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 1 C:\Software\anaconda3\envs\yunet\python.exe F:\fer-
   pi5\src\training\train_stage1.py
 2 Device: cuda
 3 Dataloaders ready: Train=35000, Val=32817, Test=32817
 4 MobileNetV3-large initialized (pretrained=True,
   num_classes=7)
 5 Class counts: [5000.0, 5000.0, 5000.0, 5000.0, 5000.0
   , 5000.0, 5000.0]
 6 Class weights (CB): [1.0000001192092896, 1.
   0000001192092896, 1.0000001192092896, 1.
   0000001192092896, 1.0000001192092896, 1.
   0000001192092896, 1.0000001192092896]
 7 Epoch 1/200 | lr 0.000250 | Train L/A/F1 1.4684/0.
   4536/0.4440 | Val L/A/F1 1.2289/0.5497/0.1003 | 113.
   7s
 8    -> Saved best to F:\fer-pi5\checkpoints\
   best_model_stage1.pth (Val F1=0.1003)
 9 Epoch 2/200 | lr 0.000500 | Train L/A/F1 1.2048/0.
   5799/0.5731 | Val L/A/F1 1.0612/0.6040/0.1078 | 60.1s
10    -> Saved best to F:\fer-pi5\checkpoints\
   best_model_stage1.pth (Val F1=0.1078)
11 Epoch 3/200 | lr 0.000500 | Train L/A/F1 1.0816/0.
   6271/0.6217 | Val L/A/F1 0.9875/0.6426/0.1114 | 59.9s
12    -> Saved best to F:\fer-pi5\checkpoints\
   best_model_stage1.pth (Val F1=0.1114)
13 Epoch 4/200 | lr 0.000500 | Train L/A/F1 1.0019/0.
   6647/0.6591 | Val L/A/F1 0.9763/0.6416/0.1122 | 59.8s
14    -> Saved best to F:\fer-pi5\checkpoints\
   best_model_stage1.pth (Val F1=0.1122)
15 Epoch 5/200 | lr 0.000500 | Train L/A/F1 0.9282/0.
   6973/0.6925 | Val L/A/F1 0.8376/0.7093/0.1193 | 60.0s
16    -> Saved best to F:\fer-pi5\checkpoints\
   best_model_stage1.pth (Val F1=0.1193)
17 Epoch 6/200 | lr 0.000500 | Train L/A/F1 0.8509/0.
   7296/0.7247 | Val L/A/F1 0.9353/0.6580/0.1140 | 59.8s
18 Epoch 7/200 | lr 0.000499 | Train L/A/F1 0.7752/0.
   7661/0.7617 | Val L/A/F1 0.9496/0.6732/0.1148 | 60.9s
19 Epoch 8/200 | lr 0.000499 | Train L/A/F1 0.7025/0.
   8004/0.7966 | Val L/A/F1 1.1033/0.6236/0.1100 | 60.7s
20 Epoch 9/200 | lr 0.000499 | Train L/A/F1 0.6348/0.
   8299/0.8263 | Val L/A/F1 0.9627/0.6781/0.1166 | 60.5s
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21 Epoch 10/200 | lr 0.000498 | Train L/A/F1 0.5751/0.
   8548/0.8514 | Val L/A/F1 0.9060/0.7006/0.1194 | 60.8s
22   -> Saved best to F:\fer-pi5\checkpoints\
   best_model_stage1.pth (Val F1=0.1194)
23 Epoch 11/200 | lr 0.000498 | Train L/A/F1 0.5253/0.
   8781/0.8752 | Val L/A/F1 0.9474/0.6950/0.1182 | 60.7s
24 Epoch 12/200 | lr 0.000497 | Train L/A/F1 0.4866/0.
   8982/0.8952 | Val L/A/F1 0.9795/0.6897/0.1174 | 60.2s
25 Epoch 13/200 | lr 0.000497 | Train L/A/F1 0.4478/0.
   9148/0.9127 | Val L/A/F1 0.9603/0.7103/0.1199 | 59.7s
26   -> Saved best to F:\fer-pi5\checkpoints\
   best_model_stage1.pth (Val F1=0.1199)
27 Epoch 14/200 | lr 0.000496 | Train L/A/F1 0.4250/0.
   9228/0.9209 | Val L/A/F1 1.0171/0.6931/0.1181 | 59.9s
28 Epoch 15/200 | lr 0.000495 | Train L/A/F1 0.4043/0.
   9322/0.9303 | Val L/A/F1 1.0506/0.6996/0.1195 | 59.8s
29 Epoch 16/200 | lr 0.000495 | Train L/A/F1 0.3870/0.
   9392/0.9372 | Val L/A/F1 1.1845/0.6524/0.1143 | 60.4s
30 Epoch 17/200 | lr 0.000494 | Train L/A/F1 0.3727/0.
   9463/0.9447 | Val L/A/F1 1.0886/0.6812/0.1169 | 60.7s
31 Epoch 18/200 | lr 0.000493 | Train L/A/F1 0.3617/0.
   9488/0.9475 | Val L/A/F1 1.1208/0.6745/0.1162 | 60.7s
32 Epoch 19/200 | lr 0.000492 | Train L/A/F1 0.3493/0.
   9558/0.9542 | Val L/A/F1 1.0991/0.6873/0.1174 | 61.1s
33 Epoch 20/200 | lr 0.000491 | Train L/A/F1 0.3428/0.
   9586/0.9573 | Val L/A/F1 1.0802/0.6989/0.1189 | 60.8s
34 Epoch 21/200 | lr 0.000490 | Train L/A/F1 0.3328/0.
   9629/0.9619 | Val L/A/F1 1.2252/0.6713/0.1163 | 60.6s
35 Epoch 22/200 | lr 0.000489 | Train L/A/F1 0.3271/0.
   9641/0.9629 | Val L/A/F1 1.0630/0.6946/0.1185 | 60.8s
36 Epoch 23/200 | lr 0.000488 | Train L/A/F1 0.3245/0.
   9653/0.9642 | Val L/A/F1 1.1583/0.6688/0.1159 | 60.6s
37 Epoch 24/200 | lr 0.000486 | Train L/A/F1 0.3142/0.
   9688/0.9679 | Val L/A/F1 1.0688/0.6907/0.1176 | 60.6s
38 Epoch 25/200 | lr 0.000485 | Train L/A/F1 0.3120/0.
   9692/0.9680 | Val L/A/F1 1.0592/0.7009/0.1194 | 60.5s
39 Epoch 26/200 | lr 0.000484 | Train L/A/F1 0.3069/0.
   9720/0.9711 | Val L/A/F1 1.0516/0.7026/0.1190 | 60.8s
40 Epoch 27/200 | lr 0.000482 | Train L/A/F1 0.3050/0.
   9712/0.9702 | Val L/A/F1 1.0926/0.6871/0.1179 | 60.5s
41 Epoch 28/200 | lr 0.000481 | Train L/A/F1 0.3018/0.
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41 9728/0.9721 | Val L/A/F1 1.0423/0.7024/0.1195 | 60.6s
42 Epoch 29/200 | lr 0.000479 | Train L/A/F1 0.2974/0.
   9753/0.9746 | Val L/A/F1 1.0106/0.7153/0.1205 | 60.5s
43   -> Saved best to F:\fer-pi5\checkpoints\
   best_model_stage1.pth (Val F1=0.1205)
44 Epoch 30/200 | lr 0.000477 | Train L/A/F1 0.2924/0.
   9774/0.9765 | Val L/A/F1 1.0822/0.6913/0.1182 | 60.6s
45 Epoch 31/200 | lr 0.000476 | Train L/A/F1 0.2878/0.
   9792/0.9784 | Val L/A/F1 1.0511/0.6992/0.1189 | 60.6s
46 Epoch 32/200 | lr 0.000474 | Train L/A/F1 0.2887/0.
   9777/0.9768 | Val L/A/F1 1.1139/0.6913/0.1179 | 60.6s
47 Epoch 33/200 | lr 0.000472 | Train L/A/F1 0.2882/0.
   9777/0.9770 | Val L/A/F1 1.0916/0.6896/0.1179 | 60.6s
48 Epoch 34/200 | lr 0.000470 | Train L/A/F1 0.2813/0.
   9803/0.9795 | Val L/A/F1 1.2716/0.6428/0.1127 | 60.7s
49 Epoch 35/200 | lr 0.000469 | Train L/A/F1 0.2803/0.
   9800/0.9793 | Val L/A/F1 1.0380/0.7051/0.1197 | 60.5s
50 Epoch 36/200 | lr 0.000467 | Train L/A/F1 0.2792/0.
   9800/0.9793 | Val L/A/F1 1.1021/0.6897/0.1184 | 60.6s
51 Epoch 37/200 | lr 0.000465 | Train L/A/F1 0.2747/0.
   9824/0.9818 | Val L/A/F1 1.0813/0.6945/0.1187 | 60.7s
52 Epoch 38/200 | lr 0.000463 | Train L/A/F1 0.2721/0.
   9833/0.9826 | Val L/A/F1 1.0417/0.7039/0.1196 | 60.5s
53 Epoch 39/200 | lr 0.000460 | Train L/A/F1 0.2744/0.
   9816/0.9810 | Val L/A/F1 1.0343/0.7065/0.1198 | 60.7s
54 Epoch 40/200 | lr 0.000458 | Train L/A/F1 0.2723/0.
   9830/0.9824 | Val L/A/F1 1.0269/0.7092/0.1201 | 60.7s
55 Epoch 41/200 | lr 0.000456 | Train L/A/F1 0.2691/0.
   9839/0.9835 | Val L/A/F1 1.0670/0.6993/0.1192 | 60.6s
56 Epoch 42/200 | lr 0.000454 | Train L/A/F1 0.2675/0.
   9835/0.9831 | Val L/A/F1 1.1041/0.6873/0.1176 | 60.6s
57 Epoch 43/200 | lr 0.000451 | Train L/A/F1 0.2662/0.
   9850/0.9844 | Val L/A/F1 1.0426/0.7065/0.1197 | 60.6s
58 Epoch 44/200 | lr 0.000449 | Train L/A/F1 0.2637/0.
   9860/0.9855 | Val L/A/F1 1.0074/0.7160/0.1206 | 60.5s
59   -> Saved best to F:\fer-pi5\checkpoints\
   best_model_stage1.pth (Val F1=0.1206)
60 Epoch 45/200 | lr 0.000447 | Train L/A/F1 0.2651/0.
   9844/0.9839 | Val L/A/F1 1.1088/0.6937/0.1186 | 60.7s
61 Epoch 46/200 | lr 0.000444 | Train L/A/F1 0.2638/0.
   9856/0.9852 | Val L/A/F1 1.0885/0.6980/0.1187 | 60.8s
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62 Epoch 47/200 | lr 0.000442 | Train L/A/F1 0.2599/0.
   9862/0.9859 | Val L/A/F1 1.0607/0.7023/0.1196 | 60.
   9s
63 Epoch 48/200 | lr 0.000439 | Train L/A/F1 0.2606/0.
   9861/0.9856 | Val L/A/F1 1.0896/0.6929/0.1182 | 60.
   7s
64 Epoch 49/200 | lr 0.000436 | Train L/A/F1 0.2592/0.
   9872/0.9865 | Val L/A/F1 1.0484/0.7040/0.1194 | 60.
   8s
65 Epoch 50/200 | lr 0.000434 | Train L/A/F1 0.2591/0.
   9862/0.9857 | Val L/A/F1 1.1338/0.6846/0.1173 | 60.
   8s
66 Epoch 51/200 | lr 0.000431 | Train L/A/F1 0.2608/0.
   9852/0.9847 | Val L/A/F1 1.0703/0.6994/0.1189 | 60.
   8s
67 Epoch 52/200 | lr 0.000428 | Train L/A/F1 0.2565/0.
   9876/0.9872 | Val L/A/F1 1.1059/0.6938/0.1186 | 60.
   6s
68 Epoch 53/200 | lr 0.000426 | Train L/A/F1 0.2531/0.
   9880/0.9876 | Val L/A/F1 1.1244/0.6885/0.1179 | 60.
   5s
69 Epoch 54/200 | lr 0.000423 | Train L/A/F1 0.2556/0.
   9874/0.9866 | Val L/A/F1 1.0830/0.6979/0.1189 | 60.
   5s
70 Epoch 55/200 | lr 0.000420 | Train L/A/F1 0.2506/0.
   9890/0.9885 | Val L/A/F1 1.0858/0.7016/0.1195 | 60.
   7s
71 Epoch 56/200 | lr 0.000417 | Train L/A/F1 0.2483/0.
   9900/0.9896 | Val L/A/F1 1.1065/0.6941/0.1181 | 60.
   7s
72 Epoch 57/200 | lr 0.000414 | Train L/A/F1 0.2541/0.
   9877/0.9872 | Val L/A/F1 1.0371/0.7154/0.1206 | 60.
   7s
73   -> Saved best to F:\fer-pi5\checkpoints\
   best_model_stage1.pth (Val F1=0.1206)
74 Epoch 58/200 | lr 0.000411 | Train L/A/F1 0.2517/0.
   9879/0.9875 | Val L/A/F1 1.1338/0.6893/0.1175 | 60.
   6s
75 Epoch 59/200 | lr 0.000408 | Train L/A/F1 0.2490/0.
   9890/0.9887 | Val L/A/F1 1.0968/0.6899/0.1180 | 60.
   6s
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76 Epoch 60/200 | lr 0.000405 | Train L/A/F1 0.2508/0.
   9879/0.9875 | Val L/A/F1 1.1851/0.6742/0.1161 | 60.
   6s
77 Epoch 61/200 | lr 0.000402 | Train L/A/F1 0.2502/0.
   9888/0.9883 | Val L/A/F1 1.0480/0.7091/0.1199 | 60.
   5s
78 Epoch 62/200 | lr 0.000398 | Train L/A/F1 0.2483/0.
   9893/0.9889 | Val L/A/F1 1.0460/0.7103/0.1202 | 60.
   5s
79 Epoch 63/200 | lr 0.000395 | Train L/A/F1 0.2477/0.
   9887/0.9882 | Val L/A/F1 1.0485/0.7072/0.1199 | 60.
   6s
80 Epoch 64/200 | lr 0.000392 | Train L/A/F1 0.2439/0.
   9909/0.9905 | Val L/A/F1 1.2248/0.6634/0.1150 | 60.
   6s
81 Epoch 65/200 | lr 0.000389 | Train L/A/F1 0.2461/0.
   9899/0.9895 | Val L/A/F1 1.1778/0.6797/0.1169 | 60.
   6s
82 Epoch 66/200 | lr 0.000385 | Train L/A/F1 0.2426/0.
   9915/0.9913 | Val L/A/F1 1.0910/0.6961/0.1191 | 60.
   7s
83 Epoch 67/200 | lr 0.000382 | Train L/A/F1 0.2446/0.
   9904/0.9901 | Val L/A/F1 1.0566/0.7095/0.1200 | 60.
   6s
84 Epoch 68/200 | lr 0.000379 | Train L/A/F1 0.2446/0.
   9906/0.9902 | Val L/A/F1 1.1342/0.6828/0.1177 | 60.
   6s
85 Epoch 69/200 | lr 0.000375 | Train L/A/F1 0.2399/0.
   9926/0.9924 | Val L/A/F1 1.1238/0.6952/0.1182 | 60.
   6s
86 Epoch 70/200 | lr 0.000372 | Train L/A/F1 0.2406/0.
   9918/0.9915 | Val L/A/F1 1.0577/0.7093/0.1201 | 60.
   7s
87 Epoch 71/200 | lr 0.000368 | Train L/A/F1 0.2425/0.
   9910/0.9906 | Val L/A/F1 1.0693/0.7046/0.1197 | 60.
   6s
88 Epoch 72/200 | lr 0.000365 | Train L/A/F1 0.2411/0.
   9912/0.9909 | Val L/A/F1 1.0414/0.7136/0.1204 | 60.
   7s
89 Epoch 73/200 | lr 0.000361 | Train L/A/F1 0.2407/0.
   9915/0.9910 | Val L/A/F1 1.2060/0.6670/0.1160 | 60.
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89 8s
90 Epoch 74/200 | lr 0.000358 | Train L/A/F1 0.2388/0.
   9923/0.9921 | Val L/A/F1 1.0627/0.7085/0.1199 | 60.
   7s
91 Epoch 75/200 | lr 0.000354 | Train L/A/F1 0.2401/0.
   9919/0.9917 | Val L/A/F1 1.1022/0.6948/0.1183 | 60.
   7s
92 Epoch 76/200 | lr 0.000351 | Train L/A/F1 0.2379/0.
   9929/0.9925 | Val L/A/F1 1.1457/0.6879/0.1179 | 60.
   7s
93 Epoch 77/200 | lr 0.000347 | Train L/A/F1 0.2384/0.
   9920/0.9917 | Val L/A/F1 1.1187/0.6959/0.1186 | 60.
   6s
94 Early stop: no improvement.
95 [evaluate] Loading checkpoint: F:\fer-pi5\
   checkpoints\best_model_stage1.pth
96 [evaluate:val] Loss=1.0132, Acc=0.7189, F1(eval)=0.
   1210, F1(CM)=0.6497
97 [evaluate:test] Loss=1.0020, Acc=0.7201, F1(eval)=0.
   1211, F1(CM)=0.6507
98 [evaluate] Finished. Artifacts -> F:\fer-pi5\
   checkpoints
99 [final-eval] confusion matrix & per-class metrics
   written.
100
101 □□□□□□□□□□□ 0
102
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