**EfficientNetv2\_s,** training batch size=**128**, testing bs=**128,** optimizer=**SGD, lr=0.02**, **epoch=80**

+ RandomHorizontalFlip() + RandomCrop(32, padding=4)

num of classes: 6

training on cuda:0

epoch 1, loss 2.1298, train acc 0.250, test acc 0.196, time 168.9 sec

epoch 2, loss 0.9361, train acc 0.265, test acc 0.222, time 175.5 sec

epoch 3, loss 0.5652, train acc 0.330, test acc 0.284, time 182.4 sec

epoch 4, loss 0.3214, train acc 0.499, test acc 0.458, time 185.5 sec

epoch 5, loss 0.1612, train acc 0.702, test acc 0.569, time 187.4 sec

epoch 6, loss 0.0895, train acc 0.814, test acc 0.617, time 188.5 sec

epoch 7, loss 0.0614, train acc 0.853, test acc 0.633, time 188.6 sec

epoch 8, loss 0.0470, train acc 0.872, test acc 0.645, time 189.4 sec

epoch 9, loss 0.0371, train acc 0.888, test acc 0.647, time 189.3 sec

epoch 10, loss 0.0302, train acc 0.899, test acc 0.656, time 190.0 sec

epoch 11, loss 0.0256, train acc 0.908, test acc 0.656, time 190.0 sec

epoch 12, loss 0.0226, train acc 0.911, test acc 0.663, time 189.8 sec

epoch 13, loss 0.0196, train acc 0.917, test acc 0.671, time 190.1 sec

epoch 14, loss 0.0175, train acc 0.922, test acc 0.668, time 189.6 sec

epoch 15, loss 0.0157, train acc 0.923, test acc 0.669, time 189.6 sec

epoch 16, loss 0.0142, train acc 0.928, test acc 0.673, time 189.8 sec

epoch 17, loss 0.0129, train acc 0.930, test acc 0.676, time 189.6 sec

epoch 18, loss 0.0119, train acc 0.932, test acc 0.675, time 189.7 sec

epoch 19, loss 0.0107, train acc 0.935, test acc 0.674, time 189.8 sec

epoch 20, loss 0.0099, train acc 0.936, test acc 0.678, time 189.1 sec

epoch 21, loss 0.0095, train acc 0.937, test acc 0.678, time 189.8 sec

epoch 22, loss 0.0090, train acc 0.937, test acc 0.681, time 189.6 sec

epoch 23, loss 0.0083, train acc 0.939, test acc 0.671, time 190.5 sec

epoch 24, loss 0.0078, train acc 0.940, test acc 0.675, time 190.3 sec

epoch 25, loss 0.0076, train acc 0.938, test acc 0.681, time 189.8 sec

epoch 26, loss 0.0071, train acc 0.942, test acc 0.682, time 191.1 sec

epoch 27, loss 0.0067, train acc 0.943, test acc 0.682, time 190.0 sec

epoch 28, loss 0.0065, train acc 0.942, test acc 0.678, time 190.3 sec

epoch 29, loss 0.0063, train acc 0.942, test acc 0.680, time 189.9 sec

epoch 30, loss 0.0060, train acc 0.943, test acc 0.673, time 190.3 sec

epoch 31, loss 0.0059, train acc 0.942, test acc 0.676, time 190.2 sec

epoch 32, loss 0.0056, train acc 0.943, test acc 0.683, time 190.3 sec

epoch 33, loss 0.0055, train acc 0.942, test acc 0.674, time 190.0 sec

epoch 34, loss 0.0052, train acc 0.944, test acc 0.685, time 190.1 sec

epoch 35, loss 0.0051, train acc 0.944, test acc 0.678, time 190.3 sec

epoch 36, loss 0.0051, train acc 0.942, test acc 0.679, time 189.8 sec

epoch 37, loss 0.0048, train acc 0.944, test acc 0.676, time 190.1 sec

epoch 38, loss 0.0047, train acc 0.944, test acc 0.681, time 189.7 sec

epoch 39, loss 0.0045, train acc 0.944, test acc 0.679, time 190.2 sec

epoch 40, loss 0.0044, train acc 0.944, test acc 0.684, time 190.3 sec

epoch 41, loss 0.0044, train acc 0.946, test acc 0.682, time 189.9 sec

epoch 42, loss 0.0043, train acc 0.944, test acc 0.681, time 190.5 sec

epoch 43, loss 0.0042, train acc 0.944, test acc 0.679, time 190.6 sec

epoch 44, loss 0.0041, train acc 0.943, test acc 0.681, time 191.3 sec

epoch 45, loss 0.0040, train acc 0.943, test acc 0.675, time 190.9 sec

epoch 46, loss 0.0039, train acc 0.943, test acc 0.675, time 191.1 sec

epoch 47, loss 0.0040, train acc 0.942, test acc 0.676, time 191.5 sec

epoch 48, loss 0.0037, train acc 0.943, test acc 0.679, time 191.1 sec

epoch 49, loss 0.0038, train acc 0.942, test acc 0.682, time 191.4 sec

epoch 50, loss 0.0036, train acc 0.944, test acc 0.678, time 191.5 sec

epoch 51, loss 0.0036, train acc 0.942, test acc 0.686, time 191.3 sec

epoch 52, loss 0.0035, train acc 0.943, test acc 0.681, time 191.5 sec

epoch 53, loss 0.0035, train acc 0.942, test acc 0.675, time 191.5 sec

epoch 54, loss 0.0034, train acc 0.942, test acc 0.688, time 191.3 sec

epoch 55, loss 0.0034, train acc 0.942, test acc 0.674, time 191.8 sec

epoch 56, loss 0.0033, train acc 0.944, test acc 0.672, time 191.8 sec

epoch 57, loss 0.0032, train acc 0.942, test acc 0.681, time 191.1 sec

epoch 58, loss 0.0032, train acc 0.942, test acc 0.676, time 191.7 sec

epoch 59, loss 0.0031, train acc 0.942, test acc 0.674, time 191.8 sec

epoch 60, loss 0.0031, train acc 0.942, test acc 0.677, time 191.7 sec

epoch 61, loss 0.0021, train acc 0.962, test acc 0.697, time 191.7 sec

epoch 62, loss 0.0019, train acc 0.965, test acc 0.697, time 191.7 sec

epoch 63, loss 0.0018, train acc 0.967, test acc 0.698, time 190.7 sec

epoch 64, loss 0.0017, train acc 0.968, test acc 0.694, time 191.4 sec

epoch 65, loss 0.0016, train acc 0.969, test acc 0.694, time 191.0 sec

epoch 66, loss 0.0016, train acc 0.969, test acc 0.697, time 191.2 sec

epoch 67, loss 0.0016, train acc 0.969, test acc 0.698, time 190.9 sec

epoch 68, loss 0.0015, train acc 0.970, test acc 0.695, time 190.1 sec

epoch 69, loss 0.0015, train acc 0.969, test acc 0.695, time 191.1 sec

epoch 70, loss 0.0014, train acc 0.971, test acc 0.694, time 191.6 sec

epoch 71, loss 0.0014, train acc 0.971, test acc 0.696, time 191.4 sec

epoch 72, loss 0.0014, train acc 0.969, test acc 0.694, time 191.0 sec

epoch 73, loss 0.0014, train acc 0.970, test acc 0.695, time 191.2 sec

epoch 74, loss 0.0013, train acc 0.970, test acc 0.697, time 190.3 sec

epoch 75, loss 0.0013, train acc 0.971, test acc 0.694, time 191.0 sec

epoch 76, loss 0.0013, train acc 0.970, test acc 0.694, time 191.1 sec

epoch 77, loss 0.0013, train acc 0.971, test acc 0.696, time 190.6 sec

epoch 78, loss 0.0013, train acc 0.970, test acc 0.695, time 190.3 sec

epoch 79, loss 0.0012, train acc 0.971, test acc 0.697, time 189.9 sec

epoch 80, loss 0.0013, train acc 0.970, test acc 0.694, time 190.4 sec

Validation: Accuracy of the network: 95.65467075038285 %

OOD accuracy without the "unknown" label: Accuracy of the network: 69.38383527965581 %

threshold is 0.00:

Threshold accuracy: 70.075 %

Brier before calibration: 0.3935340532669391

ECE before calibration: 0.19183482021807746

calibrating...

Brier temperature\_scaling calibration: 0.37683195930905405

ECE temperature\_scaling calibration: 0.17738718245025054

threshold is 0.05:

Threshold accuracy: 70.075 %

Brier before calibration: 0.3935340532669391

ECE before calibration: 0.19183482021807746

calibrating...

Brier temperature\_scaling calibration: 0.37683195930905405

ECE temperature\_scaling calibration: 0.17738718245025054

threshold is 0.10:

Threshold accuracy: 70.075 %

Brier before calibration: 0.3935340532669391

ECE before calibration: 0.19183482021807746

calibrating...

Brier temperature\_scaling calibration: 0.37683195930905405

ECE temperature\_scaling calibration: 0.17738718245025054

threshold is 0.15:

Threshold accuracy: 70.075 %

Brier before calibration: 0.3935340532669391

ECE before calibration: 0.19183482021807746

calibrating...

Brier temperature\_scaling calibration: 0.37683195930905405

ECE temperature\_scaling calibration: 0.17738718245025054

threshold is 0.20:

Threshold accuracy: 70.075 %

Brier before calibration: 0.3935340532669391

ECE before calibration: 0.19183482021807746

calibrating...

Brier temperature\_scaling calibration: 0.37683195930905405

ECE temperature\_scaling calibration: 0.17738718245025054

threshold is 0.25:

Threshold accuracy: 70.075 %

Brier before calibration: 0.3935340532669391

ECE before calibration: 0.19183482021807746

calibrating...

Brier temperature\_scaling calibration: 0.37683195930905405

ECE temperature\_scaling calibration: 0.17738718245025054

threshold is 0.30:

Threshold accuracy: 70.075 %

Brier before calibration: 0.3935340532669391

ECE before calibration: 0.19183482021807746

calibrating...

Brier temperature\_scaling calibration: 0.37683195930905405

ECE temperature\_scaling calibration: 0.17738718245025054

threshold is 0.35:

Threshold accuracy: 70.513 %

Brier before calibration: 0.3935340532669391

ECE before calibration: 0.19473242891589482

calibrating...

Brier temperature\_scaling calibration: 0.37683195930905405

ECE temperature\_scaling calibration: 0.1809455048620298

threshold is 0.40:

Threshold accuracy: 71.723 %

Brier before calibration: 0.3935340532669391

ECE before calibration: 0.1984173634628174

calibrating...

Brier temperature\_scaling calibration: 0.37683195930905405

ECE temperature\_scaling calibration: 0.18542901093635958

threshold is 0.45:

Threshold accuracy: 73.198 %

Brier before calibration: 0.3935340532669391

ECE before calibration: 0.20215166018063405

calibrating...

Brier temperature\_scaling calibration: 0.37683195930905405

ECE temperature\_scaling calibration: 0.18979468078941528

threshold is 0.50:

Threshold accuracy: 74.892 %

Brier before calibration: 0.3935340532669391

ECE before calibration: 0.20572632902886287

calibrating...

Brier temperature\_scaling calibration: 0.37683195930905405

ECE temperature\_scaling calibration: 0.1936910800136667

threshold is 0.55:

Threshold accuracy: 76.587 %

Brier before calibration: 0.3935340532669391

ECE before calibration: 0.2084470738936731

calibrating...

Brier temperature\_scaling calibration: 0.37683195930905405

ECE temperature\_scaling calibration: 0.19703418767444913

threshold is 0.60:

Threshold accuracy: 78.150 %

Brier before calibration: 0.3935340532669391

ECE before calibration: 0.21058326186617973

calibrating...

Brier temperature\_scaling calibration: 0.37683195930905405

ECE temperature\_scaling calibration: 0.19889503765047586

threshold is 0.65:

Threshold accuracy: 79.687 %

Brier before calibration: 0.3935340532669391

ECE before calibration: 0.21150496025062002

calibrating...

Brier temperature\_scaling calibration: 0.37683195930905405

ECE temperature\_scaling calibration: 0.20014750276083731

threshold is 0.70:

Threshold accuracy: 81.108 %

Brier before calibration: 0.3935340532669391

ECE before calibration: 0.21198306115917728

calibrating...

Brier temperature\_scaling calibration: 0.37683195930905405

ECE temperature\_scaling calibration: 0.20082918294896066

threshold is 0.75:

Threshold accuracy: 82.495 %

Brier before calibration: 0.3935340532669391

ECE before calibration: 0.21211115392205462

calibrating...

Brier temperature\_scaling calibration: 0.37683195930905405

ECE temperature\_scaling calibration: 0.20074412495941932

threshold is 0.80:

Threshold accuracy: 83.778 %

Brier before calibration: 0.3935340532669391

ECE before calibration: 0.21128959280622467

calibrating...

Brier temperature\_scaling calibration: 0.37683195930905405

ECE temperature\_scaling calibration: 0.20036084386711847

threshold is 0.85:

Threshold accuracy: 84.961 %

Brier before calibration: 0.3935340532669391

ECE before calibration: 0.2102359128130237

calibrating...

Brier temperature\_scaling calibration: 0.37683195930905405

ECE temperature\_scaling calibration: 0.1992145142968476

threshold is 0.90:

Threshold accuracy: 85.445 %

Brier before calibration: 0.3935340532669391

ECE before calibration: 0.20892089674937336

calibrating...

Brier temperature\_scaling calibration: 0.37683195930905405

ECE temperature\_scaling calibration: 0.19822201438674036

threshold is 0.95:

Threshold accuracy: 84.461 %

Brier before calibration: 0.3935340532669391

ECE before calibration: 0.20738437590455452

calibrating...

E:\Projects\Github\pytorch-image-models\open-set-calibration\train\_partitioned.py:67: RuntimeWarning: More than 20 figures have been opened. Figures created through the pyplot interface (`matplotlib.pyplot.figure`) are retained until explicitly closed and may consu

me too much memory. (To control this warning, see the rcParam `figure.max\_open\_warning`).

plt.figure(figsize=(8, 8))

Brier temperature\_scaling calibration: 0.37683195930905405

ECE temperature\_scaling calibration: 0.19704966729743828

(base) E:\Projects\Github\pytorch-image-models\open-set-calibration>

ECE before calibration: 0.20892089674937336

calibrating...

Brier temperature\_scaling calibration: 0.37683195930905405

ECE temperature\_scaling calibration: 0.19822201438674036

threshold is 0.95:

Threshold accuracy: 84.461 %

Brier before calibration: 0.3935340532669391

ECE before calibration: 0.20738437590455452

calibrating...

Brier temperature\_scaling calibration: 0.37683195930905405

ECE temperature\_scaling calibration: 0.19704966729743828