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Élőadó: Zombori Zsolt (Rényi Alfréd Matematikai Kutató Intézet, Budapest)
Cím: Gradient Regularization in Discriminative Neural Networks

Absztrakt:
Regularizing the gradient norm of the output of a neural network with respect to its inputs is a powerful technique which has been independently rediscovered several times, most often with the goal of making models robust against adversarial sampling. The aim of this presentation is to demonstrate that gradient regularization can consistently and significantly improve classification accuracy on vision tasks, especially when the amount of training data is small. We introduce our regularizers as members of a broader class of Jacobian-based regularizers, and compare them.

Minimizing the gradient norm at the training points can potentially lead to solutions where the model has small gradients at the training points but contains large changes at other regions. We demonstrate through experiments that stochastic gradient descent tends to avoid these pathological optima. Instead, we obtain solutions that generalize well.

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