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1 /Users/snehamishra/PycharmProjects/Test/venv/bin/python /
  Users/snehamishra/Desktop/UMKC/Fall2018/Python/Python-
  DeepLearning_Fall2018/Mod2_ICP7/Source/
  DeepLearning_SourceCode7/sutoencoder_matplot.py
2 Using TensorFlow backend.
3 Train on 60000 samples, validate on 10000 samples
4 2018-12-10 18:31:23.549567: I tensorflow/core/platform/
  cpu_feature_guard.cc:141] Your CPU supports instructions
  that this TensorFlow binary was not compiled to use: AVX2
  FMA
5 Epoch 1/5
6
7   256/60000 [.....] - ETA: 46s -
  loss: 0.6927
8   1536/60000 [.....] - ETA: 9s -
  loss: 0.6903
9   3072/60000 [>.....] - ETA: 5s -
  loss: 0.6869
10  4864/60000 [=>.....] - ETA: 4s -
  loss: 0.6809
11  6144/60000 [==>.....] - ETA: 3s -
  loss: 0.6742
12  7680/60000 [==>.....] - ETA: 3s -
  loss: 0.6618
13  8704/60000 [===>.....] - ETA: 3s -
  loss: 0.6504
14  9728/60000 [===>.....] - ETA: 3s -
  loss: 0.6366
15 10496/60000 [===>.....] - ETA: 2s -
  loss: 0.6249
16 11776/60000 [===>.....] - ETA: 2s -
  loss: 0.6039
17 13312/60000 [====>.....] - ETA: 2s -
  loss: 0.5783
18 14848/60000 [====>.....] - ETA: 2s -
  loss: 0.5542
19 16128/60000 [====>.....] - ETA: 2s -
  loss: 0.5360
20 17408/60000 [====>.....] - ETA: 2s -
  loss: 0.5196
21 18944/60000 [====>.....] - ETA: 2s -
  loss: 0.5021
22 20480/60000 [====>.....] - ETA: 1s -
  loss: 0.4867
23 22016/60000 [====>.....] - ETA: 1s -
  loss: 0.4732
24 23552/60000 [====>.....] - ETA: 1s -
  loss: 0.4613
25 24832/60000 [====>.....] - ETA: 1s -
  loss: 0.4524
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26 25856/60000 [=====>.....] - ETA: 1s -  
    loss: 0.4459  
27 26368/60000 [=====>.....] - ETA: 1s -  
    loss: 0.4428  
28 27136/60000 [=====>.....] - ETA: 1s -  
    loss: 0.4383  
29 28160/60000 [=====>.....] - ETA: 1s -  
    loss: 0.4327  
30 29440/60000 [=====>.....] - ETA: 1s -  
    loss: 0.4262  
31 30720/60000 [=====>.....] - ETA: 1s -  
    loss: 0.4202  
32 32256/60000 [=====>.....] - ETA: 1s -  
    loss: 0.4136  
33 33536/60000 [=====>.....] - ETA: 1s -  
    loss: 0.4085  
34 34816/60000 [=====>.....] - ETA: 1s -  
    loss: 0.4037  
35 35840/60000 [=====>.....] - ETA: 1s -  
    loss: 0.4001  
36 36864/60000 [=====>.....] - ETA: 1s -  
    loss: 0.3967  
37 37888/60000 [=====>.....] - ETA: 1s -  
    loss: 0.3935  
38 39168/60000 [=====>.....] - ETA: 1s -  
    loss: 0.3896  
39 40448/60000 [=====>.....] - ETA: 0s -  
    loss: 0.3861  
40 41472/60000 [=====>.....] - ETA: 0s -  
    loss: 0.3835  
41 42752/60000 [=====>.....] - ETA: 0s -  
    loss: 0.3802  
42 44288/60000 [=====>.....] - ETA: 0s -  
    loss: 0.3766  
43 45568/60000 [=====>.....] - ETA: 0s -  
    loss: 0.3738  
44 46592/60000 [=====>.....] - ETA: 0s -  
    loss: 0.3716  
45 47872/60000 [=====>.....] - ETA: 0s -  
    loss: 0.3689  
46 48896/60000 [=====>.....] - ETA: 0s -  
    loss: 0.3670  
47 49920/60000 [=====>.....] - ETA: 0s -  
    loss: 0.3651  
48 50944/60000 [=====>.....] - ETA: 0s -  
    loss: 0.3632  
49 52224/60000 [=====>....] - ETA: 0s -  
    loss: 0.3611  
50 53504/60000 [=====>....] - ETA: 0s -  
    loss: 0.3590
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51 54784/60000 [=====>...] - ETA: 0s -
    loss: 0.3570
52 56064/60000 [=====>..] - ETA: 0s -
    loss: 0.3551
53 57344/60000 [=====>..] - ETA: 0s -
    loss: 0.3532
54 58624/60000 [=====>.] - ETA: 0s -
    loss: 0.3514
55 59648/60000 [=====>.] - ETA: 0s -
    loss: 0.3500
56 60000/60000 [=====] - 3s 53us/
    step - loss: 0.3496 - val_loss: 0.2698
57 Epoch 2/5
58
59 256/60000 [.....] - ETA: 3s -
    loss: 0.2729
60 1536/60000 [.....] - ETA: 2s -
    loss: 0.2715
61 2816/60000 [>.....] - ETA: 2s -
    loss: 0.2708
62 4096/60000 [=>.....] - ETA: 2s -
    loss: 0.2703
63 4608/60000 [=>.....] - ETA: 2s -
    loss: 0.2706
64 5632/60000 [=>.....] - ETA: 2s -
    loss: 0.2708
65 7168/60000 [==>.....] - ETA: 2s -
    loss: 0.2703
66 8192/60000 [===>.....] - ETA: 2s -
    loss: 0.2701
67 9472/60000 [===>.....] - ETA: 2s -
    loss: 0.2698
68 10496/60000 [===>.....] - ETA: 2s -
    loss: 0.2695
69 11776/60000 [===>.....] - ETA: 2s -
    loss: 0.2692
70 13056/60000 [===>.....] - ETA: 2s -
    loss: 0.2689
71 14080/60000 [===>.....] - ETA: 2s -
    loss: 0.2685
72 15360/60000 [===>.....] - ETA: 2s -
    loss: 0.2680
73 16896/60000 [===>.....] - ETA: 2s -
    loss: 0.2677
74 18432/60000 [===>.....] - ETA: 2s -
    loss: 0.2676
75 19712/60000 [===>.....] - ETA: 2s -
    loss: 0.2673
76 21248/60000 [===>.....] - ETA: 1s -
    loss: 0.2672

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77 22272/60000 [=====>.....] - ETA: 1s -  
    loss: 0.2669  
78 23552/60000 [=====>.....] - ETA: 1s -  
    loss: 0.2667  
79 25088/60000 [=====>.....] - ETA: 1s -  
    loss: 0.2664  
80 26112/60000 [=====>.....] - ETA: 1s -  
    loss: 0.2665  
81 27392/60000 [=====>.....] - ETA: 1s -  
    loss: 0.2665  
82 28928/60000 [=====>.....] - ETA: 1s -  
    loss: 0.2663  
83 30208/60000 [=====>.....] - ETA: 1s -  
    loss: 0.2661  
84 31488/60000 [=====>.....] - ETA: 1s -  
    loss: 0.2660  
85 33024/60000 [=====>.....] - ETA: 1s -  
    loss: 0.2657  
86 34560/60000 [=====>.....] - ETA: 1s -  
    loss: 0.2655  
87 36096/60000 [=====>.....] - ETA: 1s -  
    loss: 0.2653  
88 37376/60000 [=====>.....] - ETA: 1s -  
    loss: 0.2652  
89 38400/60000 [=====>.....] - ETA: 0s -  
    loss: 0.2651  
90 39680/60000 [=====>.....] - ETA: 0s -  
    loss: 0.2649  
91 40960/60000 [=====>.....] - ETA: 0s -  
    loss: 0.2647  
92 42240/60000 [=====>.....] - ETA: 0s -  
    loss: 0.2645  
93 43520/60000 [=====>.....] - ETA: 0s -  
    loss: 0.2642  
94 44800/60000 [=====>.....] - ETA: 0s -  
    loss: 0.2640  
95 46336/60000 [=====>.....] - ETA: 0s -  
    loss: 0.2636  
96 47616/60000 [=====>.....] - ETA: 0s -  
    loss: 0.2633  
97 49152/60000 [=====>.....] - ETA: 0s -  
    loss: 0.2631  
98 50432/60000 [=====>.....] - ETA: 0s -  
    loss: 0.2628  
99 51712/60000 [=====>.....] - ETA: 0s -  
    loss: 0.2626  
100 52992/60000 [=====>....] - ETA: 0s -  
    loss: 0.2623  
101 54272/60000 [=====>...] - ETA: 0s -  
    loss: 0.2621
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102 55808/60000 [=====>...] - ETA: 0s -  
    loss: 0.2619  
103 57088/60000 [=====>..] - ETA: 0s -  
    loss: 0.2616  
104 58368/60000 [=====>.] - ETA: 0s -  
    loss: 0.2613  
105 59904/60000 [=====>.] - ETA: 0s -  
    loss: 0.2610  
106 60000/60000 [=====] - 3s 48us/  
    step - loss: 0.2610 - val_loss: 0.2490  
107 Epoch 3/5  
108  
109   256/60000 [.....] - ETA: 2s -  
    loss: 0.2430  
110  1792/60000 [.....] - ETA: 2s -  
    loss: 0.2473  
111  3328/60000 [>.....] - ETA: 2s -  
    loss: 0.2471  
112  4864/60000 [=>.....] - ETA: 2s -  
    loss: 0.2478  
113  6144/60000 [==>.....] - ETA: 2s -  
    loss: 0.2477  
114  7424/60000 [==>.....] - ETA: 2s -  
    loss: 0.2475  
115  8960/60000 [===>.....] - ETA: 1s -  
    loss: 0.2472  
116 10496/60000 [===>.....] - ETA: 1s -  
    loss: 0.2470  
117 11776/60000 [===>.....] - ETA: 1s -  
    loss: 0.2468  
118 13056/60000 [===>.....] - ETA: 1s -  
    loss: 0.2466  
119 14336/60000 [===>.....] - ETA: 1s -  
    loss: 0.2464  
120 15872/60000 [===>.....] - ETA: 1s -  
    loss: 0.2465  
121 17408/60000 [===>.....] - ETA: 1s -  
    loss: 0.2462  
122 18688/60000 [===>.....] - ETA: 1s -  
    loss: 0.2459  
123 20224/60000 [===>.....] - ETA: 1s -  
    loss: 0.2455  
124 21760/60000 [===>.....] - ETA: 1s -  
    loss: 0.2454  
125 23296/60000 [===>.....] - ETA: 1s -  
    loss: 0.2452  
126 24832/60000 [===>.....] - ETA: 1s -  
    loss: 0.2447  
127 26368/60000 [===>.....] - ETA: 1s -  
    loss: 0.2445
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128 27904/60000 [=====>.....] - ETA: 1s -  
    loss: 0.2442  
129 29184/60000 [=====>.....] - ETA: 1s -  
    loss: 0.2440  
130 30464/60000 [=====>.....] - ETA: 1s -  
    loss: 0.2437  
131 32000/60000 [=====>.....] - ETA: 1s -  
    loss: 0.2434  
132 33536/60000 [=====>.....] - ETA: 1s -  
    loss: 0.2433  
133 34816/60000 [=====>.....] - ETA: 0s -  
    loss: 0.2430  
134 35840/60000 [=====>.....] - ETA: 0s -  
    loss: 0.2430  
135 37120/60000 [=====>.....] - ETA: 0s -  
    loss: 0.2427  
136 38656/60000 [=====>.....] - ETA: 0s -  
    loss: 0.2424  
137 40192/60000 [=====>.....] - ETA: 0s -  
    loss: 0.2421  
138 41472/60000 [=====>.....] - ETA: 0s -  
    loss: 0.2418  
139 43008/60000 [=====>.....] - ETA: 0s -  
    loss: 0.2415  
140 44544/60000 [=====>.....] - ETA: 0s -  
    loss: 0.2413  
141 46080/60000 [=====>.....] - ETA: 0s -  
    loss: 0.2409  
142 47360/60000 [=====>.....] - ETA: 0s -  
    loss: 0.2408  
143 48640/60000 [=====>.....] - ETA: 0s -  
    loss: 0.2405  
144 50176/60000 [=====>.....] - ETA: 0s -  
    loss: 0.2402  
145 51712/60000 [=====>.....] - ETA: 0s -  
    loss: 0.2399  
146 52736/60000 [=====>....] - ETA: 0s -  
    loss: 0.2398  
147 54272/60000 [=====>...] - ETA: 0s -  
    loss: 0.2395  
148 55808/60000 [=====>...] - ETA: 0s -  
    loss: 0.2393  
149 57344/60000 [=====>..] - ETA: 0s -  
    loss: 0.2391  
150 58624/60000 [=====>.] - ETA: 0s -  
    loss: 0.2388  
151 60000/60000 [=====] - 3s 42us/  
    step - loss: 0.2386 - val_loss: 0.2262  
152 Epoch 4/5  
153
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154 256/60000 [.....] - ETA: 3s -  
    loss: 0.2250  
155 1792/60000 [.....] - ETA: 2s -  
    loss: 0.2257  
156 3328/60000 [>.....] - ETA: 2s -  
    loss: 0.2265  
157 4864/60000 [=>.....] - ETA: 2s -  
    loss: 0.2271  
158 5888/60000 [=>.....] - ETA: 2s -  
    loss: 0.2268  
159 7168/60000 [==>.....] - ETA: 2s -  
    loss: 0.2270  
160 8448/60000 [===>.....] - ETA: 2s -  
    loss: 0.2269  
161 9728/60000 [===>.....] - ETA: 2s -  
    loss: 0.2265  
162 11008/60000 [====>.....] - ETA: 2s -  
    loss: 0.2264  
163 12544/60000 [====>.....] - ETA: 2s -  
    loss: 0.2261  
164 14080/60000 [=====>.....] - ETA: 1s -  
    loss: 0.2258  
165 15616/60000 [=====>.....] - ETA: 1s -  
    loss: 0.2255  
166 16896/60000 [=====>.....] - ETA: 1s -  
    loss: 0.2253  
167 18176/60000 [=====>.....] - ETA: 1s -  
    loss: 0.2249  
168 19712/60000 [=====>.....] - ETA: 1s -  
    loss: 0.2245  
169 20992/60000 [=====>.....] - ETA: 1s -  
    loss: 0.2244  
170 22016/60000 [=====>.....] - ETA: 1s -  
    loss: 0.2242  
171 23552/60000 [=====>.....] - ETA: 1s -  
    loss: 0.2240  
172 25088/60000 [=====>.....] - ETA: 1s -  
    loss: 0.2238  
173 26624/60000 [=====>.....] - ETA: 1s -  
    loss: 0.2235  
174 27904/60000 [=====>.....] - ETA: 1s -  
    loss: 0.2232  
175 29184/60000 [=====>.....] - ETA: 1s -  
    loss: 0.2230  
176 30464/60000 [=====>.....] - ETA: 1s -  
    loss: 0.2228  
177 31744/60000 [=====>.....] - ETA: 1s -  
    loss: 0.2226  
178 33280/60000 [=====>.....] - ETA: 1s -  
    loss: 0.2224
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179 34304/60000 [=====>.....] - ETA: 1s -
    loss: 0.2222
180 35840/60000 [=====>.....] - ETA: 0s -
    loss: 0.2218
181 37120/60000 [=====>.....] - ETA: 0s -
    loss: 0.2215
182 38400/60000 [=====>.....] - ETA: 0s -
    loss: 0.2213
183 39680/60000 [=====>.....] - ETA: 0s -
    loss: 0.2212
184 41216/60000 [=====>.....] - ETA: 0s -
    loss: 0.2209
185 42752/60000 [=====>.....] - ETA: 0s -
    loss: 0.2208
186 44032/60000 [=====>.....] - ETA: 0s -
    loss: 0.2206
187 45312/60000 [=====>.....] - ETA: 0s -
    loss: 0.2203
188 46592/60000 [=====>.....] - ETA: 0s -
    loss: 0.2201
189 47872/60000 [=====>.....] - ETA: 0s -
    loss: 0.2199
190 49152/60000 [=====>.....] - ETA: 0s -
    loss: 0.2197
191 50432/60000 [=====>.....] - ETA: 0s -
    loss: 0.2195
192 51712/60000 [=====>.....] - ETA: 0s -
    loss: 0.2193
193 53248/60000 [=====>....] - ETA: 0s -
    loss: 0.2190
194 54528/60000 [=====>...] - ETA: 0s -
    loss: 0.2189
195 55808/60000 [=====>...] - ETA: 0s -
    loss: 0.2187
196 57344/60000 [=====>..] - ETA: 0s -
    loss: 0.2184
197 58624/60000 [=====>.] - ETA: 0s -
    loss: 0.2182
198 59904/60000 [=====>.] - ETA: 0s -
    loss: 0.2180
199 60000/60000 [=====] - 3s 44us/
    step - loss: 0.2180 - val_loss: 0.2078
200 Epoch 5/5
201
202 256/60000 [.....] - ETA: 2s -
    loss: 0.2093
203 1536/60000 [.....] - ETA: 2s -
    loss: 0.2095
204 2816/60000 [>.....] - ETA: 2s -
    loss: 0.2084

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205 4352/60000 [=>.....] - ETA: 2s -
    loss: 0.2086
206 5632/60000 [=>.....] - ETA: 2s -
    loss: 0.2080
207 6912/60000 [==>.....] - ETA: 2s -
    loss: 0.2078
208 8192/60000 [===>.....] - ETA: 2s -
    loss: 0.2077
209 9728/60000 [===>.....] - ETA: 2s -
    loss: 0.2075
210 11264/60000 [====>.....] - ETA: 2s -
    loss: 0.2078
211 12544/60000 [====>.....] - ETA: 2s -
    loss: 0.2074
212 13824/60000 [====>.....] - ETA: 1s -
    loss: 0.2072
213 15360/60000 [====>.....] - ETA: 1s -
    loss: 0.2071
214 16896/60000 [====>.....] - ETA: 1s -
    loss: 0.2069
215 18176/60000 [====>.....] - ETA: 1s -
    loss: 0.2067
216 19456/60000 [====>.....] - ETA: 1s -
    loss: 0.2066
217 20736/60000 [====>.....] - ETA: 1s -
    loss: 0.2063
218 22272/60000 [====>.....] - ETA: 1s -
    loss: 0.2062
219 23808/60000 [====>.....] - ETA: 1s -
    loss: 0.2061
220 25088/60000 [====>.....] - ETA: 1s -
    loss: 0.2059
221 26368/60000 [====>.....] - ETA: 1s -
    loss: 0.2060
222 27648/60000 [====>.....] - ETA: 1s -
    loss: 0.2058
223 29184/60000 [====>.....] - ETA: 1s -
    loss: 0.2057
224 30464/60000 [====>.....] - ETA: 1s -
    loss: 0.2055
225 32000/60000 [====>.....] - ETA: 1s -
    loss: 0.2054
226 33280/60000 [====>.....] - ETA: 1s -
    loss: 0.2053
227 34560/60000 [====>.....] - ETA: 1s -
    loss: 0.2051
228 35840/60000 [====>.....] - ETA: 0s -
    loss: 0.2050
229 37376/60000 [====>.....] - ETA: 0s -
    loss: 0.2048

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230 38912/60000 [=====>.....] - ETA: 0s -  
    loss: 0.2046  
231 40192/60000 [=====>.....] - ETA: 0s -  
    loss: 0.2045  
232 41472/60000 [=====>.....] - ETA: 0s -  
    loss: 0.2044  
233 42752/60000 [=====>.....] - ETA: 0s -  
    loss: 0.2043  
234 44288/60000 [=====>.....] - ETA: 0s -  
    loss: 0.2042  
235 45568/60000 [=====>.....] - ETA: 0s -  
    loss: 0.2041  
236 46848/60000 [=====>.....] - ETA: 0s -  
    loss: 0.2040  
237 48384/60000 [=====>.....] - ETA: 0s -  
    loss: 0.2039  
238 49920/60000 [=====>.....] - ETA: 0s -  
    loss: 0.2038  
239 51200/60000 [=====>.....] - ETA: 0s -  
    loss: 0.2036  
240 52480/60000 [=====>....] - ETA: 0s -  
    loss: 0.2036  
241 54016/60000 [=====>...] - ETA: 0s -  
    loss: 0.2034  
242 55296/60000 [=====>...] - ETA: 0s -  
    loss: 0.2032  
243 56576/60000 [=====>..] - ETA: 0s -  
    loss: 0.2031  
244 57856/60000 [=====>..] - ETA: 0s -  
    loss: 0.2029  
245 59392/60000 [=====>.] - ETA: 0s -  
    loss: 0.2028  
246 60000/60000 [=====] - 3s 44us/  
    step - loss: 0.2027 - val_loss: 0.1955  
247
```