Trial>> gen_k_folds('data',5)
Trial>> gen_data
Trial>> nn1h_k_folds
Filename root of the folds (use single quotes): 'data'
Number of folds: k = '5
Error using nn1h_k_folds (line 32)
Error: Character vector is not terminated properly.
Trial>> nn1h_k_folds
Filename root of the folds (use single quotes): 'data'
Number of folds: k = 5
Number of neurons at the hidden layer (nonlinear units) = 130
(1) Generate w10 and w20, and save
(2) Copy existing w10 and w20
(3) Copy existing w1 and w2
Type of weight generation: 3
Fold = 1
Number of input-output patterns (training) = 48000
Number of input-output patterns (validation) = 12000
Additional number of iterations = 50
Undefined function or variable 'niter'.
Error in init_k_folds (line 32)
    nitermax = niter+niterad;
Error in nn1h_k_folds (line 60)
    [w1,w2,eq,CERv,stw1,stw2,rms_w,CER_min,n_iter_v,n_iter,n_itermax,↙
error_per_class_v]
    = init_k_folds(n_in,n,n_out,fold,resp);
Trial>> nn1h_k_folds
Filename root of the folds (use single quotes): 'data'
Number of folds: k = 5
Number of neurons at the hidden layer (nonlinear units) = 130
(1) Generate w10 and w20, and save
(2) Copy existing w10 and w20
(3) Copy existing w1 and w2
Type of weight generation: 1
Fold = 1
Number of input-output patterns (training) = 48000
Number of input-output patterns (validation) = 12000
Maximum number of iterations = 400
Number of inputs = 784
Number of weights in the neural network = 103360
Initial CER (validation) = 0.924143722581
    2 1 33887.1943273
400
    3 2 27370.9267846
400
400
    4 3 19541.968952
400
    5 4 18064.9908289
    6 5 15606.4133541
    7 6 14398.2645002
    8 7 13806.9015243
    9 8 12808.1250087
   10 9 12519.9768907
   11 10 12132.8272919
   12 11 11703.9845627
   13 12 11534.7556878
   14 13 11297.635947

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15 14 11002.3704765
16 15 10851.2299135
17 16 10716.3287398
18 17 10489.3575521
19 18 10343.547297
20 19 10269.8540121
21 20 10158.4026795
22 21 10000.9253515
23 22 9912.22041985
24 23 9852.54258154
25 24 9733.70920054
26 25 9578.22059407
27 26 9504.76902811
28 27 9451.58674867
29 28 9343.78642504
30 29 9198.97094305
31 30 9130.55385428
32 31 9086.70194339
33 32 8984.49298915
34 33 8831.12754332
35 34 8756.44784899
36 35 8714.78002967
37 36 8620.79303473
38 37 8445.83654721
39 38 8334.17611725
40 39 8280.55117892
41 40 8211.00692468
42 41 8059.95079356
43 42 7906.24933481
44 43 7836.49519467
45 44 7803.18131773
46 45 7728.13812124
47 46 7533.9369155
48 47 7433.39046821
49 48 7404.99240757
50 49 7348.4907862
51 50 7185.85468756
52 51 7127.29299772
53 52 7107.28019146
54 53 7024.3795374
55 54 6887.05371507
56 55 6856.35174264
57 56 6829.56463386
58 57 6695.75394394
59 58 6631.19242276
60 59 6615.30266994
61 60 6531.15469893
62 61 6437.526195
63 62 6423.46101636
64 63 6375.5469192
65 64 6240.47876465
66 65 6216.02397611
67 66 6183.97114692
68 67 6044.57942883
69 68 6014.24965405
70 69 5994.30840485
71 70 5871.14199499
72 71 5834.88316402
73 72 5821.49515577
74 73 5720.09833495
75 74 5683.31119013
76 75 5671.04840324
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 77  76 5569.02848935
 78  77 5537.27480926
 79  78 5523.72846925
 80  79 5429.6078434
 81  80 5410.89518002
 82  81 5393.26265344
 83  82 5296.72014706
 84  83 5283.64312414
 85  84 5256.92118329
 86  85 5156.78448328
 87  86 5145.95744174
 88  87 5102.42706888
 89  88 5001.11903882
 90  89 4991.14574238
 91  90 4935.26707821
 92  91 4869.94927349
 93  92 4862.67538256
 94  93 4793.48207053
 95  94 4751.45302211
 96  95 4743.7011534
 97  96 4673.17041988
 98  97 4652.50052295
 99  98 4638.16715621
100  99 4556.12599777
101 100 4543.40170596
102 101 4517.69763014
103 102 4440.17352379
104 103 4432.49626607
105 104 4399.33324341
106 105 4340.15814212
107 106 4334.9038811
108 107 4296.4145293
109 108 4254.09394629
110 109 4248.97250626
111 110 4198.08890099
112 111 4171.79331206
113 112 4165.64116366
114 113 4107.01037932
115 114 4089.99314092
116 115 4081.25260288
117 116 4020.77235734
118 117 4009.78541052
119 118 3999.41581861
120 119 3951.39631527
121 120 3945.61868514
122 121 3931.93762197
123 122 3886.97067489
124 123 3882.41458963
125 124 3862.83938059
126 125 3826.97314479
127 126 3823.49399864
128 127 3793.04103525
129 128 3762.44471172
130 129 3758.79077651
131 130 3722.84096911
132 131 3705.59050078
133 132 3702.15839894
134 133 3663.9491913
135 134 3651.31196198
136 135 3646.69689165
137 136 3605.56712493
138 137 3596.76572171
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139 138 3591.29004656
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147 146 3447.2712898
148 147 3437.33091715
149 148 3408.47119028
150 149 3405.69098823
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152 151 3370.9988558
153 152 3369.10375153
154 153 3353.96920196
155 154 3339.00660388
156 155 3337.36544904
157 156 3317.85893829
158 157 3307.12288017
159 158 3305.05792067
160 159 3280.53657951
161 160 3272.99516614
162 161 3269.70364301
163 162 3245.73508211
164 163 3242.40522881
165 164 3236.02829375
166 165 3215.52469456
167 166 3213.78036879
168 167 3201.60919384
169 168 3184.93519639
170 169 3183.309351
171 170 3163.06239422
172 171 3152.78811759
173 172 3150.59546326
174 173 3127.95909052
175 174 3123.73516272
176 175 3119.72603743
177 176 3099.26240589
178 177 3097.4561776
179 178 3088.66005113
180 179 3073.97445217
181 180 3072.6590401
182 181 3055.93413622
183 182 3048.86245242
184 183 3046.537158
185 184 3026.11110613
186 185 3023.73491803
187 186 3017.1898902
188 187 3001.1032186
189 188 2999.96099055
190 189 2986.15299462
191 190 2978.93322729
192 191 2977.2461589
193 192 2961.3660294
194 193 2959.5394525
195 194 2953.60093638
196 195 2941.28944358
197 196 2940.1990414
198 197 2924.60021247
199 198 2919.45599705
200 199 2916.43996579
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201 200 2898.18306046
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205 204 2875.73203887
206 205 2861.27373158
207 206 2859.69734437
208 207 2854.00339541
209 208 2844.9807335
210 209 2843.98550277
211 210 2829.75299086
212 211 2827.42826631
213 212 2821.19809759
214 213 2807.35606322
215 214 2806.25729662
216 215 2790.37614566
217 216 2787.34481407
218 217 2782.01405614
219 218 2769.6847949
220 219 2768.73820445
221 220 2754.86139088
222 221 2752.72735332
223 222 2747.31365491
224 223 2736.67583566
225 224 2735.68164326
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227 226 2721.64078459
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229 228 2707.79268656
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231 230 2694.90766408
232 231 2694.06595053
233 232 2684.49821733
234 233 2679.95128178
235 234 2677.5199283
236 235 2665.70857169
237 236 2664.89995992
238 237 2651.68407671
239 238 2649.05986356
240 239 2642.45817387
241 240 2632.4426567
242 241 2631.15056639
243 242 2617.37425616
244 243 2616.47589194
245 244 2606.702225
246 245 2602.68429411
247 246 2599.68779275
248 247 2589.84785751
249 248 2589.07129128
250 249 2578.26737143
251 250 2577.17241467
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253 252 2564.58864216
254 253 2562.32787179
255 254 2551.30121468
256 255 2550.5307928
257 256 2537.69038151
258 257 2535.98424451
259 258 2527.56728993
260 259 2520.38758576
261 260 2518.06353991
262 261 2503.99172453
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263 262 2503.05456577
264 263 2486.92618794
265 264 2484.06631526
266 265 2476.80732354
267 266 2466.9824264
268 267 2465.51795954
269 268 2454.0532028
270 269 2453.37916003
271 270 2444.42803467
272 271 2442.20171744
273 272 2438.31786693
274 273 2430.16226012
275 274 2429.1725182
276 275 2418.57528969
277 276 2417.85030866
278 277 2409.60959189
279 278 2406.93018872
280 279 2403.78558712
281 280 2396.8874074
282 281 2396.10255125
283 282 2386.6619601
284 283 2385.97035123
285 284 2377.15478525
286 285 2374.44666438
287 286 2370.43996389
288 287 2362.40713401
289 288 2361.37203764
290 289 2351.6652418
291 290 2351.07635327
292 291 2343.00912876
293 292 2341.22637669
294 293 2336.81492595
295 294 2330.71895789
296 295 2329.55581547
297 296 2320.34709119
298 297 2319.77973417
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305 304 2290.03357401
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307 306 2281.65357295
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309 308 2272.54815008
310 309 2269.4313425
311 310 2262.94933177
312 311 2261.96642244
313 312 2253.41265684
314 313 2252.885081
315 314 2244.50230849
316 315 2243.18255715
317 316 2237.55420872
318 317 2232.96550595
319 318 2231.12679308
320 319 2222.82201028
321 320 2222.18238041
322 321 2212.77857422
323 322 2211.98468756
324 323 2204.05313173
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325 324 2201.20534953
326 325 2198.11227281
327 326 2191.27826046
328 327 2190.41701349
329 328 2182.11903715
330 329 2181.5752278
331 330 2173.2984501
332 331 2171.62310338
333 332 2166.84352336
334 333 2161.47720292
335 334 2160.30097084
336 335 2152.32096736
337 336 2151.8339179
338 337 2144.08690384
339 338 2143.00105435
340 339 2138.04238305
341 340 2134.11932631
342 341 2132.61774566
343 342 2126.03745005
344 343 2125.61515213
345 344 2119.51216838
346 345 2118.96004741
347 346 2114.4840572
348 347 2112.29219689
349 348 2110.54258604
350 349 2105.51043431
351 350 2104.98903117
352 351 2098.66051302
353 352 2098.22363735
354 353 2092.65786457
355 354 2091.14913744
356 355 2088.0704178
357 356 2083.22910508
358 357 2082.31879935
359 358 2075.20028574
360 359 2074.75473821
361 360 2067.73920887
362 361 2066.70042063
363 362 2062.58450894
364 363 2058.84255365
365 364 2057.64510197
366 365 2051.85737896
367 366 2051.48100244
368 367 2045.48610921
369 368 2044.80461956
370 369 2039.89591659
371 370 2037.1264596
372 371 2035.58431963
373 372 2030.17110657
374 373 2029.72625679
375 374 2024.00358015
376 375 2023.56864813
377 376 2019.02184448
378 377 2017.49228696
379 378 2015.42302543
380 379 2011.3293345
381 380 2010.76081208
382 381 2005.12365057
383 382 2004.75056326
384 383 1999.16276366
385 384 1998.10672958
386 385 1994.8981192
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  387 386 1991.28781655
  388 387 1990.35834994
  389 388 1984.42599844
  390 389 1984.04364947
  391 390 1978.04462026
  392 391 1977.26003263
  393 392 1973.14827122
  394 393 1970.18077121
  395 394 1968.93789545
  396 395 1963.5166158
  397 396 1963.13572771
  398 397 1957.4885646
  399 398 1956.96007067
  400 399 1952.9362318
Final mean squared error (training) = 0.0902066200407 at iteration 400
Final CER (validation) = 0.037844339765 at iteration 391
Fold = 2
Number of input-output patterns (training) = 48000
Number of input-output patterns (validation) = 12000
Maximum number of iterations = Initial CER (validation) = 0.91543226548
    2 1 28504.6505904
    3 2 22985.7698448
    4 3 18024.0695688
    5 4 17205.1120852
    6 5 14814.8784175
    7 6 14123.2958745
    8 7 13442.1895072
    9 8 12725.2537085
   10 9 12485.1669867
   11 10 11957.6761208
   12 11 11609.5339588
   13 12 11450.0259509
   14 13 11172.9110706
   15 14 10971.1711355
   16 15 10841.0362713
   17 16 10621.5019536
   18 17 10441.8559527
   19 18 10344.5819878
   20 19 10205.215899
   21 20 10063.896723
   22 21 9978.08431049
   23 22 9879.5403165
   24 23 9743.14776787
   25 24 9628.44043096
   26 25 9545.8839937
   27 26 9459.28672214
   28 27 9365.361811
   29 28 9285.96025089
   30 29 9221.93958345
   31 30 9149.25116302
   32 31 9051.25871811
   33 32 8943.98666332
   34 33 8856.96635614
   35 34 8787.73402994
   36 35 8686.04228538
   37 36 8546.88863098
   38 37 8443.97325322
   39 38 8385.3953026
   40 39 8289.22485001
   41 40 8132.85310456
   42 41 8015.6863738
   43 42 7965.40053345
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 44  43 7914.51177905
 45  44 7820.91603871
 46  45 7699.59031722
 47  46 7615.2972145
 48  47 7564.25667914
 49  48 7510.20755753
 50  49 7412.20439289
 51  50 7272.43176066
 52  51 7188.49702483
 53  52 7151.24244779
 54  53 7107.01770918
 55  54 7006.57971775
 56  55 6905.79046994
 57  56 6866.81296454
 58  57 6844.82854637
 59  58 6796.94272084
 60  59 6684.71371573
 61  60 6604.2566674
 62  61 6577.31544491
 63  62 6553.36225199
 64  63 6480.23902135
 65  64 6367.22391868
 66  65 6317.53745806
 67  66 6299.9413184
 68  67 6269.31057432
 69  68 6182.21810199
 70  69 6113.55133937
 71  70 6094.61561954
 72  71 6077.64104847
 73  72 6008.39837483
 74  73 5910.57549081
 75  74 5879.08557359
 76  75 5866.18023609
 77  76 5825.11398048
 78  77 5730.40312254
 79  78 5689.64588553
 80  79 5678.48544707
 81  80 5654.36237082
 82  81 5575.38704684
 83  82 5543.0304384
 84  83 5533.410386
 85  84 5499.43299943
 86  85 5420.77840683
 87  86 5397.80168357
 88  87 5387.35627883
 89  88 5335.29648691
 90  89 5274.20544334
 91  90 5262.64490079
 92  91 5247.73248726
 93  92 5174.48882773
 94  93 5133.57794289
 95  94 5125.51838242
 96  95 5097.0038004
 97  96 5026.16180275
 98  97 5010.65603818
 99  98 5000.87269744
100  99 4945.37348799
101 100 4908.45165535
102 101 4902.10607172
103 102 4877.10575179
104 103 4813.71890341
105 104 4801.32694295
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106 105 4790.62376609
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110 109 4658.4755463
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112 111 4611.14198346
113 112 4592.40860551
114 113 4546.41824381
115 114 4539.33267804
116 115 4530.03060985
117 116 4480.79206879
118 117 4467.29941692
119 118 4461.10730988
120 119 4415.51502223
121 120 4393.03020965
122 121 4387.94524215
123 122 4349.43825135
124 123 4321.12256575
125 124 4316.82619381
126 125 4286.5876675
127 126 4259.57600989
128 127 4256.00031461
129 128 4228.34448358
130 129 4201.5174307
131 130 4198.13788398
132 131 4171.29206993
133 132 4149.87502542
134 133 4146.66008231
135 134 4115.05210009
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139 138 4029.98333276
140 139 4025.30770823
141 140 3978.68458864
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143 142 3950.56592579
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146 145 3886.24990594
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149 148 3833.43469036
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151 150 3789.11171419
152 151 3783.196369
153 152 3749.72046459
154 153 3744.36448798
155 154 3736.65021171
156 155 3706.05680657
157 156 3702.54932107
158 157 3691.36536813
159 158 3661.21193465
160 159 3658.14105001
161 160 3640.99037939
162 161 3615.65257963
163 162 3613.00305529
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165 164 3571.78944211
166 165 3569.18261866
167 166 3542.81750377
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168 167 3532.12223667
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173 172 3461.66495598
174 173 3458.25558107
175 174 3449.99511401
176 175 3424.59330817
177 176 3422.08321105
178 177 3407.836158
179 178 3387.28365503
180 179 3385.13973116
181 180 3363.98198105
182 181 3352.18743222
183 182 3349.72515649
184 183 3327.08157024
185 184 3322.41650371
186 185 3318.24282067
187 186 3297.46603944
188 187 3295.25726546
189 188 3284.99770336
190 189 3267.57697835
191 190 3265.82297959
192 191 3246.02868201
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194 193 3232.3257297
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204 203 3116.50576403
205 204 3113.99730968
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208 207 3086.39182882
209 208 3069.48998182
210 209 3068.0238396
211 210 3055.06592372
212 211 3045.11268127
213 212 3043.4817537
214 213 3025.27470229
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221 220 2977.11570716
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223 222 2957.74802417
224 223 2954.2116723
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227 226 2926.31662312
228 227 2917.11588175
229 228 2915.56791115
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237 236 2849.46840568
238 237 2834.00091976
239 238 2832.46350974
240 239 2825.73507448
241 240 2816.20253262
242 241 2815.17651615
243 242 2802.30226384
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245 244 2795.87808214
246 245 2782.7864583
247 246 2781.73957888
248 247 2768.937599
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250 249 2760.89838943
251 250 2744.88924131
252 251 2743.44648097
253 252 2733.91686157
254 253 2724.22367237
255 254 2722.90622793
256 255 2708.44746281
257 256 2706.52988609
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259 258 2691.58236951
260 259 2690.69964877
261 260 2679.3418986
262 261 2676.99627472
263 262 2673.6343755
264 263 2663.29774683
265 264 2662.53034329
266 265 2652.41668289
267 266 2649.14816582
268 267 2646.57354467
269 268 2635.75468751
270 269 2634.95467271
271 270 2624.92418255
272 271 2620.93631549
273 272 2618.7242995
274 273 2607.16450743
275 274 2606.32231082
276 275 2596.65973491
277 276 2592.1786116
278 277 2590.13883527
279 278 2578.48174872
280 279 2577.66166156
281 280 2568.77735154
282 281 2564.58516863
283 282 2562.7491765
284 283 2552.42242908
285 284 2551.67713253
286 285 2542.84313881
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288 287 2536.81358229
289 288 2525.93167127
290 289 2525.13773562
291 290 2515.37620404
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304 303 2445.99489259
305 304 2445.26407469
306 305 2435.26448539
307 306 2433.33794079
308 307 2429.78336219
309 308 2422.04148889
310 309 2421.33425883
311 310 2412.29626607
312 311 2411.10054915
313 312 2406.64527091
314 313 2400.85978727
315 314 2399.99446951
316 315 2391.2224996
317 316 2390.42467676
318 317 2384.17552209
319 318 2379.7812176
320 319 2378.31244126
321 320 2369.05218022
322 321 2368.40577532
323 322 2360.42884902
324 323 2357.72061474
325 324 2355.34931248
326 325 2347.43613598
327 326 2346.83933301
328 327 2338.6221197
329 328 2337.35351385
330 329 2333.43741842
331 330 2327.98132239
332 331 2327.15883356
333 332 2318.97466257
334 333 2318.29308829
335 334 2311.9579668
336 335 2308.52605343
337 336 2306.74775341
338 337 2298.85308766
339 338 2298.29806714
340 339 2290.31042262
341 340 2288.84869508
342 341 2285.150927
343 342 2279.6624775
344 343 2278.88805846
345 344 2270.94971123
346 345 2270.30916129
347 346 2263.90788591
348 347 2260.89689152
349 348 2258.91759179
350 349 2251.36123682
351 350 2250.79666855
352 351 2243.09166237
353 352 2242.06628183
```

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354 353 2237.58093862
355 354 2233.39794784
356 355 2232.34269534
357 356 2225.26680846
358 357 2224.78959133
359 358 2218.12417955
360 359 2216.63321305
361 360 2213.43795106
362 361 2207.96352527
363 362 2207.15362017
364 363 2199.22944039
365 364 2198.63564996
366 365 2191.89369441
367 366 2189.38894579
368 367 2186.84822018
369 368 2180.13820171
370 369 2179.51653525
371 370 2171.9320454
372 371 2171.25930782
373 372 2165.96777277
374 373 2163.45130478
375 374 2161.84394162
376 375 2156.23810463
377 376 2155.76410645
378 377 2149.34772957
379 378 2148.69281284
380 379 2143.92776973
381 380 2141.14596422
382 381 2139.60155902
383 382 2133.60425891
384 383 2133.11176408
385 384 2126.14465224
386 385 2125.37477833
387 386 2120.09590232
388 387 2116.84134521
389 388 2115.18829573
390 389 2108.39504451
391 390 2107.88180776
392 391 2100.70959717
393 392 2099.93354169
394 393 2094.7307116
395 394 2091.64982778
396 395 2090.01536642
397 396 2084.02527037
398 397 2083.56397668
399 398 2077.60751331
400 399 2077.04013871
```
Final mean squared error (training) = 0.0930286725224 at iteration 400
Final CER (validation) = 0.038126318938 at iteration 398
Fold = 3
Number of input-output patterns (training) = 48000
Number of input-output patterns (validation) = 12000
Maximum number of iterations = Initial CER (validation) = 0.928416547428
```
 2 1 31304.2343615
 3 2 23820.6025961
 4 3 18625.2283735
 5 4 17529.3860876
 6 5 15457.2351537
 7 6 14933.910617
 8 7 13497.5301982
 9 8 13036.0638396
10 9 12375.7061683
```

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11 10 11934.3650357
12 11 11675.1352185
13 12 11222.6246194
14 13 11101.6847697
15 14 10838.1692508
16 15 10621.4393358
17 16 10525.8565511
18 17 10263.7428801
19 18 10095.5792246
20 19 10010.6057884
21 20 9836.87843843
22 21 9705.33904129
23 22 9643.95713039
24 23 9538.43489152
25 24 9390.58167674
26 25 9325.71380407
27 26 9263.0691173
28 27 9116.91252769
29 28 9018.21447507
30 29 8971.84753509
31 30 8882.55662843
32 31 8706.3277945
33 32 8613.2101434
34 33 8563.02223848
35 34 8427.50786471
36 35 8227.41327347
37 36 8157.27684338
38 37 8115.4008933
39 38 7960.48405443
40 39 7780.74868755
41 40 7733.78925044
42 41 7691.95725865
43 42 7503.49293922
44 43 7351.45986628
45 44 7319.88585052
46 45 7260.79621371
47 46 7013.34534774
48 47 6946.84174989
49 48 6931.60829358
50 49 6801.56802709
51 50 6676.70248339
52 51 6661.97778188
53 52 6568.15359209
54 53 6401.14010604
55 54 6384.73366672
56 55 6329.89014971
57 56 6173.49819267
58 57 6153.25570264
59 58 6104.89702436
60 59 5937.51842134
61 60 5916.25652431
62 61 5886.22154479
63 62 5722.99511476
64 63 5700.41779349
65 64 5674.57894561
66 65 5533.78503526
67 66 5518.9297288
68 67 5494.48338399
69 68 5402.00119151
70 69 5392.46877329
71 70 5336.3419099
72 71 5275.53278075
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 73  72 5268.72110617
 74  73 5188.03607545
 75  74 5168.88886171
 76  75 5155.66684682
 77  76 5081.923083
 78  77 5075.76002786
 79  78 5021.71562746
 80  79 4961.45632881
 81  80 4952.38164786
 82  81 4855.32252386
 83  82 4842.17899261
 84  83 4808.1929846
 85  84 4734.16720032
 86  85 4728.06689238
 87  86 4647.99860687
 88  87 4624.56821039
 89  88 4612.29158568
 90  89 4541.91815948
 91  90 4536.72261889
 92  91 4491.89281715
 93  92 4447.58485884
 94  93 4440.87445746
 95  94 4364.73900607
 96  95 4353.65801655
 97  96 4331.78642173
 98  97 4256.37932199
 99  98 4251.70538774
100  99 4203.92413668
101 100 4163.28142548
102 101 4158.16341637
103 102 4086.73957261
104 103 4068.50065748
105 104 4061.93249753
106 105 4000.24876825
107 106 3991.78429671
108 107 3980.38651991
109 108 3919.75072617
110 109 3915.10646089
111 110 3896.69525157
112 111 3852.46120677
113 112 3849.22050708
114 113 3818.72493171
115 114 3790.96509564
116 115 3788.14624127
117 116 3745.24139234
118 117 3724.66234582
119 118 3721.48956506
120 119 3676.7945333
121 120 3661.36902338
122 121 3657.45148389
123 122 3616.31103009
124 123 3609.8662127
125 124 3605.09892175
126 125 3571.95243191
127 126 3568.61326543
128 127 3556.59871087
129 128 3525.96586484
130 129 3523.73025717
131 130 3500.0424309
132 131 3468.98581414
133 132 3466.37624118
134 133 3439.01070977
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135 134 3397.14627914
136 135 3393.76042109
137 136 3383.58288769
138 137 3351.83098604
139 138 3347.71791069
140 139 3343.80569334
141 140 3320.70285123
142 141 3315.07643656
143 142 3312.84379884
144 143 3289.65265606
145 144 3275.2232194
146 145 3273.07302219
147 146 3256.55895745
148 147 3237.59761337
149 148 3235.69691814
150 149 3227.53004174
151 150 3203.60065445
152 151 3200.47741037
153 152 3197.10053832
154 153 3176.93069625
155 154 3171.72474426
156 155 3169.82202867
157 156 3151.80170036
158 157 3141.65936776
159 158 3140.3278553
160 159 3129.44951913
161 160 3110.85400713
162 161 3108.67456327
163 162 3102.37181367
164 163 3076.8214034
165 164 3072.15991596
166 165 3069.63083194
167 166 3049.29492183
168 167 3040.75712002
169 168 3039.55160657
170 169 3029.33062018
171 170 3015.34840802
172 171 3013.8936056
173 172 3008.55652852
174 173 2989.90000036
175 174 2987.17838523
176 175 2984.73656907
177 176 2966.18844003
178 177 2960.242975
179 178 2959.00783446
180 179 2946.82660598
181 180 2934.60809782
182 181 2933.26863196
183 182 2926.92766034
184 183 2910.76911786
185 184 2908.77982686
186 185 2906.54831143
187 186 2889.51625913
188 187 2883.7464496
189 188 2882.44686378
190 189 2871.23714335
191 190 2860.96820518
192 191 2859.87786298
193 192 2855.01029266
194 193 2841.77396204
195 194 2840.14679052
196 195 2838.36630051
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197 196 2825.02262972
198 197 2820.90078936
199 198 2819.76427113
200 199 2807.92618237
201 200 2799.57737103
202 201 2798.68701585
203 202 2791.81947104
204 203 2781.19512155
205 204 2780.25694809
206 205 2775.86707389
207 206 2761.0062131
208 207 2759.46485953
209 208 2756.98062746
210 209 2742.64649181
211 210 2740.50212625
212 211 2738.8383885
213 212 2725.8855305
214 213 2723.11547452
215 214 2722.04805432
216 215 2709.1011701
217 216 2704.17006369
218 217 2703.21499775
219 218 2691.55418324
220 219 2686.4664228
221 220 2685.70087718
222 221 2675.32836658
223 222 2670.38175424
224 223 2669.66933172
225 224 2659.03653548
226 225 2654.68389795
227 226 2653.98523343
228 227 2644.40321287
229 228 2641.97828547
230 229 2641.16434004
231 230 2632.76074913
232 231 2631.68193638
233 232 2629.86112917
234 233 2620.21644706
235 234 2619.55404114
236 235 2615.89513461
237 236 2607.45343822
238 237 2606.91615279
239 238 2599.36075803
240 239 2593.15814001
241 240 2592.54015661
242 241 2582.75895517
243 242 2580.38146507
244 243 2579.39728927
245 244 2571.01548925
246 245 2570.31624735
247 246 2567.28707938
248 247 2559.69667255
249 248 2559.23475807
250 249 2551.46537563
251 250 2546.93887999
252 251 2546.08386456
253 252 2534.39855339
254 253 2532.86915582
255 254 2530.48918309
256 255 2521.25106395
257 256 2520.75349816
258 257 2513.98099066
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259 258 2509.22892092
260 259 2508.54126729
261 260 2499.07688698
262 261 2498.13588382
263 262 2494.76225481
264 263 2488.02852972
265 264 2487.61665221
266 265 2479.99604154
267 266 2478.69451356
268 267 2476.54599372
269 268 2469.70987726
270 269 2469.32939662
271 270 2461.32686588
272 271 2459.52354923
273 272 2457.59661721
274 273 2449.81584353
275 274 2449.41152757
276 275 2441.04382842
277 276 2438.94861734
278 277 2437.1368481
279 278 2429.78119469
280 279 2429.42387926
281 280 2421.92185756
282 281 2420.41185189
283 282 2417.90924061
284 283 2411.2027695
285 284 2410.79152295
286 285 2402.98670454
287 286 2402.1687675
288 287 2398.22799796
289 288 2393.24781958
290 289 2392.57563324
291 290 2384.09195475
292 291 2383.57975549
293 292 2376.38325777
294 293 2372.71215719
295 294 2371.03716821
296 295 2361.71483047
297 296 2361.27769377
298 297 2352.1311376
299 298 2350.62962487
300 299 2347.08746679
301 300 2340.07963313
302 301 2339.45135493
303 302 2329.93882119
304 303 2329.31085887
305 304 2322.28950027
306 305 2318.52181969
307 306 2317.01138501
308 307 2308.98022855
309 308 2308.61307946
310 309 2300.88757954
311 310 2299.90347632
312 311 2295.50447411
313 312 2290.08423617
314 313 2289.17937199
315 314 2280.16615627
316 315 2279.71357097
317 316 2270.77423615
318 317 2268.87696998
319 318 2265.59155394
320 319 2258.74052247
```

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321 320 2258.1411931
322 321 2249.67323356
323 322 2249.21936714
324 323 2242.45784243
325 324 2240.20349284
326 325 2237.86613179
327 326 2231.19392626
328 327 2230.68989895
329 328 2221.94194988
330 329 2221.37257393
331 330 2214.32683887
332 331 2211.37376488
333 332 2209.26011543
334 333 2200.99603291
335 334 2200.53654063
336 335 2192.00676256
337 336 2191.36797872
338 337 2186.05061381
339 338 2182.85416322
340 339 2181.35579486
341 340 2174.19483898
342 341 2173.79209309
343 342 2165.31478069
344 343 2164.55236716
345 344 2158.74693815
346 345 2154.79751481
347 346 2153.28442488
348 347 2145.47808431
349 348 2145.0997672
350 349 2137.34570345
351 350 2136.60446334
352 351 2131.70716558
353 352 2128.01662476
354 353 2126.90337502
355 354 2120.21540452
356 355 2119.90123584
357 356 2113.48966934
358 357 2112.83909578
359 358 2107.7236155
360 359 2104.42463901
361 360 2103.04329325
362 361 2096.91702734
363 362 2096.57120555
364 363 2090.17037779
365 364 2089.75487418
366 365 2084.71671222
367 366 2082.76703176
368 367 2080.68623643
369 368 2075.19174636
370 369 2074.74957929
371 370 2068.14093141
372 371 2067.78169302
373 372 2061.63175002
374 373 2060.29236028
375 374 2057.02264494
376 375 2052.22065646
377 376 2051.43128113
378 377 2045.02217421
379 378 2044.75120095
380 379 2038.87734372
381 380 2038.19069884
382 381 2034.11708813
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   383 382 2031.34660305
   384 383 2030.12802337
   385 384 2024.01429624
   386 385 2023.64230188
   387 386 2016.41302552
   388 387 2015.88012921
   389 388 2010.2629604
   390 389 2007.99686918
   391 390 2006.12629825
   392 391 2001.05409641
   393 392 2000.62807236
   394 393 1994.32654399
   395 394 1993.99616553
   396 395 1988.31218596
   397 396 1986.80000249
   398 397 1984.07933909
   399 398 1979.07987664
   400 399 1978.50597968
```
Final mean squared error (training) = 0.090795236193 at iteration 400
Final CER (validation) = 0.0388931685413 at iteration 398
Fold = 4
Number of input-output patterns (training) = 48000
Number of input-output patterns (validation) = 12000
Maximum number of iterations = Initial CER (validation) = 0.890849993846
```
     2 1 32553.7021777
     3 2 28971.6515828
     4 3 20848.4229007
     5 4 18075.9014258
     6 5 15933.0192084
     7 6 14483.5482112
     8 7 14008.0311253
     9 8 12970.284411
    10 9 12626.5669237
    11 10 12241.3850083
    12 11 11787.3360807
    13 12 11602.0174494
    14 13 11379.1812672
    15 14 11138.3540133
    16 15 10981.5405914
    17 16 10833.7386395
    18 17 10672.5194073
    19 18 10534.6080713
    20 19 10423.86839
    21 20 10306.104526
    22 21 10177.5971812
    23 22 10078.3458718
    24 23 9992.88947011
    25 24 9886.60937564
    26 25 9778.65582677
    27 26 9705.8666648
    28 27 9638.52864079
    29 28 9537.94808048
    30 29 9448.06964555
    31 30 9393.73360162
    32 31 9339.94459513
    33 32 9254.46637199
    34 33 9166.33030893
    35 34 9111.11672717
    36 35 9060.83411815
    37 36 8958.52485612
    38 37 8822.93319969
    39 38 8747.69561771
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 40  39 8699.2649067
 41  40 8612.33030659
 42  41 8480.63097541
 43  42 8401.37265499
 44  43 8357.77744112
 45  44 8302.76685494
 46  45 8190.84665937
 47  46 8062.57054333
 48  47 7988.81898988
 49  48 7947.46153993
 50  49 7887.71743638
 51  50 7750.25389306
 52  51 7643.92101051
 53  52 7605.91368016
 54  53 7574.89371951
 55  54 7468.99887676
 56  55 7324.213076
 57  56 7281.65468643
 58  57 7261.23406416
 59  58 7190.31249211
 60  59 7052.97599022
 61  60 7007.38897314
 62  61 6990.99396386
 63  62 6930.73148166
 64  63 6793.86125791
 65  64 6752.54876819
 66  65 6736.1242575
 67  66 6659.45338439
 68  67 6544.00637092
 69  68 6523.97646678
 70  69 6505.0440381
 71  70 6393.09812802
 72  71 6335.4083277
 73  72 6323.04796658
 74  73 6254.1465412
 75  74 6192.43254861
 76  75 6183.04387646
 77  76 6124.13847196
 78  77 6033.90093172
 79  78 6022.2081314
 80  79 5971.43604174
 81  80 5853.81058196
 82  81 5840.54430213
 83  82 5805.52385278
 84  83 5690.93845381
 85  84 5675.24414772
 86  85 5647.21243517
 87  86 5529.614837
 88  87 5512.40089655
 89  88 5489.62140022
 90  89 5401.29320506
 91  90 5389.61666309
 92  91 5368.20069998
 93  92 5288.1707901
 94  93 5278.76337656
 95  94 5256.71377392
 96  95 5182.76081614
 97  96 5174.03766855
 98  97 5144.51480365
 99  98 5064.3068747
100  99 5055.347265
101 100 5011.41501925
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102 101 4942.45826283
103 102 4935.68334774
104 103 4888.49756316
105 104 4846.6262889
106 105 4841.45896723
107 106 4788.03737612
108 107 4767.09545616
109 108 4760.49621446
110 109 4706.62751817
111 110 4698.95861432
112 111 4681.15731358
113 112 4624.70239638
114 113 4619.52118801
115 114 4573.56837671
116 115 4532.17314311
117 116 4526.63005582
118 117 4467.09761682
119 118 4454.36882323
120 119 4441.43163175
121 120 4387.12424933
122 121 4382.36280171
123 122 4348.53121366
124 123 4306.77129379
125 124 4302.21259811
126 125 4247.33187202
127 126 4229.29799558
128 127 4221.4498409
129 128 4159.46165631
130 129 4150.86025732
131 130 4133.69998503
132 131 4077.44453877
133 132 4073.16094598
134 133 4043.82907844
135 134 4007.03593371
136 135 4003.54196495
137 136 3966.73515685
138 137 3956.41643744
139 138 3950.25089986
140 139 3919.03310138
141 140 3916.15473598
142 141 3894.45763048
143 142 3867.42318521
144 143 3864.5327505
145 144 3825.05952816
146 145 3815.61844872
147 146 3805.64536262
148 147 3763.30647954
149 148 3760.14277276
150 149 3728.73446628
151 150 3705.4797213
152 151 3701.85626085
153 152 3658.24523943
154 153 3651.26447444
155 154 3639.15713846
156 155 3598.14230592
157 156 3595.39939927
158 157 3567.07411595
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160 159 3547.06809786
161 160 3515.17473886
162 161 3511.91437397
163 162 3500.68952269
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164 163 3476.27104103
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170 169 3393.10320497
171 170 3373.8690218
172 171 3352.13966048
173 172 3349.68095985
174 173 3318.89902293
175 174 3314.07284888
176 175 3304.91148387
177 176 3278.58597713
178 177 3276.71956221
179 178 3249.33625761
180 179 3239.10233728
181 180 3234.77068514
182 181 3204.99444366
183 182 3202.79610625
184 183 3187.07373433
185 184 3170.82216073
186 185 3168.88149881
187 186 3145.43989587
188 187 3142.53345703
189 188 3133.25135036
190 189 3116.43627691
191 190 3115.05673177
192 191 3093.09201377
193 192 3089.23257549
194 193 3082.53779964
195 194 3064.94257565
196 195 3063.66121815
197 196 3042.90396294
198 197 3038.37214714
199 198 3032.54483532
200 199 3013.90753579
201 200 3012.71446525
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204 203 2984.86591206
205 204 2970.14385824
206 205 2969.03743516
207 206 2952.77439093
208 207 2950.91677477
209 208 2941.81942953
210 209 2931.67589999
211 210 2929.9978478
212 211 2911.64077737
213 212 2910.23331381
214 213 2893.40465568
215 214 2884.77250539
216 215 2880.4655318
217 216 2861.48322073
218 217 2860.44793214
219 218 2844.38453502
220 219 2842.00505228
221 220 2834.76020351
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223 222 2822.90908506
224 223 2807.41531222
225 224 2806.40530504
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226 225 2792.29461659
227 226 2787.74360135
228 227 2782.1976182
229 228 2767.97159727
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232 231 2749.35251468
233 232 2736.76221498
234 233 2732.38215552
235 234 2727.49242231
236 235 2715.28114744
237 236 2714.03937389
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239 238 2698.42456176
240 239 2683.99589599
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243 242 2661.90440693
244 243 2660.13041616
245 244 2646.07114893
246 245 2645.31074446
247 246 2631.79188244
248 247 2629.74865848
249 248 2620.39817405
250 249 2612.66648449
251 250 2609.85967749
252 251 2597.18240145
253 252 2596.40134789
254 253 2584.59537667
255 254 2583.6576937
256 255 2571.41280461
257 256 2566.87913452
258 257 2560.74269392
259 258 2550.26914481
260 259 2548.8227765
261 260 2538.16799818
262 261 2537.62477644
263 262 2527.70288743
264 263 2526.64791707
265 264 2517.58646724
266 265 2513.38578173
267 266 2508.79799969
268 267 2499.01249222
269 268 2497.56408508
270 269 2486.73760009
271 270 2486.10838644
272 271 2474.77973185
273 272 2473.70345337
274 273 2463.54680681
275 274 2459.57704755
276 275 2454.26499857
277 276 2445.23464121
278 277 2443.52487376
279 278 2432.78145417
280 279 2432.12274902
281 280 2420.97441943
282 281 2420.00205408
283 282 2409.35001095
284 283 2405.96580642
285 284 2400.30076342
286 285 2392.04654863
287 286 2390.20048598
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288 287 2379.36049522
289 288 2378.66287908
290 289 2367.41785212
291 290 2366.42438759
292 291 2355.27604517
293 292 2352.09420182
294 293 2346.2450928
295 294 2337.67107363
296 295 2335.89254014
297 296 2325.48648145
298 297 2324.85427996
299 298 2315.21944532
300 299 2314.38381929
301 300 2306.16418678
302 301 2303.36645056
303 302 2299.24632314
304 303 2292.02330488
305 304 2290.73936277
306 305 2281.27661929
307 306 2280.67601594
308 307 2271.24339203
309 308 2270.26982595
310 309 2262.6908473
311 310 2259.07885418
312 311 2255.73907766
313 312 2248.29350758
314 313 2247.30158747
315 314 2238.33786015
316 315 2237.77127225
317 316 2229.04552608
318 317 2227.98794529
319 318 2222.07617847
320 319 2218.72107081
321 320 2216.4389291
322 321 2209.83520427
323 322 2209.06165807
324 323 2201.47165671
325 324 2200.98606517
326 325 2193.11659851
327 326 2191.93469253
328 327 2186.17696471
329 328 2182.1805792
330 329 2180.0470888
331 330 2172.90256052
332 331 2172.15322851
333 332 2163.7543437
334 333 2163.19248796
335 334 2155.09671475
336 335 2153.79822289
337 336 2148.81961393
338 337 2144.8363988
339 338 2143.00239618
340 339 2136.47069764
341 340 2135.8591634
342 341 2128.2064883
343 342 2127.671782
344 343 2120.75528984
345 344 2119.40284724
346 345 2115.39104195
347 346 2111.27836429
348 347 2109.82461839
349 348 2102.97285375
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      350 349 2102.40081072
      351 350 2094.42451645
      352 351 2093.8028045
      353 352 2086.98578587
      354 353 2085.21926976
      355 354 2081.73874164
      356 355 2077.32111326
      357 356 2076.32771888
      358 357 2070.26198209
      359 358 2069.8425748
      360 359 2063.56687358
      361 360 2062.98570602
      362 361 2057.50813603
      363 362 2055.72355669
      364 363 2052.9436009
      365 364 2048.60683917
      366 365 2047.71646771
      367 366 2041.14311633
      368 367 2040.69761234
      369 368 2033.8695634
      370 369 2033.21230602
      371 370 2027.66657833
      372 371 2025.88115615
      373 372 2023.24415975
      374 373 2019.35293827
      375 374 2018.47280988
      376 375 2012.75667444
      377 376 2012.33997527
      378 377 2006.04090623
      379 378 2005.53033
      380 379 2000.51471558
      381 380 1999.20840288
      382 381 1996.40099139
      383 382 1993.05008006
      384 383 1992.01978236
      385 384 1987.11839342
      386 385 1986.7022095
      387 386 1981.32309104
      388 387 1980.96828548
      389 388 1976.25956566
      390 389 1975.52714133
      391 390 1972.05830183
      392 391 1969.88964602
      393 392 1968.06769293
      394 393 1963.83229857
      395 394 1963.16385237
      396 395 1958.03374879
      397 396 1957.69643414
      398 397 1952.62045944
      399 398 1952.20934847
      400 399 1947.57747263
Final mean squared error (training) = 0.0900827738025 at iteration 400
Final CER (validation) = 0.0343837126569 at iteration 399
Fold = 5
Number of input-output patterns (training) = 48000
Number of input-output patterns (validation) = 12000
Maximum number of iterations = Initial CER (validation) = 0.847326323312
        2 1 30635.9463315
        3 2 25075.4003386
        4 3 18229.5888893
        5 4 17497.0665325
        6 5 14915.917028
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 7  6 14169.4595054
 8  7 13280.8614263
 9  8 12671.2430015
10  9 12362.4292259
11 10 11845.6762989
12 11 11650.7021285
13 12 11294.5172128
14 13 11068.8763563
15 14 10925.4428548
16 15 10685.4692361
17 16 10557.8397079
18 17 10444.3134171
19 18 10234.3939545
20 19 10111.878676
21 20 10031.3072366
22 21 9887.62917712
23 22 9769.49186103
24 23 9709.02838597
25 24 9630.14044227
26 25 9498.1554065
27 26 9409.61446669
28 27 9352.20450046
29 28 9247.84287636
30 29 9102.93575854
31 30 9015.49453801
32 31 8965.03626624
33 32 8869.87846715
34 33 8700.09185117
35 34 8602.78519515
36 35 8556.4011058
37 36 8475.69982937
38 37 8292.80014282
39 38 8188.5805559
40 39 8157.10841486
41 40 8106.78449484
42 41 7943.44429872
43 42 7824.53727897
44 43 7792.73932979
45 44 7735.26901554
46 45 7509.25319349
47 46 7346.82711991
48 47 7311.59910545
49 48 7280.70814686
50 49 7164.86046089
51 50 7006.37559805
52 51 6961.07680477
53 52 6938.2687176
54 53 6846.36502092
55 54 6684.15868717
56 55 6648.45120203
57 56 6630.03222317
58 57 6509.52470994
59 58 6379.80578355
60 59 6360.81492265
61 60 6337.64543114
62 61 6192.94691133
63 62 6118.88562651
64 63 6107.56170311
65 64 6050.99021174
66 65 5924.43342425
67 66 5905.53831932
68 67 5885.83828584
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 69  68 5753.43640518
 70  69 5706.33452645
 71  70 5695.63344252
 72  71 5601.4408512
 73  72 5539.21415705
 74  73 5531.19473019
 75  74 5460.0096629
 76  75 5406.23154644
 77  76 5398.71212466
 78  77 5322.87151472
 79  78 5276.7598464
 80  79 5269.10738048
 81  80 5186.78230522
 82  81 5156.42475311
 83  82 5147.64815372
 84  83 5066.30439495
 85  84 5052.00560202
 86  85 5035.09131649
 87  86 4952.70031203
 88  87 4946.01386216
 89  88 4902.7262074
 90  89 4846.91507702
 91  90 4840.76802465
 92  91 4769.7753428
 93  92 4758.48420005
 94  93 4738.62805206
 95  94 4686.45198184
 96  95 4682.29771837
 97  96 4615.81258584
 98  97 4598.31350133
 99  98 4576.33230227
100  99 4488.87871797
101 100 4482.30280004
102 101 4391.05034516
103 102 4359.29550815
104 103 4344.48038955
105 104 4254.71644019
106 105 4248.82803832
107 106 4189.96948169
108 107 4154.77693808
109 108 4146.74977308
110 109 4096.69981319
111 110 4093.92591017
112 111 4061.44896773
113 112 4046.03123126
114 113 4036.99475552
115 114 3992.60566851
116 115 3989.54313026
117 116 3938.96150055
118 117 3928.20487907
119 118 3909.47997955
120 119 3863.72038094
121 120 3860.19448666
122 121 3810.94872626
123 122 3805.05751901
124 123 3776.13783563
125 124 3743.54259697
126 125 3738.00549893
127 126 3662.18470239
128 127 3654.0355743
129 128 3624.65466173
130 129 3574.86744294
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131 130 3571.25002957
132 131 3521.40562477
133 132 3512.47300282
134 133 3502.54086074
135 134 3467.5128913
136 135 3465.22424939
137 136 3429.73376676
138 137 3422.35823825
139 138 3413.64415015
140 139 3389.44073099
141 140 3387.72313667
142 141 3360.97467876
143 142 3357.52203976
144 143 3341.95673399
145 144 3323.31767149
146 145 3320.57304155
147 146 3284.51023637
148 147 3281.67930571
149 148 3259.96424504
150 149 3239.36370343
151 150 3235.55504556
152 151 3192.80591904
153 152 3188.95592395
154 153 3170.37459354
155 154 3146.59929074
156 155 3144.50114476
157 156 3120.33565393
158 157 3118.19710501
159 158 3103.84636832
160 159 3090.66092727
161 160 3088.26427005
162 161 3065.93173681
163 162 3064.6292396
164 163 3045.76748377
165 164 3039.23954092
166 165 3033.86603668
167 166 3012.49554184
168 167 3011.01986929
169 168 2981.12818359
170 169 2975.25869271
171 170 2965.41759974
172 171 2942.75050627
173 172 2941.5885573
174 173 2924.46064042
175 174 2922.51951842
176 175 2910.66440365
177 176 2898.10570894
178 177 2895.67487204
179 178 2873.01874237
180 179 2871.787768
181 180 2854.28473383
182 181 2850.5503633
183 182 2843.32434103
184 183 2829.67246252
185 184 2828.26442343
186 185 2810.41276552
187 186 2809.35532667
188 187 2795.62843655
189 188 2791.24172367
190 189 2786.5837017
191 190 2771.45374524
192 191 2770.21362387
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193 192 2750.69485429
194 193 2749.23208671
195 194 2736.90889352
196 195 2728.28071741
197 196 2725.78524943
198 197 2708.60541628
199 198 2707.61715937
200 199 2689.1019736
201 200 2684.81759785
202 201 2678.94456989
203 202 2662.86042783
204 203 2661.82818662
205 204 2647.851334
206 205 2646.81402087
207 206 2634.06520482
208 207 2627.55656301
209 208 2623.4362532
210 209 2607.39968918
211 210 2606.4192655
212 211 2591.14224393
213 212 2589.89884473
214 213 2579.46647764
215 214 2571.9432209
216 215 2569.89632978
217 216 2555.91464994
218 217 2555.11419855
219 218 2540.85364026
220 219 2538.49764723
221 220 2532.28140971
222 221 2523.63601549
223 222 2522.54162703
224 223 2511.24809608
225 224 2510.61329178
226 225 2497.42315949
227 226 2494.64982843
228 227 2488.61568105
229 228 2479.83336315
230 229 2478.63234183
231 230 2466.69814456
232 231 2466.06169947
233 232 2455.39866586
234 233 2453.23840757
235 234 2448.38934045
236 235 2441.07386959
237 236 2439.9991069
238 237 2428.86066898
239 238 2428.21439088
240 239 2415.45731952
241 240 2412.81047095
242 241 2406.5700496
243 242 2398.38814173
244 243 2397.45776792
245 244 2388.07728929
246 245 2387.55982606
247 246 2377.34231135
248 247 2375.81721899
249 248 2368.88165987
250 249 2363.48326732
251 250 2361.61929936
252 251 2352.50413206
253 252 2351.92816887
254 253 2341.94722751
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255 254 2341.15097986
256 255 2331.32253876
257 256 2327.50301738
258 257 2324.55303415
259 258 2315.87263383
260 259 2315.12701842
261 260 2306.62709208
262 261 2306.10308573
263 262 2296.15602405
264 263 2294.77175491
265 264 2289.27054347
266 265 2283.90841525
267 266 2282.15571209
268 267 2274.75705376
269 268 2274.18211756
270 269 2264.16238612
271 270 2263.53178632
272 271 2255.00290386
273 272 2252.46011944
274 273 2248.74630133
275 274 2243.14456137
276 275 2241.94150925
277 276 2232.56150303
278 277 2232.05351689
279 278 2222.2432086
280 279 2221.32945787
281 280 2215.24482988
282 281 2212.06709828
283 282 2209.49006945
284 283 2202.75036143
285 284 2202.0082611
286 285 2193.55153588
287 286 2193.11114165
288 287 2185.17208663
289 288 2183.98126553
290 289 2178.53284023
291 290 2174.64062843
292 291 2172.73808366
293 292 2165.79894261
294 293 2165.20015006
295 294 2156.03802822
296 295 2155.51221537
297 296 2146.77705072
298 297 2145.07748855
299 298 2140.51862919
300 299 2136.35912515
301 300 2134.90608737
302 301 2127.11070698
303 302 2126.5400659
304 303 2118.73502257
305 304 2118.29739944
306 305 2111.91900315
307 306 2110.85200911
308 307 2106.76839074
309 308 2103.05298832
310 309 2101.46461503
311 310 2094.46140005
312 311 2093.87662137
313 312 2086.0479776
314 313 2085.60565571
315 314 2078.38362205
316 315 2076.670585
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317 316 2072.62144592
318 317 2066.17975324
319 318 2064.86309271
320 319 2057.3823884
321 320 2056.95083212
322 321 2048.9834328
323 322 2048.30881821
324 323 2043.16815063
325 324 2040.16002624
326 325 2037.89617151
327 326 2031.74323419
328 327 2031.07407983
329 328 2023.69445968
330 329 2023.30988068
331 330 2016.47518372
332 331 2014.94824268
333 332 2011.02893455
334 333 2006.15876519
335 334 2004.92738458
336 335 1998.53029424
337 336 1998.10014641
338 337 1990.55043288
339 338 1989.95217984
340 339 1985.92757379
341 340 1983.82477522
342 341 1981.9552659
343 342 1976.57179272
344 343 1975.96773746
345 344 1969.31480145
346 345 1968.97961806
347 346 1964.1826518
348 347 1963.24105772
349 348 1960.54863307
350 349 1956.68765069
351 350 1955.66193513
352 351 1950.17410455
353 352 1949.81850471
354 353 1944.37075284
355 354 1943.99280794
356 355 1940.19159667
357 356 1938.77166552
358 357 1936.58903939
359 358 1933.28521861
360 359 1932.68126824
361 360 1927.7648594
362 361 1927.45467053
363 362 1921.39384483
364 363 1920.5698676
365 364 1916.15617406
366 365 1913.74557052
367 366 1912.21626744
368 367 1907.79624893
369 368 1907.39130463
370 369 1901.54341104
371 370 1901.12880352
372 371 1897.00317356
373 372 1895.73866763
374 373 1893.52466254
375 374 1889.30033858
376 375 1888.87320234
377 376 1883.57849518
378 377 1883.23034908
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     379 378 1878.36764345
     380 379 1877.33297115
     381 380 1874.64373528
     382 381 1871.55516016
     383 382 1870.9885643
     384 383 1865.8404866
     385 384 1865.48503242
     386 385 1859.99851071
     387 386 1859.30629501
     388 387 1856.02771768
     389 388 1854.12344541
     390 389 1853.11097047
     391 390 1849.09311253
     392 391 1848.71839203
     393 392 1843.89999039
     394 393 1843.51987079
     395 394 1839.1789084
     396 395 1838.1951194
     397 396 1836.67544299
     398 397 1833.72097258
     399 398 1833.16651451
     400 399 1828.56449977
Final mean squared error (training) = 0.0872869907205 at iteration 400
Final CER (validation) = 0.0391594169102 at iteration 386
Trial>> analysis
(1) Use weights minimizing the validation error
(2) Use weights minimizing the training error
Which set of weights you would like to use? 1
Number of folds: k = 5
No. of training patterns = 10000
Fold = 1
No. of hidden layer neurons = 130
Number of weights in the neural network = 103360
No. of iterations = 391
CER per class (training)
  Columns 1 through 7
    0.0115    0.0397    0.0386    0.0438    0.0538    0.0313    0.0525
  Columns 8 through 10
    0.0298    0.0575    0.0153
Fold 1: RMSE = 0.0966593197048 | Average CER for all classes = 0.0373803463433
Fold = 2
No. of iterations = 398
CER per class (training)
  Columns 1 through 7
    0.0167    0.0359    0.0475    0.0418    0.0583    0.0313    0.0428
  Columns 8 through 10
    0.0257    0.0634    0.0163
Fold 2: RMSE = 0.0970623516805 | Average CER for all classes = 0.0379704861385
Fold = 3
No. of iterations = 398
CER per class (training)
  Columns 1 through 7
    0.0132    0.0378    0.0465    0.0448    0.0482    0.0334    0.0564
  Columns 8 through 10
    0.0298    0.0605    0.0133
Fold 3: RMSE = 0.0962324941913 | Average CER for all classes = 0.0383872492088
Fold = 4
No. of iterations = 399
CER per class (training)
  Columns 1 through 7
    0.0132    0.0397    0.0347    0.0346    0.0504    0.0355    0.0467
  Columns 8 through 10
```

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     0.0329    0.0595    0.0133
Fold 4: RMSE = 0.095749263404 | Average CER for all classes = 0.0360437199614
Fold = 5
No. of iterations = 386
CER per class (training)
  Columns 1 through 7
    0.0141    0.0359    0.0386    0.0377    0.0482    0.0271    0.0350
  Columns 8 through 10
    0.0277    0.0634    0.0153
Fold 5: RMSE = 0.0941786789193 | Average CER for all classes = 0.0343063306051
Average mean squared error for the k MLPs in train.mat = 0.09597642158
Trial>>
```