Stephan Zheng • Yang Song • Thomas Leung • Ian J. Goodfellow	**authors**	• Stephan Zheng • Yang Song • Thomas Leung • Ian Goodfellow	DUPLICATES	183
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	id	id-6985865231132638031	**id**	id2106769049331738396		
	abstract	In this paper we address the issue of output instability of deep neural networks: small perturbations in the visual input can significantly distort the feature embeddings and output of a neural network. Such instability affects many deep architectures with state-of-the-art performance on a wide range of computer vision tasks. We present a general stability training method to stabilize deep networks against small input distortions that result from various types of common image processing, such as compression, rescaling, and cropping. We validate our method by stabilizing the state-of-the-art Inception architecture [11] against these types of distortions. In addition, we demonstrate that our stabilized model gives robust state-of-the-art performance on largescale near-duplicate detection, similar-image ranking, and classification on noisy datasets.	**abstract**	In this paper we address the issue of output instability of deep neural networks: small perturbations in the visual input can significantly distort the feature embeddings and output of a neural network. Such instability affects many deep architectures with state-of-the-art performance on a wide range of computer vision tasks. We present a general stability training method to stabilize deep networks against small input distortions that result from various types of common image processing, such as compression, rescaling, and cropping. We validate our method by stabilizing the state-of-the-art Inception architecture against these types of distortions. In addition, we demonstrate that our stabilized model gives robust state-of-the-art performance on large-scale near-duplicate detection, similar-image ranking, and classification on noisy datasets.		
	versions		**versions**			