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	authors	<ul style="list-style-type: none">Tonin, F.Pandey, A.Patrinos, P.Suykens, J.	authors	<ul style="list-style-type: none">Francesco ToninArun PandeyPanagiotis PatrinosJohan A. K. Suykens		
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	abstract		abstract	Detecting out-of-distribution (OOD) samples is an essential requirement for the deployment of machine learning systems in the real world. Until now, research on energy-based OOD detectors has focused on the softmax confidence score from a pre-trained neural network classifier with access to class labels. In contrast, we propose an unsupervised energy-based OOD detector leveraging the Stiefel-Restricted Kernel Machine (St-RKM). Training requires minimizing an objective function with an autoencoder loss term and the RKM energy where the interconnection matrix lies on the Stiefel manifold. Further, we outline multiple energy function definitions based on the RKM framework and discuss their utility. In the experiments on standard datasets, the proposed method improves over the existing energy-based OOD detectors and deep generative models. Through several ablation studies, we further illustrate the merit of each proposed energy function on the OOD detection performance.		
	versions		versions			