Technics from Deep Learning used for Pedestrians field

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PhD Research Report. This report summarizes my Ph.D. research progress from july 2015 to March 2016. This time period corresponds to part of the first and second year of my Ph.D. candidacy. My research methodology is empirical and consists of three phases. The first phase consisted of gathering a few of deep neural network.The second phase consisted of creating a complete synthesis, training, validation, and testing on examples of deep neural network architecture which are known and tested by other researchers. The third and final phase, I have tested and performed experiments to study various combination of solver methods and learning rate policies on deep neural network architecture.

The deep neural network which were used in my expreminets were LeNet architecture which is the small neural network known, CifarNet and AlexNet architecture, which is almost largest neural network known and used in this filed. The predominant methodology in training deep learning advocates the use of stochastic gradient descent methods (SGDs). The experiments were performed and tested not only by SGD algoritm, the experiments were perfomed and tested by Adaptive Gradient (AdaGrad), Adam (Adam), Nesterovs Accelerated Gradient (Nesterov) and RMSprop (RMSProp). The learning rate policies which were used for performing and testing the neural networks were step: return $baselr * gamma^{floor(iter/step)}$), poly: the effective learning rate follows a polynomial decay, to be zero by the $maxiter$. return $baselr(1 - iter/maxiter)^{power}$) and inv: return $baselr * (1 + gamma * iter)^{-power}$

A part of Caltech database was used for training and testing the neural network at different images dimension.

References

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