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train_logs.txttsne_epoch_100.pngtsne_epoch_200.pngtsne_epoch_300.pngtsne_epoch_400.pngtsne_epoch_499.pngtrain_logs.txtcifar100_bad_800_w1.ipynbmain.py

MaskCon_CVPR2023[original] > logs > 11309

MaskCon_CVPR2023[original] > models > model.py > MaskCon > forward

11309

Classification

0.0.94120.92800.93450.1000

11313

1.0.95700.95700.95700.1000

11314

2.0.94580.95900.95230.1000

11315

3.0.93620.95400.94500.1000

11316

4.0.91270.91000.91140.1000

11317

5.0.80610.76900.78710.1000

11318

6.0.79690.81600.80630.1000

53

class MaskCon(nn.Module):

155

def forward(self, im_k, im_q, coarse_label, args):

156

_, k = self.encoder_k(im_k) # keys: NxK

166

k = nn.functional.normalize(k, dim=1) # already normalized

167

undo shuffle

168

k = self._batch_unshuffle_single_gpu(k, idx_unshufflek)

169

170

soft-labels

171

coarse_z = torch.ones(len(q), self.K).cuda()

172

new_label = coarse_label.reshape(-1, 1).repeat(1, self.K)

173

memory_labels = self.coarse_labels.reshape(1, -1).repeat(len(q), 1)

174

coarse_z = coarse_z * (new_label == memory_labels)

175

logits_pd = torch.einsum('nc,ck->nk', [k, self.queue.clone().detach()])

176

logits_pd /= self.T2

177

logits_pd = logits_pd * coarse_z # mask out non-same-coarse class samples

178

logits_pd = logits_pd - logits_pd.max(dim=1, keepdim=True)[0]

179

pseudo_soft_z = logits_pd.exp() * coarse_z

180

pseudo_sum = torch.sum(pseudo_soft_z, dim=1, keepdim=True)

181

maskcon_z = torch.zeros(len(q), self.K + 1).cuda()

182

maskcon_z[:, 0] = 1

183

tmp = pseudo_soft_z / pseudo_sum

184

rescale by maximum

185

tmp = tmp / tmp.max(dim=1, keepdim=True)[0]

186

maskcon_z[:, 1:] = tmp

187

generate weighted inter-sample relations

188

maskcon_z = maskcon_z / maskcon_z.sum(dim=1, keepdim=True)

189

190

self supervised inter-sample relations

191

self_z = torch.zeros(len(q), self.K + 1).cuda()

192

self_z[:, 0] = 1.0

193

194

labels = args.w * maskcon_z + (1 - args.w) * self_z

195

196

l_neg = torch.einsum('nc,ck->nk', [q, self.queue.clone().detach()])

197

l_pos = torch.einsum('nc,nc->n', [q, k]).unsqueeze(-1)

198

logits: Nx(1+K)

199

logits_all = torch.cat([l_pos, l_neg], dim=1)

200

logits_all /= self.T1

201

202

loss = -torch.sum(F.log_softmax(logits_all, 1) * labels.detach(), 1).mean()

203

inside vs outside?

Talking: Wei Luo

CE

queue

KL(L)

| | | | | | |
|-----|-----|-----|-----|-----|-----|
| 0.9 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.1 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 | 0.0 | 0.9 | 0.1 | 0.0 | 0.0 |
| 0.0 | 0.0 | 0.1 | 0.9 | 0.0 | 0.0 |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 0.1 |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.9 |

$-\log 0.9$

| | | | | | |
|-----|-----|-----|-----|-----|-----|
| 0.9 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.1 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 |
| 0.0 | 0.0 | 0.9 | 0.1 | 0.0 | 0.0 |
| 0.0 | 0.0 | 0.1 | 0.9 | 0.0 | 0.0 |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 0.1 |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.9 |

SSH: gandalfmain*Launchpad000016505.07%0.00 GHz13.95/62.80 GBChen Feng, 16 months agoLn 170, Col 26Spaces: 4UTF-8LFPythonSelect Interpreter48 SpellOpen Search

12°CPartly sunny5:10 PM20/07/2024