**Batch size = 128, Learning rate = 0.1**

['Epoch 1/3 - 315.26392340520397 Seconds - loss: 0.4561774471737919 - acc: 0.890625 - val\_loss: 0.2917487062879366 - val\_acc: 0.9153']

['Epoch 2/3 - 312.3773863478564 Seconds - loss: 0.36616514574916176 - acc: 0.8984375 - val\_loss: 0.22436746034052388 - val\_acc: 0.9354']

['Epoch 3/3 - 320.19548847991973 Seconds - loss: 0.32600364706605456 - acc: 0.9140625 - val\_loss: 0.18988636253769783 - val\_acc: 0.9461']

**Batch size = 1024, Learning rate = 1**

['Epoch 1/10 - 40.56272418401204 Seconds - loss: 0.29642914221246935 - acc: 0.908203125 - val\_loss: 0.27332831550977515 - val\_acc: 0.9206']

['Epoch 2/10 - 40.04600582201965 Seconds - loss: 0.22247374120645094 - acc: 0.927734375 - val\_loss: 0.2088106157021921 - val\_acc: 0.9391']

['Epoch 3/10 - 40.25560877402313 Seconds - loss: 0.18356308572576197 - acc: 0.943359375 - val\_loss: 0.1754162783140447 - val\_acc: 0.9501']

['Epoch 4/10 - 40.63917969283648 Seconds - loss: 0.15696208261313427 - acc: 0.953125 - val\_loss: 0.15393914172718565 - val\_acc: 0.9578']

['Epoch 5/10 - 39.98433937411755 Seconds - loss: 0.1375951078736323 - acc: 0.958984375 - val\_loss: 0.1388825070436856 - val\_acc: 0.9614']

['Epoch 6/10 - 40.305527267977595 Seconds - loss: 0.12242535356419089 - acc: 0.966796875 - val\_loss: 0.12779608983900057 - val\_acc: 0.9642']

['Epoch 7/10 - 39.45572212105617 Seconds - loss: 0.11009004327495577 - acc: 0.9697265625 - val\_loss: 0.11931112459109144 - val\_acc: 0.9658']

['Epoch 8/10 - 39.825859582051635 Seconds - loss: 0.09928046384917716 - acc: 0.9736328125 - val\_loss: 0.11253035686618755 - val\_acc: 0.9683']

['Epoch 9/10 - 40.74131012707949 Seconds - loss: 0.0900823895133928 - acc: 0.974609375 - val\_loss: 0.10707341395104339 - val\_acc: 0.97']

['Epoch 10/10 - 44.403811099007726 Seconds - loss: 0.08207898661684254 - acc: 0.9765625 - val\_loss: 0.10246676224332273 - val\_acc: 0.971']

**Batch size = 10K, Learning rate = 1**

['Epoch 1/10 - 11.193312483141199 Seconds - loss: 1.640847208309196 - acc: 0.6513 - val\_loss: 1.4046195086215376 - val\_acc: 0.6982']

['Epoch 2/10 - 11.172054544091225 Seconds - loss: 0.8403169655170236 - acc: 0.798 - val\_loss: 0.7117395222623155 - val\_acc: 0.8378']

['Epoch 3/10 - 9.230277772061527 Seconds - loss: 0.5706755666213463 - acc: 0.8533 - val\_loss: 0.4923084045120225 - val\_acc: 0.8795']

['Epoch 4/10 - 8.846645754994825 Seconds - loss: 0.4645022484318885 - acc: 0.871 - val\_loss: 0.4035795121233899 - val\_acc: 0.8937']

['Epoch 5/10 - 9.254082703962922 Seconds - loss: 0.40848179891428515 - acc: 0.8851 - val\_loss: 0.35656835724019587 - val\_acc: 0.901']

['Epoch 6/10 - 9.488560205092654 Seconds - loss: 0.3732323724929875 - acc: 0.8949 - val\_loss: 0.3269344668581347 - val\_acc: 0.9086']

['Epoch 7/10 - 9.278418970992789 Seconds - loss: 0.34831466030818353 - acc: 0.9005 - val\_loss: 0.3059601693139495 - val\_acc: 0.9139']

['Epoch 8/10 - 11.422966995975003 Seconds - loss: 0.3292907366354208 - acc: 0.9061 - val\_loss: 0.2899000962811286 - val\_acc: 0.9166']

['Epoch 9/10 - 9.83225161000155 Seconds - loss: 0.3139583317094037 - acc: 0.9093 - val\_loss: 0.2769134089726141 - val\_acc: 0.9187']

['Epoch 10/10 - 9.793160655070096 Seconds - loss: 0.3011305626283146 - acc: 0.9135 - val\_loss: 0.2659977979245957 - val\_acc: 0.9219']

**Batch size = 1024, Learning rate = 1, no regularization**

['Epoch 1/10 - 41.06449642404914 Seconds - loss: 0.29387537335937775 - acc: 0.9140625 - val\_loss: 0.2736338608162861 - val\_acc: 0.9203']

['Epoch 2/10 - 42.961048462893814 Seconds - loss: 0.2216487083054681 - acc: 0.931640625 - val\_loss: 0.20881247946778578 - val\_acc: 0.9386']

['Epoch 3/10 - 39.51207238296047 Seconds - loss: 0.18369483462334085 - acc: 0.943359375 - val\_loss: 0.17475495110614003 - val\_acc: 0.9496']

['Epoch 4/10 - 39.31135256704874 Seconds - loss: 0.1570511513855194 - acc: 0.947265625 - val\_loss: 0.1529644408558819 - val\_acc: 0.9579']

['Epoch 5/10 - 39.57185131707229 Seconds - loss: 0.13673930846284918 - acc: 0.9560546875 - val\_loss: 0.13759902728136328 - val\_acc: 0.9624']

['Epoch 6/10 - 39.49500014493242 Seconds - loss: 0.12086596989492313 - acc: 0.962890625 - val\_loss: 0.1262859466356806 - val\_acc: 0.9651']

['Epoch 7/10 - 39.5134470439516 Seconds - loss: 0.10800010713779117 - acc: 0.9677734375 - val\_loss: 0.11757793172034726 - val\_acc: 0.9675']

['Epoch 8/10 - 39.516041606198996 Seconds - loss: 0.09714939596480437 - acc: 0.97265625 - val\_loss: 0.11068169516328467 - val\_acc: 0.9692']

['Epoch 9/10 - 39.3803613379132 Seconds - loss: 0.08799891336897818 - acc: 0.9736328125 - val\_loss: 0.10512378379197794 - val\_acc: 0.9702']

['Epoch 10/10 - 44.04758821683936 Seconds - loss: 0.08006356706723944 - acc: 0.9775390625 - val\_loss: 0.1005378324437587 - val\_acc: 0.9713']