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File - model_summary
1 G:\Anaconda3\envs\dlml\python.exe F:/FSR/SNIKO_Paper/model_summary.py
2 2018-12-11 06:11:28.938609: I tensorflow/core/platform/cpu_feature_guard.cc:141] Your CPU
3 supports instructions that this TensorFlow binary was not compiled to use: AVX2
3 2018-12-11 06:11:29.815063: I tensorflow/core/common_runtime/gpu/gpu_device.cc:1411] Found
device 0 with properties:
4 name: GeForce 940M major: 5 minor: 0 memoryClockRate(GHz): 1.176
5 pciBusID: 0000:04:00.0
6 totalMemory: 2.00GiB freeMemory: 1.65GiB
7 2018-12-11 06:11:29.815681: I tensorflow/core/common_runtime/gpu/gpu_device.cc:1490] Adding
visible gpu devices: 0
8 2018-12-11 06:11:31.485695: I tensorflow/core/common_runtime/gpu/gpu_device.cc:971] Device
interconnect StreamExecutor with strength 1 edge matrix:
9 2018-12-11 06:11:31.486021: I tensorflow/core/common_runtime/gpu/gpu_device.cc:977]      0
10 2018-12-11 06:11:31.486220: I tensorflow/core/common_runtime/gpu/gpu_device.cc:990] 0:   N
11 2018-12-11 06:11:31.487105: I tensorflow/core/common_runtime/gpu/gpu_device.cc:1103] Created
TensorFlow device (/job:localhost/replica:0/task:0/device:GPU:0 with 1402 MB memory) →
physical GPU (device: 0, name: GeForce 940M, pci bus id: 0000:04:00.0, compute capability: 5
.)
12 mobilenet jumlah layer: 95 awal 93
13 -----
14 Layer (type)          Output Shape         Param #
15 =====
16 input_1 (InputLayer)  (None, 224, 3)      0
17 conv1_pad (ZeroPadding2D) (None, 225, 3)      0
18 conv1 (Conv2D)        (None, 225, 225, 3)    864
19 conv1_bn (BatchNormalization) (None, 112, 112, 32) 128
20 conv1_relu (ReLU)     (None, 112, 112, 32)    0

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File - model_summary
26 conv_dw_1 (DepthwiseConv2D) (None, 112, 112, 32) 288
27
28 conv_dw_1_bn (BatchNormaliza (None, 112, 112, 32) 128
29
30 conv_dw_1_relu (ReLU) (None, 112, 112, 32) 0
31
32 conv_pw_1 (Conv2D) (None, 112, 112, 64) 2048
33
34 conv_pw_1_bn (BatchNormaliza (None, 112, 112, 64) 256
35
36 conv_pw_1_relu (ReLU) (None, 112, 112, 64) 0
37
38 conv_pad_2 (ZeroPadding2D) (None, 112, 112, 64) 0
39
40 conv_dw_2 (DepthwiseConv2D) (None, 113, 113, 64) 576
41
42 conv_dw_2_bn (BatchNormaliza (None, 56, 56, 64) 256
43
44 conv_dw_2_relu (ReLU) (None, 56, 56, 64) 0
45
46 conv_pw_2 (Conv2D) (None, 56, 56, 128) 8192
47
48 conv_pw_2_bn (BatchNormaliza (None, 56, 56, 128) 512
49
50 conv_pw_2_relu (ReLU) (None, 56, 56, 128) 0
51
52 conv_dw_3 (DepthwiseConv2D) (None, 56, 56, 128) 1152
53
54 conv_dw_3_bn (BatchNormaliza (None, 56, 56, 128) 512
55
56 conv_dw_3_relu (ReLU) (None, 56, 56, 128) 0
57
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File - model_summary
58 conv_pw_3 (Conv2D) (None, 56, 56, 128) 16384
59
60 conv_pw_3_bn (BatchNormaliza (None, 56, 56, 128) 512
61
62 conv_pw_3_relu (ReLU) (None, 56, 56, 128) 0
63
64 conv_pad_4 (ZeroPadding2D) (None, 57, 57, 128) 0
65
66 conv_dw_4 (DepthwiseConv2D) (None, 28, 28, 128) 1152
67
68 conv_dw_4_bn (BatchNormaliza (None, 28, 28, 128) 512
69
70 conv_dw_4_relu (ReLU) (None, 28, 28, 128) 0
71
72 conv_pw_4 (Conv2D) (None, 28, 28, 256) 32768
73
74 conv_pw_4_bn (BatchNormaliza (None, 28, 28, 256) 1024
75
76 conv_pw_4_relu (ReLU) (None, 28, 28, 256) 0
77
78 conv_dw_5 (DepthwiseConv2D) (None, 28, 28, 256) 2304
79
80 conv_dw_5_bn (BatchNormaliza (None, 28, 28, 256) 1024
81
82 conv_dw_5_relu (ReLU) (None, 28, 28, 256) 0
83
84 conv_pw_5 (Conv2D) (None, 28, 28, 256) 65536
85
86 conv_pw_5_bn (BatchNormaliza (None, 28, 28, 256) 1024
87
88 conv_pw_5_relu (ReLU) (None, 28, 28, 256) 0
89
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90 conv_pad_6 (ZeroPadding2D) (None, 29, 29, 256) 0
91
92 conv_dw_6 (DepthwiseConv2D) (None, 14, 14, 256) 2304
93
94 conv_dw_6_bn (BatchNormaliza (None, 14, 14, 256) 1024
95
96 conv_dw_6_relu (ReLU) (None, 14, 14, 256) 0
97
98 conv_pw_6 (Conv2D) (None, 14, 14, 512) 131072
99
100 conv_pw_6_bn (BatchNormaliza (None, 14, 14, 512) 2048
101
102 conv_pw_6_relu (ReLU) (None, 14, 14, 512) 0
103
104 conv_dw_7 (DepthwiseConv2D) (None, 14, 14, 512) 4608
105
106 conv_dw_7_bn (BatchNormaliza (None, 14, 14, 512) 2048
107
108 conv_dw_7_relu (ReLU) (None, 14, 14, 512) 0
109
110 conv_pw_7 (Conv2D) (None, 14, 14, 512) 262144
111
112 conv_pw_7_bn (BatchNormaliza (None, 14, 14, 512) 2048
113
114 conv_pw_7_relu (ReLU) (None, 14, 14, 512) 0
115
116 conv_dw_8 (DepthwiseConv2D) (None, 14, 14, 512) 4608
117
118 conv_dw_8_bn (BatchNormaliza (None, 14, 14, 512) 2048
119
120 conv_dw_8_relu (ReLU) (None, 14, 14, 512) 0
121
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File - model_summary
122 conv_pw_8 (Conv2D) (None, 14, 14, 512) 262144
123
124 conv_pw_8_bn (BatchNormaliza (None, 14, 14, 512) 2048
125
126 conv_pw_8_relu (ReLU) (None, 14, 14, 512) 0
127
128 conv_dw_9 (DepthwiseConv2D) (None, 14, 14, 512) 4608
129
130 conv_dw_9_bn (BatchNormaliza (None, 14, 14, 512) 2048
131
132 conv_dw_9_relu (ReLU) (None, 14, 14, 512) 0
133
134 conv_pw_9 (Conv2D) (None, 14, 14, 512) 262144
135
136 conv_pw_9_bn (BatchNormaliza (None, 14, 14, 512) 2048
137
138 conv_pw_9_relu (ReLU) (None, 14, 14, 512) 0
139
140 conv_dw_10 (DepthwiseConv2D) (None, 14, 14, 512) 4608
141
142 conv_dw_10_bn (BatchNormaliz (None, 14, 14, 512) 2048
143
144 conv_dw_10_relu (ReLU) (None, 14, 14, 512) 0
145
146 conv_pw_10 (Conv2D) (None, 14, 14, 512) 262144
147
148 conv_pw_10_bn (BatchNormaliz (None, 14, 14, 512) 2048
149
150 conv_pw_10_relu (ReLU) (None, 14, 14, 512) 0
151
152 conv_dw_11 (DepthwiseConv2D) (None, 14, 14, 512) 4608
153

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File - model_summary
154 conv_dw_11_bn (BatchNormaliz (None, 14, 14, 512) 2048
155 conv_dw_11_relu (ReLU) (None, 14, 14, 512) 0
156
157 conv_pw_11 (Conv2D) (None, 14, 14, 512) 262144
158
159 conv_pw_11_bn (BatchNormaliz (None, 14, 14, 512) 2048
160
161 conv_pw_11_relu (ReLU) (None, 14, 14, 512) 2048
162
163 conv_pad_12 (ZeroPadding2D) (None, 15, 15, 512) 0
164
165 conv_dw_12 (DepthwiseConv2D) (None, 7, 7, 512) 4608
166
167 conv_dw_12_bn (BatchNormaliz (None, 7, 7, 512) 4608
168
169 conv_dw_12_relu (ReLU) (None, 7, 7, 512) 2048
170
171 conv_pw_12 (Conv2D) (None, 7, 7, 1024) 524288
172
173 conv_pw_12_bn (BatchNormaliz (None, 7, 7, 1024) 4096
174
175 conv_pw_12_relu (ReLU) (None, 7, 7, 1024) 0
176
177 conv_dw_13 (DepthwiseConv2D) (None, 7, 7, 1024) 9216
178
179 conv_dw_13_bn (BatchNormaliz (None, 7, 7, 1024) 4096
180
181 conv_dw_13_relu (ReLU) (None, 7, 7, 1024) 0
182
183 conv_pw_13 (Conv2D) (None, 7, 7, 1024) 1048576
184
185
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File - model_summary
186 conv_pw_13_bn (BatchNormaliz (None, 7, 7, 1024) 4096
187 -----
188 conv_pw_13_relu (ReLU) (None, 7, 7, 1024) 0
189 -----
190 global_average_pooling2d (GL (None, 1024) 0
191 -----
192 reshape_1 (Reshape) (None, 1, 1, 1024) 0
193 -----
194 dropout (Dropout) (None, 1, 1, 1024) 0
195 -----
196 conv_preds (Conv2D) (None, 1, 1, 1000) 1025000
197 -----
198 act_softmax (Activation) (None, 1, 1, 1000) 0
199 -----
200 reshape_2 (Reshape) (None, 1000) 0
201 -----
202 do_akhir (Dropout) (None, 1000) 0
203 -----
204 dense (Dense) (None, 7) 7007
205 =====
206 Total params: 4,260,871
207 Trainable params: 2,626,887
208 Non-trainable params: 1,633,984
209 -----
210 None
211 =====
212 mobilenet_v2 jumlah layer: 159 awal 157
213 -----
214 Layer (type) Output Shape Param # Connected to
215 =====
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File - model_summary
215 =====
216 input_2 (InputLayer)          (None, 224, 224, 3) 0
217 -----
218 Conv1_pad (ZeroPadding2D)    (None, 225, 225, 3) 0      input_2[0][0]
219 ]
220 Conv1 (Conv2D)              (None, 112, 112, 32) 864  Conv1_pad[0][0]
221 ]
222 bn_Conv1 (BatchNormalization) (None, 112, 112, 32) 128  Conv1[0][0]
223 ]
224 Conv1_relu (ReLU)           (None, 112, 112, 32) 0      bn_Conv1[0][0]
225 ]
226 expanded_conv_depthwise (Depthwise_BN (None, 112, 112, 32) 288  Conv1_relu[0][0]
227 ]
228 expanded_conv_depthwise_BN (Batch (None, 112, 112, 32) 128  expanded_conv_depthwise_BN
229 [0][0]
230 expanded_conv_depthwise_relu (ReLU (None, 112, 112, 32) 0      expanded_conv_depthwise_BN
231 [0][0]
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File - model_summary
231 -----
232 expanded_conv_project (Conv2D) (None, 112, 112, 16) 512
expanded_conv_depthwise_relu[0][0]
233 -----
234 expanded_conv_project_BN (Batch (None, 112, 112, 16) 64
expanded_conv_project[0][0]
]
235 -----
236 block_1_expand (Conv2D) (None, 112, 112, 96) 1536
expanded_conv_project_BN[0]
]
237 -----
238 block_1_expand_BN (BatchNormali (None, 112, 112, 96) 384
block_1_expand[0][0]
]
239 -----
240 block_1_expand_relu (ReLU) (None, 112, 112, 96) 0
block_1_expand_BN[0][0]
]
241 -----
242 block_1_pad (ZeroPadding2D) (None, 113, 113, 96) 0
block_1_expand_relu[0][0]
]
243 -----
244 block_1_depthwise (DepthwiseCon (None, 56, 56, 96) 864
block_1_pad[0][0]
]
245 -----
246 block_1_depthwise_BN (BatchNorm (None, 56, 56, 96) 384
block_1_depthwise[0][0]
]
247 -----
```

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File - model_summary
247 block_1_depthwise_relu (ReLU)      (None, 56, 56, 96)   0          block_1_depthwise_BN[θ][θ]
248 ]
249 -----
250 block_1_project (Conv2D)        (None, 56, 56, 24)    2304      block_1_depthwise_relu[θ][θ]
251 ]
252 block_1_project_BN (BatchNormal (None, 56, 56, 24)    96       block_1_project[θ][θ]
253 ]
254 block_2_expand (Conv2D)        (None, 56, 56, 144)   3456      block_1_project_BN[θ][θ]
255 ]
256 block_2_expand_BN (BatchNormali (None, 56, 56, 144)   576      block_2_expand[θ][θ]
257 ]
258 block_2_expand_relu (ReLU)      (None, 56, 56, 144)   0          block_2_expand_BN[θ][θ]
259 ]
260 block_2_depthwise (DepthwiseCon (None, 56, 56, 144)   1296      block_2_expand_relu[θ][θ]
261 ]
262 block_2_depthwise_BN (BatchNorm (None, 56, 56, 144)   576      block_2_depthwise[θ][θ]
263 ]
```

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File - model_summary
263   block_2_depthwise_relu (ReLU)      (None, 56, 56, 144) 0          block_2_depthwise_BN[0][0]
264   ]
265   -----
266   block_2_project (Conv2D)           (None, 56, 56, 24) 3456      block_2_depthwise_relu[0][0]
267   ]
268   block_2_project_BN (BatchNormal (None, 56, 56, 24) 96        block_2_project[0][0]
269   ]
270   block_2_add (Add)                (None, 56, 56, 24) 0          block_1_project_BN[0][0]
271   ]
272   -----
273   block_3_expand (Conv2D)           (None, 56, 56, 144) 3456      block_2_add[0][0]
274   ]
275   block_3_expand_BN (BatchNormali (None, 56, 56, 144) 576       block_3_expand[0][0]
276   ]
277   block_3_expand_relu (ReLU)       (None, 56, 56, 144) 0          block_3_expand_BN[0][0]
278   ]
279   block_3_pad (ZeroPadding2D)     (None, 57, 57, 144) 0          block_3_expand_relu[0][0]
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File - model_summary
279 ]
280 -----
281 block_3_depthwise (DepthwiseConv (None, 28, 28, 144) 1296      block_3_pad[θ][θ]
282 ]
283 block_3_depthwise_BN (BatchNorm (None, 28, 28, 144) 576      block_3_depthwise[θ][θ]
284 ]
285 block_3_depthwise_relu (ReLU)   (None, 28, 28, 144) 0      block_3_depthwise_BN[θ][θ]
286 ]
287 block_3_project (Conv2D)       (None, 28, 28, 32) 4608      block_3_depthwise_relu[θ][θ]
288 ]
289 block_3_project_BN (BatchNormal (None, 28, 28, 32) 128      block_3_project[θ][θ]
290 ]
291 block_4_expand (Conv2D)       (None, 28, 28, 192) 6144      block_3_project_BN[θ][θ]
292 ]
293 block_4_expand_BN (BatchNormali (None, 28, 28, 192) 768      block_4_expand[θ][θ]
294 ]
295 block_4_expand_relu (ReLU)    (None, 28, 28, 192) 0      block_4_expand_BN[θ][θ]
```

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File - model_summary
295 ]
296 -----
297 block_4_depthwise (DepthwiseConv (None, 28, 28, 192) 1728      block_4_expand_relu[θ][θ]
]
298 -----
299 block_4_depthwise_BN (BatchNorm (None, 28, 28, 192) 768      block_4_depthwise[θ][θ]
]
300 -----
301 block_4_depthwise_relu (ReLU)  (None, 28, 28, 192) 0      block_4_depthwise_BN[θ][θ]
]
302 -----
303 block_4_project (Conv2D)      (None, 28, 28, 32) 6144      block_4_depthwise_relu[θ][θ]
θ]
304 -----
305 block_4_project_BN (BatchNormal (None, 28, 28, 32) 128      block_4_project[θ][θ]
]
306 -----
307 block_4_add (Add)           (None, 28, 28, 32) 0      block_3_project_BN[θ][θ]
]
308 -----
309 -----
310 block_5_expand (Conv2D)      (None, 28, 28, 192) 6144      block_4_add[θ][θ]
]
311 -----
```

```
File - model_summary
311   block_5_expand_BN (BatchNormali (None, 28, 28, 192) 768      block_5_expand[θ][θ]
312   ]
313   ]
314   block_5_expand_relu (ReLU)    (None, 28, 28, 192) 0      block_5_expand_BN[θ][θ]
315   ]
316   block_5_depthwise (DepthwiseCon (None, 28, 28, 192) 1728      block_5_expand_relu[θ][θ]
317   ]
318   block_5_depthwise_BN (BatchNorm (None, 28, 28, 192) 768      block_5_depthwise[θ][θ]
319   ]
320   block_5_depthwise_relu (ReLU)  (None, 28, 28, 192) 0      block_5_depthwise_BN[θ][θ]
321   ]
322   block_5_project (Conv2D)     (None, 28, 28, 32) 6144      block_5_depthwise_relu[θ][θ]
323   ]
324   block_5_project_BN (BatchNormal (None, 28, 28, 32) 128      block_5_project[θ][θ]
325   ]
326   block_5_add (Add)          (None, 28, 28, 32) 0      block_4_add[θ][θ]
327   ]
block_5_project_BN[θ][θ]
```

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File - model_summary
327 ]
328 -----
329 block_6_expand (Conv2D)      (None, 28, 28, 192) 6144      block_5_add[θ][θ]
330 ]
331 block_6_expand_BN (BatchNormali (None, 28, 28, 192) 768      block_6_expand[θ][θ]
332 ]
333 block_6_expand_relu (ReLU)    (None, 28, 28, 192) 0      block_6_expand_BN[θ][θ]
334 ]
335 block_6_pad (ZeroPadding2D)  (None, 29, 29, 192) 0      block_6_expand_relu[θ][θ]
336 ]
337 block_6_depthwise (DepthwiseCon (None, 14, 14, 192) 1728      block_6_pad[θ][θ]
338 ]
339 block_6_depthwise_BN (BatchNorm (None, 14, 14, 192) 768      block_6_depthwise[θ][θ]
340 ]
341 block_6_depthwise_relu (ReLU)  (None, 14, 14, 192) 0      block_6_depthwise_BN[θ][θ]
342 ]
343 block_6_project (Conv2D)     (None, 14, 14, 64) 12288      block_6_depthwise_relu[θ][θ]
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File - model_summary
343 0]
344
345 block_6_project_BN (BatchNormal (None, 14, 14, 64) 256      block_6_project[θ][θ]
]
346
347 block_7_expand (Conv2D)      (None, 14, 14, 384) 24576      block_6_project_BN[θ][θ]
]
348
349 block_7_expand_BN (BatchNormali (None, 14, 14, 384) 1536      block_7_expand[θ][θ]
]
350
351 block_7_expand_relu (ReLU)    (None, 14, 14, 384) 0        block_7_expand_BN[θ][θ]
]
352
353 block_7_depthwise (DepthwiseCon (None, 14, 14, 384) 3456      block_7_expand_relu[θ][θ]
]
354
355 block_7_depthwise_BN (BatchNorm (None, 14, 14, 384) 1536      block_7_depthwise[θ][θ]
]
356
357 block_7_depthwise_relu (ReLU)  (None, 14, 14, 384) 0        block_7_depthwise_BN[θ][θ]
]
358
359 block_7_project (Conv2D)      (None, 14, 14, 64) 24576      block_7_depthwise_relu[θ][θ]
```

```
File - model_summary
359 0]
360
361 block_7_project_BN (BatchNormal (None, 14, 14, 64) 256      block_7_project[θ][θ]
]
362
363 block_7_add (Add)
364   [
365     (
366       block_8_expand (Conv2D)
367         (
368           block_8_expand_BN (BatchNormali (None, 14, 14, 384) 1536      block_8_expand[θ][θ]
369         ]
370       block_8_expand_relu (ReLU)
371         (
372           block_8_depthwise (DepthwiseCon (None, 14, 14, 384) 3456      block_8_expand_depthwise[θ][θ]
373         ]
374       block_8_depthwise_BN (BatchNorm (None, 14, 14, 384) 1536      block_8_depthwise[θ][θ]
375     ]
)
```

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File - model_summary
375 block_8_depthwise_relu (ReLU)      (None, 14, 14, 384) 0          block_8_depthwise_BN[0][0]
376 ]
377 -----
378 block_8_project (Conv2D)      (None, 14, 14, 64)   24576    block_8_depthwise_relu[0][0]
379 ]
380 block_8_project_BN (BatchNormal (None, 14, 14, 64) 256      block_8_project[0][0]
381 ]
382 block_8_add (Add)        (None, 14, 14, 64) 0          block_7_add[0][0]
383 ]
384 block_8_expand (Conv2D)      (None, 14, 14, 384) 24576    block_8_project_BN[0][0]
385 ]
386 block_9_expand_BN (BatchNormali (None, 14, 14, 384) 1536      block_8_expand[0][0]
387 ]
388 block_9_expand_relu (ReLU)      (None, 14, 14, 384) 0          block_9_expand_BN[0][0]
389 ]
390 block_9_depthwise (DepthwiseCon (None, 14, 14, 384) 3456      block_9_expand_relu[0][0]
```

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File - model_summary
391 ]
392 -----
393 block_9_depthwise_BN (BatchNorm (None, 14, 14, 384) 1536      block_9_depthwise[θ][θ]
]
394 -----
395 block_9_depthwise_relu (ReLU)  (None, 14, 14, 384)  0          block_9_depthwise_BN[θ][θ]
]
396 -----
397 block_9_project (Conv2D)      (None, 14, 14, 64)  24576      block_9_depthwise_relu[θ][θ]
θ]
398 -----
399 block_9_project_BN (BatchNormal (None, 14, 14, 64)  256       block_9_project[θ][θ]
]
400 -----
401 block_9_add (Add)           (None, 14, 14, 64)  0          block_8_add[θ][θ]
]
402 ]
403 -----
404 block_1θ_expand (Conv2D)    (None, 14, 14, 384)  24576      block_9_add[θ][θ]
]
405 -----
406 block_1θ_expand_BN (BatchNormal (None, 14, 14, 384)  1536      block_1θ_expand[θ][θ]
]
407 -----
```

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File - model_summary
407 block_10_expand_relu (ReLU)      (None, 14, 14, 384) 0          block_10_expand_BN[0][0]
408 ]
409 -----
410 block_10_depthwise (DepthwiseCo (None, 14, 14, 384) 3456      block_10_expand_relu[0][0]
411 ]
412 block_10_depthwise_BN (BatchNorm (None, 14, 14, 384) 1536      block_10_depthwise[0][0]
413 ]
414 block_10_depthwise_relu (ReLU) (None, 14, 14, 384) 0          block_10_depthwise_BN[0][0]
415 ]
416 block_10_project (Conv2D)       (None, 14, 14, 96) 36864      block_10_depthwise_relu[0]
417 ][0]
418 block_10_project_BN (BatchNormal (None, 14, 14, 96) 384      block_10_project[0][0]
419 ]
420 block_11_expand (Conv2D)       (None, 14, 14, 576) 55296      block_10_project_BN[0][0]
421 ]
422 block_11_expand_BN (BatchNormal (None, 14, 14, 576) 2304      block_11_expand[0][0]
423 ]
```

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File - model_summary
423   block_11_expand_relu (ReLU)      (None, 14, 14, 576) 0          block_11_expand_BN[0][0]
424   ]
425   -----
426   block_11_depthwise (DepthwiseCo (None, 14, 14, 576) 5184      block_11_expand_relu[0][0]
427   ]
428   block_11_depthwise_BN (BatchNorm (None, 14, 14, 576) 2304      block_11_depthwise[0][0]
429   ]
430   block_11_depthwise_relu (ReLU) (None, 14, 14, 576) 0          block_11_depthwise_BN[0][0]
431   ]
432   block_11_project (Conv2D)       (None, 14, 14, 96) 55296      block_11_depthwise_relu[0]
433   ][0]
434   block_11_project_BN (BatchNorm (None, 14, 14, 96) 384        block_11_project[0][0]
435   ]
436   block_11_add (Add)            (None, 14, 14, 96) 0          block_10_project_BN[0][0]
437   ]
438   ]
439   block_12_expand (Conv2D)      (None, 14, 14, 576) 55296      block_11_add[0][0]
```

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File - model_summary  
439 ]  
440 -----  
441 block_12_expand_BN (BatchNormal (None, 14, 14, 576) 2304      block_12_expand[0][0]  
]  
442 -----  
443 block_12_expand_relu (ReLU)      (None, 14, 14, 576) 0      block_12_expand_BN[0][0]  
]  
444 -----  
445 block_12_depthwise (DepthwiseCo (None, 14, 14, 576) 5184      block_12_expand_relu[0][0]  
]  
446 -----  
447 block_12_depthwise_BN (BatchNor (None, 14, 14, 576) 2304      block_12_depthwise[0][0]  
]  
448 -----  
449 block_12_depthwise_relu (ReLU)      (None, 14, 14, 576) 0      block_12_depthwise_BN[0][0]  
]  
450 -----  
451 block_12_project (Conv2D)      (None, 14, 14, 96) 55296      block_12_depthwise_relu[0]  
][0]  
452 -----  
453 block_12_project_BN (BatchNorma (None, 14, 14, 96) 384      block_12_project[0][0]  
]  
454 -----  
455 block_12_add (Add)      (None, 14, 14, 96) 0      block_11_add[0][0]
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File - model_summary
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456 ]
457 ]
458 block_13_expand (Conv2D)      (None, 14, 14, 576) 55296      block_12_add[0][0]
459 ]
460 block_13_expand_BN (BatchNormal (None, 14, 14, 576) 2304      block_13_expand[0][0]
461 ]
462 block_13_expand_relu (ReLU)   (None, 14, 14, 576) 0       block_13_expand_BN[0][0]
463 ]
464 block_13_pad (ZeroPadding2D) (None, 15, 15, 576) 0       block_13_expand_relu[0][0]
465 ]
466 block_13_depthwise (DepthwiseCo (None, 7, 7, 576) 5184      block_13_pad[0][0]
467 ]
468 block_13_depthwise_BN (BatchNor (None, 7, 7, 576) 2304      block_13_depthwise[0][0]
469 ]
470 block_13_depthwise_relu (ReLU) (None, 7, 7, 576) 0       block_13_depthwise_BN[0][0]
471 ]
```

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File - model_summary
471 block_13_project (Conv2D)      (None, 7, 7, 160)    92160    block_13_depthwise_relu[0]
472 block_13_norm (BatchNorm) (None, 7, 7, 160)    160      block_13_norm[0]
473 block_13_project_BN (BatchNorm (None, 7, 7, 160)) 160      block_13_depthwise_relu[0]
474 block_13_project (Conv2D)      (None, 7, 7, 160)    640      block_13_project[0]
475 block_14_expand (Conv2D)      (None, 7, 7, 960)    153600   block_13_project_BN[0]
476 block_14_expand (Conv2D)      (None, 7, 7, 960)    153600   block_13_project[0]
477 block_14_expand_BN (BatchNormal (None, 7, 7, 960)) 960      block_14_expand[0]
478 block_14_expand_BN (BatchNormal (None, 7, 7, 960)) 960      block_14_expand[0]
479 block_14_expand_relu (ReLU)    (None, 7, 7, 960)    0       block_14_expand[0]
480 block_14_expand_relu (ReLU)    (None, 7, 7, 960)    0       block_14_expand_BN[0]
481 block_14_depthwise (DepthwiseCo (None, 7, 7, 960)) 960      block_14_depthwise[0]
482 block_14_depthwise (DepthwiseCo (None, 7, 7, 960)) 960      block_14_depthwise[0]
483 block_14_depthwise_BN (BatchNorm (None, 7, 7, 960)) 960      block_14_depthwise[0]
484 block_14_depthwise_BN (BatchNorm (None, 7, 7, 960)) 960      block_14_depthwise[0]
485 block_14_depthwise_relu (ReLU)    (None, 7, 7, 960)    0       block_14_depthwise_BN[0]
486 block_14_depthwise_relu (ReLU)    (None, 7, 7, 960)    0       block_14_depthwise_BN[0]
487 block_14_depthwise_relu (ReLU)    (None, 7, 7, 960)    0       block_14_depthwise_BN[0]
```

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File - model_summary
487
488   block_14_project (Conv2D)      (None, 7, 7, 160)  153600    block_14_depthwise_relu[0]
489
490   block_14_project_BN (BatchNorma (None, 7, 7, 160)  640      block_14_project[0][0]
491
492   block_14_add (Add)           (None, 7, 7, 160)  0       block_13_project_BN[0][0]
493
494
495   block_15_expand (Conv2D)     (None, 7, 7, 960)  153600    block_14_add[0][0]
496
497   block_15_expand_BN (BatchNormal (None, 7, 7, 960)  3840      block_15_expand[0][0]
498
499   block_15_expand_relu (ReLU)   (None, 7, 7, 960)  0       block_15_expand_BN[0][0]
500
501   block_15_depthwise (DepthwiseCo (None, 7, 7, 960)  8640      block_15_expand_relu[0][0]
502
503   block_15_depthwise_BN (BatchNor (None, 7, 7, 960)  3840      block_15_depthwise[0][0]
```

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File - model_summary
503 ]
504 -----
505 block_15_depthwise_relu (ReLU) (None, 7, 7, 960) 0 block_15_depthwise_BN[0][0]
506 ]
507 block_15_project (Conv2D) (None, 7, 7, 160) 153600 block_15_depthwise_relu[0]
508 ]
509 block_15_project_BN (BatchNorma (None, 7, 7, 160) 640 block_15_project[0][0]
510 ]
511 block_15_add (Add) (None, 7, 7, 160) 0 block_14_add[0][0]
512 ]
513 -----
514 block_16_expand (Conv2D) (None, 7, 7, 960) 153600 block_15_add[0][0]
515 ]
516 block_16_expand_BN (BatchNormal (None, 7, 7, 960) 3840 block_16_expand[0][0]
517 ]
518 block_16_expand_relu (ReLU) (None, 7, 7, 960) 0 block_16_expand_BN[0][0]
519 ]
```

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File - model_summary
519   block_16_depthwise (DepthwiseCo (None, 7, 7, 960)      8640      block_16_expand_relu[0][0]
520   ]
521
522   block_16_depthwise_BN (BatchNor (None, 7, 7, 960)      3840      block_16_depthwise[0][0]
523   ]
524   block_16_depthwise_relu (ReLU) (None, 7, 7, 960)      0       block_16_depthwise_BN[0][0]
525   ]
526   block_16_project (Conv2D) (None, 7, 7, 320)      307200      block_16_depthwise_relu[0]
527   ][0]
528   block_16_project_BN (BatchNorma (None, 7, 7, 320)      1280      block_16_project[0][0]
529   ]
530   Conv_1 (Conv2D) (None, 7, 7, 1280)      409600      block_16_project_BN[0][0]
531   ]
532   Conv_1_bn (BatchNormalization) (None, 7, 7, 1280)      5120      Conv_1[0][0]
533   ]
534   out_relu (ReLU) (None, 7, 7, 1280)      0       Conv_1_bn[0][0]
535   ]
```

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File - model_summary
535 -----
536 global_average_pooling2d_1 (Glo (None, 1280)
      0
      out_relu[0][0]
    ]
537 -----
538   Logits (Dense)
      [0][0] (None, 1000) 1281000 global_average_pooling2d_1
539 -----
540   do_akhir (Dropout)
      [0] (None, 1000) 0 Logits[0][0]
541 -----
542   dense_1 (Dense)
      [0] (None, 7) 7007 do_akhir[0][0]
543 =====
544 Total params: 3,545,991
545 Trainable params: 2,340,487
546 Non-trainable params: 1,205,504
547 -----
548 None
549 =====
550 inception_v3 jumlah layer: 315 awal 313
551 -----
552 Layer (type) Output Shape Param # Connected to
553 =====
554 input_3 (InputLayer) (None, None, None, 3 0
Page 28 of 70
```

```
File - model_summary
554
555
556 conv2d (Conv2D)           (None, None, None, 3 864      input_3[0][0]
]
557
558 batch_normalization (BatchNorma (None, None, None, 3 96      conv2d[0][0]
]
559
560 activation (Activation)   (None, None, None, 3 0       batch_normalization[0][0]
]
561
562 conv2d_1 (Conv2D)         (None, None, None, 3 9216     activation[0][0]
]
563
564 batch_normalization_1 (BatchNor (None, None, None, 3 96      conv2d_1[0][0]
]
565
566 activation_1 (Activation) (None, None, None, 3 0       batch_normalization_1[0][0]
]
567
568 conv2d_2 (Conv2D)         (None, None, None, 6 18432     activation_1[0][0]
]
569
570 batch_normalization_2 (BatchNor (None, None, None, 6 192      conv2d_2[0][0]
```

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File - model_summary
570 ]
571
572 activation_2 (Activation)      (None, None, None, 6 0          batch_normalization_2[0][0]
]
573
574 max_pooling2d (MaxPooling2D)  (None, None, None, 6 0          activation_2[0][0]
]
575
576 conv2d_3 (Conv2D)            (None, None, None, 8 5120        max_pooling2d[0][0]
]
577
578 batch_normalization_3 (BatchNor (None, None, None, 8 240        conv2d_3[0][0]
]
579
580 activation_3 (Activation)    (None, None, None, 8 0          batch_normalization_3[0][0]
]
581
582 conv2d_4 (Conv2D)            (None, None, None, 1 138240       activation_3[0][0]
]
583
584 batch_normalization_4 (BatchNor (None, None, None, 1 576        conv2d_4[0][0]
]
585
586 activation_4 (Activation)    (None, None, None, 1 0          batch_normalization_4[0][0]
```

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File - model_summary  
586 ]  
587  
588 max_pooling2d_1 (MaxPooling2D) (None, None, None, 1 0 activation_4[0][0]  
]  
589  
590 conv2d_8 (Conv2D) (None, None, None, 6 12288 max_pooling2d_1[0][0]  
]  
591  
592 batch_normalization_8 (BatchNor (None, None, None, 6 192 conv2d_8[0][0]  
]  
593  
594 activation_8 (Activation) (None, None, None, 6 0 batch_normalization_8[0][0]  
]  
595  
596 conv2d_6 (Conv2D) (None, None, None, 4 9216 max_pooling2d_1[0][0]  
]  
597  
598 conv2d_9 (Conv2D) (None, None, None, 9 55296 activation_8[0][0]  
]  
599  
600 batch_normalization_6 (BatchNor (None, None, None, 4 144 conv2d_6[0][0]  
]  
601  
602 batch_normalization_9 (BatchNor (None, None, None, 9 288 conv2d_9[0][0]
```

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File - model_summary  
602 ]  
603  
604 activation_6 (Activation) (None, None, None, 4 0 batch_normalization_6[0][0]  
]  
605  
606 activation_9 (Activation) (None, None, None, 9 0 batch_normalization_9[0][0]  
]  
607  
608 average_pooling2d (AveragePooli (None, None, None, 1 0 max_pooling2d_1[0][0]  
]  
609  
610 conv2d_5 (Conv2D) (None, None, None, 6 12288 max_pooling2d_1[0][0]  
]  
611  
612 conv2d_7 (Conv2D) (None, None, None, 6 76800 activation_6[0][0]  
]  
613  
614 conv2d_10 (Conv2D) (None, None, None, 9 82944 activation_9[0][0]  
]  
615  
616 conv2d_11 (Conv2D) (None, None, None, 3 6144 average_pooling2d[0][0]  
]  
617  
618 batch_normalization_5 (BatchNor (None, None, None, 6 192 conv2d_5[0][0]
```

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File - model_summary  
618 ]  
619  
620 batch_normalization_7 (BatchNor (None, None, None, 6 192 conv2d_7[θ])[θ]  
]  
621  
622 batch_normalization_10 (BatchNo (None, None, None, 9 288 conv2d_1θ[θ])[θ)  
]  
623  
624 batch_normalization_11 (BatchNo (None, None, None, 3 96 conv2d_11[θ])[θ)  
]  
625  
626 activation_5 (Activation) (None, None, None, 6 0 batch_normalization_5[θ])[θ]  
]  
627  
628 activation_7 (Activation) (None, None, None, 6 0 batch_normalization_7[θ])[θ)  
]  
629  
630 activation_1θ (Activation) (None, None, None, 9 0 batch_normalization_1θ[θ])[θ]  
]  
631  
632 activation_11 (Activation) (None, None, None, 3 0 batch_normalization_11[θ])[θ]  
]  
633  
634 mixedθ (Concatenate) (None, None, None, 2 0 activation_5[θ])[θ]
```

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File - model_summary
634 ] activation_7[θ][θ
635 ]
636 ]
637 ]
638 -----
639 conv2d_15 (Conv2D) (None, None, None, 6 16384 mixedθ[θ][θ
]
640 -----
641 batch_normalization_15 (BatchNo (None, None, None, 6 192 conv2d_15[θ][θ
])
642 -----
643 activation_15 (Activation) (None, None, None, 6 θ batch_normalization_15[θ][θ
θ]
644 -----
645 conv2d_13 (Conv2D) (None, None, None, 4 12288 mixedθ[θ][θ
]
646 -----
647 conv2d_16 (Conv2D) (None, None, None, 9 55296 activation_15[θ][θ
]
648 -----
649 batch_normalization_13 (BatchNo (None, None, None, 4 144 conv2d_13[θ][θ
])
650 -----
```

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File - model_summary
650
651 batch_normalization_16 (BatchNo (None, None, None, 9 288 conv2d_16[0][0]
]
652
653 activation_13 (Activation) (None, None, None, 4 0 batch_normalization_13[0][0]
]
654
655 activation_16 (Activation) (None, None, None, 9 0 batch_normalization_16[0][0]
]
656
657 average_pooling2d_1 (AveragePoo (None, None, None, 2 0 mixed0[0][0]
]
658
659 conv2d_12 (Conv2D) (None, None, None, 6 16384 mixed0[0][0]
]
660
661 conv2d_14 (Conv2D) (None, None, None, 6 76800 activation_13[0][0]
]
662
663 conv2d_17 (Conv2D) (None, None, None, 9 82944 activation_16[0][0]
]
664
665 conv2d_18 (Conv2D) (None, None, None, 6 16384 average_pooling2d_1[0][0]
]
666
```

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File - model_summary
666
667 batch_normalization_12 (BatchNo (None, None, None, 6 192
]
668
669 batch_normalization_14 (BatchNo (None, None, None, 6 192
]
670
671 batch_normalization_17 (BatchNo (None, None, None, 9 288
]
672
673 batch_normalization_18 (BatchNo (None, None, None, 6 192
]
674
675 activation_12 (Activation) (None, None, None, 6 0
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677 activation_14 (Activation) (None, None, None, 6 0
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679 activation_17 (Activation) (None, None, None, 9 0
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680
681 activation_18 (Activation) (None, None, None, 6 0
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682
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File - model_summary
682   mixed1 (Concatenate)
683     (None, None, None, 2 0
684   ]
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688   conv2d_22 (Conv2D)
689     (None, None, None, 6 18432
690   ]
691   batch_normalization_22 (BatchNo (None, None, None, 6 192
692   activation_22 (Activation)
693     (None, None, None, 6 0
694   conv2d_20 (Conv2D)
695     (None, None, None, 4 13824
696   conv2d_23 (Conv2D)
697     (None, None, None, 9 55296
698   batch_normalization_20 (BatchNo (None, None, None, 4 144
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File - model_summary  
698 ]  
699 -----  
700 batch_normalization_23 (BatchNo (None, None, None, 9 288 conv2d_23[θ][θ]  
]  
701 -----  
702 activation_2θ (Activation) (None, None, None, 4 θ batch_normalization_2θ[θ][θ]  
0]  
703 -----  
704 activation_23 (Activation) (None, None, None, 9 θ batch_normalization_23[θ][θ]  
0]  
705 -----  
706 average_pooling2d_2 (AveragePoo (None, None, None, 2 θ mixed1[θ][θ]  
]  
707 -----  
708 conv2d_19 (Conv2D) (None, None, None, 6 18432 mixed1[θ][θ]  
]  
709 -----  
710 conv2d_21 (Conv2D) (None, None, None, 6 76800 activation_2θ[θ][θ]  
]  
711 -----  
712 conv2d_24 (Conv2D) (None, None, None, 9 82944 activation_23[θ][θ]  
]  
713 -----  
714 conv2d_25 (Conv2D) (None, None, None, 6 18432 average_pooling2d_2[θ][θ]
```

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File - model_summary  
714 ]  
715 -----  
716 batch_normalization_19 (BatchNo (None, None, None, 6 192 conv2d_19[θ][0]  
]  
717 -----  
718 batch_normalization_21 (BatchNo (None, None, None, 6 192 conv2d_21[θ][0]  
]  
719 -----  
720 batch_normalization_24 (BatchNo (None, None, None, 9 288 conv2d_24[θ][0]  
]  
721 -----  
722 batch_normalization_25 (BatchNo (None, None, None, 6 192 conv2d_25[θ][0]  
]  
723 -----  
724 activation_19 (Activation) (None, None, None, 6 0 batch_normalization_19[θ][0]  
]  
725 -----  
726 activation_21 (Activation) (None, None, None, 6 0 batch_normalization_21[θ][0]  
]  
727 -----  
728 activation_24 (Activation) (None, None, None, 9 0 batch_normalization_24[θ][0]  
]  
729 -----  
730 activation_25 (Activation) (None, None, None, 6 0 batch_normalization_25[θ][0]
```

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File - model_summary  
730 0]  
731 -----  
732 mixed2 (Concatenate) (None, None, None, 2 0 activation_19[0][0]  
]  
733 ] activation_21[0][0]  
]  
734 ] activation_24[0][0]  
]  
735 ] activation_25[0][0]  
]  
736 -----  
737 conv2d_27 (Conv2D) (None, None, None, 6 18432 mixed2[0][0]  
]  
738 -----  
739 batch_normalization_27 (BatchNo (None, None, None, 6 192 conv2d_27[0][0]  
]  
740 -----  
741 activation_27 (Activation) (None, None, None, 6 0 batch_normalization_27[0][0]  
]  
742 -----  
743 conv2d_28 (Conv2D) (None, None, None, 9 55296 activation_27[0][0]  
]  
744 -----  
745 batch_normalization_28 (BatchNo (None, None, None, 9 288 conv2d_28[0][0]  
]  
746 -----
```

```
File - model_summary
746 activation_28 (Activation)      (None, None, None, 9 0          batch_normalization_28[0][
0]
747
748 -----
```

```
749 conv2d_26 (Conv2D)           (None, None, None, 3 995328      mixed2[0][0]
]
750 -----
```

```
751 conv2d_29 (Conv2D)           (None, None, None, 9 82944      activation_28[0][0]
]
752 -----
```

```
753 batch_normalization_26 (BatchNo (None, None, None, 3 1152      conv2d_26[0][0]
)
754 -----
```

```
755 batch_normalization_29 (BatchNo (None, None, None, 9 288      conv2d_29[0][0]
)
756 -----
```

```
757 activation_26 (Activation)     (None, None, None, 3 0          batch_normalization_26[0][
0]
758 -----
```

```
759 activation_29 (Activation)     (None, None, None, 9 0          batch_normalization_29[0][
0]
760 -----
```

```
761 max_pooling2d_2 (MaxPooling2D) (None, None, None, 2 0      mixed2[0][0]
]
762 -----
```

```
File - model_summary
762   mixed3 (Concatenate)
763     (None, None, None, 7 0
764   ]
765   ]
766   -----
767   conv2d_34 (Conv2D)
768     (None, None, None, 1 98304
769   batch_normalization_34 (BatchNo (None, None, None, 1 384
770   ]
771   activation_34 (Activation)
772     (None, None, None, 1 0
773   conv2d_35 (Conv2D)
774     (None, None, None, 1 114688
775   batch_normalization_35 (BatchNo (None, None, None, 1 384
776   ]
777   activation_35 (Activation)
778     (None, None, None, 1 0
```

```
File - model_summary
778 conv2d_31 (Conv2D)
779   (None, None, None, 1 98304
      mixed3[0][0]
    ]
780
781 conv2d_36 (Conv2D)
782   (None, None, None, 1 114688
      activation_35[0][0]
    ]
783 batch_normalization_31 (BatchNo
784   (None, None, None, 1 384
      conv2d_31[0][0]
    ]
785 batch_normalization_36 (BatchNo
786   (None, None, None, 1 384
      conv2d_36[0][0]
    ]
787 activation_31 (Activation)
788   (None, None, None, 1 0
      batch_normalization_31[0][0]
    ]
789 activation_36 (Activation)
790   (None, None, None, 1 0
      batch_normalization_36[0][0]
    ]
791 conv2d_32 (Conv2D)
792   (None, None, None, 1 114688
      activation_31[0][0]
    ]
793 conv2d_37 (Conv2D)
794   (None, None, None, 1 114688
      activation_36[0][0]
```

```
File - model_summary
794   [----] batch_normalization_32 (BatchNo (None, None, None, 1 384
795     ] conv2d_32[0][0]
796
797   [----] batch_normalization_37 (BatchNo (None, None, None, 1 384
798     ] conv2d_37[0][0]
799   [----] activation_32 (Activation) (None, None, None, 1 0
800     ] batch_normalization_32[0][0]
801   [----] activation_37 (Activation) (None, None, None, 1 0
802     ] batch_normalization_37[0][0]
803   [----] average_pooling2d_3 (AveragePoo (None, None, None, 7 0
804     ] mixed3[0][0]
805   [----] conv2d_30 (Conv2D) (None, None, None, 1 147456
806     ] mixed3[0][0]
807   [----] conv2d_33 (Conv2D) (None, None, None, 1 172032
808     ] activation_32[0][0]
809   [----] conv2d_38 (Conv2D) (None, None, None, 1 172032
810     ] activation_37[0][0]
```

```
File - model_summary
810
811 conv2d_39 (Conv2D)
812 ]
813 batch_normalization_30 (BatchNo (None, None, None, 1 147456
814 )
815 batch_normalization_33 (BatchNo (None, None, None, 1 576
816 )
817 batch_normalization_38 (BatchNo (None, None, None, 1 576
818 )
819 batch_normalization_39 (BatchNo (None, None, None, 1 576
820 )
821 activation_30 (Activation) (None, None, None, 1 0
822 )
823 activation_33 (Activation) (None, None, None, 1 0
824 )
825 activation_38 (Activation) (None, None, None, 1 0
826 )
```

```
File - model_summary
826   activation_39 (Activation)      (None, None, None, 1 0
827     [
828       batch_normalization_39[0][
829         mixed4 (Concatenate)
830           [
831             [
832               [
833                 [
834                   conv2d_44 (Conv2D)
835                     [
836                       batch_normalization_44 (BatchNo (None, None, None, 1 480
837                         [
838                           activation_44 (Activation)
839                             [
840                               conv2d_45 (Conv2D)
841                                 [
842                                   batch_normalization_45 (BatchNo (None, None, None, 1 480
                                         batch_normalization_45[0][0]
```

```
File - model_summary  
842 ]  
843 -----  
844 activation_45 (Activation) (None, None, None, 1 0 batch_normalization_45[0][0]  
845 ]-----  
846 conv2d_41 (Conv2D) (None, None, None, 1 122880 mixed4[0][0]  
847 ]-----  
848 conv2d_46 (Conv2D) (None, None, None, 1 179200 activation_45[0][0]  
849 ]-----  
850 batch_normalization_41 (BatchNo (None, None, None, 1 480 conv2d_41[0][0]  
851 ]-----  
852 batch_normalization_46 (BatchNo (None, None, None, 1 480 conv2d_46[0][0]  
853 ]-----  
854 activation_41 (Activation) (None, None, None, 1 0 batch_normalization_41[0][0]  
855 ]-----  
856 activation_46 (Activation) (None, None, None, 1 0 batch_normalization_46[0][0]  
857 ]-----  
858 conv2d_42 (Conv2D) (None, None, None, 1 179200 activation_41[0][0]
```

```
File - model_summary  
858 ]  
859 -----  
860 conv2d_47 (Conv2D) (None, None, None, 1 179200 activation_46[0][0]  
]  
861 -----  
862 batch_normalization_42 (BatchNo (None, None, None, 1 480 conv2d_42[0][0]  
]  
863 -----  
864 batch_normalization_47 (BatchNo (None, None, None, 1 480 conv2d_47[0][0]  
]  
865 -----  
866 activation_42 (Activation) (None, None, None, 1 0 batch_normalization_42[0][0]  
]  
867 -----  
868 activation_47 (Activation) (None, None, None, 1 0 batch_normalization_47[0][0]  
]  
869 -----  
870 average_pooling2d_4 (AveragePoo (None, None, None, 7 0 mixed4[0][0]  
]  
871 -----  
872 conv2d_40 (Conv2D) (None, None, None, 1 147456 mixed4[0][0]  
]  
873 -----  
874 conv2d_43 (Conv2D) (None, None, None, 1 215040 activation_42[0][0]
```

```
File - model_summary
874 ]
875 -----
876 conv2d_48 (Conv2D)           (None, None, None, 1 215040      activation_47[0][0]
]
877 -----
878 conv2d_49 (Conv2D)           (None, None, None, 1 147456      average_pooling2d_4[0][0]
]
879 -----
880 batch_normalization_40 (BatchNo (None, None, None, 1 576      conv2d_40[0][0]
)
881 -----
882 batch_normalization_43 (BatchNo (None, None, None, 1 576      conv2d_43[0][0]
)
883 -----
884 batch_normalization_48 (BatchNo (None, None, None, 1 576      conv2d_48[0][0]
)
885 -----
886 batch_normalization_49 (BatchNo (None, None, None, 1 576      conv2d_49[0][0]
)
887 -----
888 activation_40 (Activation)   (None, None, None, 1 0       batch_normalization_40[0][
0]
889 -----
890 activation_43 (Activation)   (None, None, None, 1 0       batch_normalization_43[0][
]
```

```
File - model_summary  
890 0]  
891  
892 activation_48 (Activation) (None, None, None, 1 0 batch_normalization_48[0][  
0]  
893  
894 activation_49 (Activation) (None, None, None, 1 0 batch_normalization_49[0][  
0]  
895  
896 mixed5 (Concatenate) (None, None, None, 7 0 activation_40[0][0]  
]  
897 ] activation_43[0][0]  
898 ] activation_48[0][0]  
899 ] activation_49[0][0]  
900  
901 conv2d_54 (Conv2D) (None, None, None, 1 122880 mixed5[0][0]  
]  
902  
903 batch_normalization_54 (BatchNo (None, None, None, 1 480 conv2d_54[0][0]  
]  
904  
905 activation_54 (Activation) (None, None, None, 1 0 batch_normalization_54[0][  
0]  
906
```

```
File - model_summary
906   conv2d_55 (Conv2D)
907     (None, None, None, 1 179200
908   activation_54[0][0]
909   ]
910   batch_normalization_55 (BatchNo (None, None, None, 1 480
911     activation_55 (Activation) (None, None, None, 1 0
912   batch_normalization_55[0][0]
913   conv2d_51 (Conv2D)
914     (None, None, None, 1 122880
915     mixed5[0][0]
916   activation_55[0][0]
917   batch_normalization_51 (BatchNo (None, None, None, 1 480
918   conv2d_51[0][0]
919   batch_normalization_56 (BatchNo (None, None, None, 1 480
920   conv2d_56[0][0]
921   activation_51 (Activation) (None, None, None, 1 0
922   batch_normalization_51[0][0]
```

```
File - model_summary
922 activation_56 (Activation)      (None, None, None, 1 0          batch_normalization_56[0][
923
924 ]
925 conv2d_52 (Conv2D)           (None, None, None, 1 179200      activation_51[0][0]
926 ]
927 conv2d_57 (Conv2D)           (None, None, None, 1 179200      activation_56[0][0]
928 ]
929 batch_normalization_52 (BatchNo (None, None, None, 1 480      conv2d_52[0][0]
930 ]
931 batch_normalization_57 (BatchNo (None, None, None, 1 480      conv2d_57[0][0]
932 ]
933 activation_52 (Activation)    (None, None, None, 1 0          batch_normalization_52[0][
934 ]
935 activation_57 (Activation)    (None, None, None, 1 0          batch_normalization_57[0][0]
936 ]
937 average_pooling2d_5 (AveragePoo (None, None, None, 7 0          mixed5[0][0]
938 ]
```

```
File - model_summary
938   _____
939   conv2d_50 (Conv2D)
940   [
941     conv2d_53 (Conv2D)
942     [
943       conv2d_58 (Conv2D)
944         [
945           conv2d_59 (Conv2D)
946             [
947               batch_normalization_50 (BatchNo (None, None, None, 1 147456
948             ]
949             batch_normalization_53 (BatchNo (None, None, None, 1 576
950             ]
951             batch_normalization_58 (BatchNo (None, None, None, 1 576
952             ]
953             batch_normalization_59 (BatchNo (None, None, None, 1 576
954             ]
```

```
File - model_summary
954
955  activation_50 (Activation)      (None, None, None, 1 0
0]
956
957  activation_53 (Activation)      (None, None, None, 1 0
0]
958
959  activation_58 (Activation)      (None, None, None, 1 0
0]
960
961  activation_59 (Activation)      (None, None, None, 1 0
0]
962
963  mixed6 (Concatenate)
964    ]
965    ]
966    ]
967
968  conv2d_64 (Conv2D)            (None, None, None, 1 147456
mixed6[0][0]
969
970  batch_normalization_64 (BatchNo (None, None, None, 1 576
conv2d_64[0][0]
```

File - model_summary

```
970 ]  
971  
972 activation_64 (Activation) (None, None, None, 1 0          batch_normalization_64[0]  
] [0]  
973  
974 conv2d_65 (Conv2D)           (None, None, None, 1 258048    activation_64[0][0]  
]  
975  
976 batch_normalization_65 (BatchNo (None, None, None, 1 576    conv2d_65[0][0]  
]  
977  
978 activation_65 (Activation) (None, None, None, 1 0          batch_normalization_65[0]  
] [0]  
979  
980 conv2d_61 (Conv2D)           (None, None, None, 1 147456    mixed6[0][0]  
]  
981  
982 conv2d_66 (Conv2D)           (None, None, None, 1 258048    activation_65[0][0]  
]  
983  
984 batch_normalization_61 (BatchNo (None, None, None, 1 576    conv2d_61[0][0]  
]  
985  
986 batch_normalization_66 (BatchNo (None, None, None, 1 576    conv2d_66[0][0]
```

```
File - model_summary  
986 ]  
987 -----  
988 activation_61 (Activation) (None, None, None, 1 0          batch_normalization_61[0]  
] [0]  
989 -----  
990 activation_66 (Activation) (None, None, None, 1 0          batch_normalization_66[0]  
] [0]  
991 -----  
992 conv2d_62 (Conv2D)      (None, None, None, 1 258048      activation_61[0][0]  
]  
993 -----  
994 conv2d_67 (Conv2D)      (None, None, None, 1 258048      activation_66[0][0]  
]  
995 -----  
996 batch_normalization_62 (BatchNo (None, None, None, 1 576      conv2d_62[0][0]  
]  
997 -----  
998 batch_normalization_67 (BatchNo (None, None, None, 1 576      conv2d_67[0][0]  
]  
999 -----  
1000 activation_62 (Activation) (None, None, None, 1 0          batch_normalization_62[0]  
] [0]  
1001 -----  
1002 activation_67 (Activation) (None, None, None, 1 0          batch_normalization_67[0]
```

File - model_summary

1002] [0]

1003

1004 average_pooling2d_6 (AveragePool (None, None, None, 7 0 mixed6[0][0]
])

1005

1006 conv2d_60 (Conv2D (None, None, None, 1 147456 mixed6[0][0]
])

1007

1008 conv2d_63 (Conv2D (None, None, None, 1 258048 activation_62[0][0]
])

1009

1010 conv2d_68 (Conv2D (None, None, None, 1 258048 activation_67[0][0]
])

1011

1012 conv2d_69 (Conv2D (None, None, None, 1 147456 average_pooling2d_6[0][0]
])

1013

1014 batch_normalization_60 (BatchNorm (None, None, None, 1 576 conv2d_60[0][0]
])

1015

1016 batch_normalization_63 (BatchNorm (None, None, None, 1 576 conv2d_63[0][0]
])

1017

1018 batch_normalization_68 (BatchNorm (None, None, None, 1 576 conv2d_68[0][0]
))

File - model_summary

1018]

1019]

1020 batch_normalization_69 (BatchNo (None, None, None, 1 576 conv2d_69[0])[0]
] 1021

1022 activation_60 (Activation) (None, None, None, 1 0 batch_normalization_60[0)
][0] 1023

1024 activation_63 (Activation) (None, None, None, 1 0 batch_normalization_63[0)
][0] 1025

1026 activation_68 (Activation) (None, None, None, 1 0 batch_normalization_68[0)
][0] 1027

1028 activation_69 (Activation) (None, None, None, 1 0 batch_normalization_69[0)
][0] 1029

1030 mixed7 (Concatenate) (None, None, None, 7 0 activation_60[0])[0]
] 1031] activation_63[0][0]

1032] activation_68[0][0]
] 1033] activation_69[0][0]

1034]

File - model_summary

1034 conv2d_72 (Conv2D) (None, None, None, 1 147456 mixed7[0][0]

1035 conv2d_72 (Conv2D)]

1036 -----

1037 batch_normalization_72 (BatchNo (None, None, None, 1 576 conv2d_72[0][0]

1038 -----

1039 activation_72 (Activation) (None, None, None, 1 0 batch_normalization_72[0][0]

1040 -----

1041 conv2d_73 (Conv2D) (None, None, None, 1 258048 activation_72[0][0]

1042 -----

1043 batch_normalization_73 (BatchNo (None, None, None, 1 576 conv2d_73[0][0]

1044 -----

1045 activation_73 (Activation) (None, None, None, 1 0 batch_normalization_73[0][0]

1046 -----

1047 conv2d_70 (Conv2D) (None, None, None, 1 147456 mixed7[0][0]

1048 -----

1049 conv2d_74 (Conv2D) (None, None, None, 1 258048 activation_73[0][0]

1050 -----

File - model_summary

1050 batch_normalization_70 (BatchNo (None, None, None, 1 576
1051 batch_normalization_70 (BatchNo (None, None, None, 1 576
1052] conv2d_70[0][0]
1053] conv2d_70[0][0]

1054 batch_normalization_74 (BatchNo (None, None, None, 1 576
1055 activation_70 (Activation) (None, None, None, 1 0
1056] [0] batch_normalization_70[0]

1057 activation_74 (Activation) (None, None, None, 1 0
1058] [0] batch_normalization_74[0]
1059 conv2d_71 (Conv2D) (None, None, None, 3 552960 activation_70[0][0]
1060] activation_70[0][0]

1061 conv2d_75 (Conv2D) (None, None, None, 1 331776 activation_74[0][0]
1062] activation_74[0][0]

1063 batch_normalization_71 (BatchNo (None, None, None, 3 960 conv2d_71[0][0]
1064] conv2d_71[0][0]

1065 batch_normalization_75 (BatchNo (None, None, None, 1 576 conv2d_75[0][0]
1066] conv2d_75[0][0]

File - model_summary

```
1066 activation_71 (Activation)      (None, None, None, 3 0          batch_normalization_71[0]
1067 ] [0]
1068 -----
```

```
1069 activation_75 (Activation)      (None, None, None, 1 0          batch_normalization_75[0]
1070 ] [0]
1071 -----
```

```
1072 max_pooling2d_3 (MaxPooling2D) (None, None, None, 7 0          mixed7[0][0]
1073 ] [0]
1074 -----
```

```
1075 mixed8 (Concatenate)          (None, None, None, 1 0          activation_71[0][0]
1076 ] [0]
1077 -----
```

```
1078 conv2d_80 (Conv2D)           (None, None, None, 4 573440        mixed8[0][0]
1079 ] [0]
1080 -----
```

```
1081 activation_80 (Activation)    (None, None, None, 4 1344        conv2d_80[0][0]
1082 ] [0]
1083 -----
```

File - model_summary

```
1082 conv2d_77 (Conv2D)  
1083 [ ]  
1084 (None, None, None, 3 491520 mixed8[0][0]  
  
1085 conv2d_81 (Conv2D)  
1086 [ ]  
1087 batch_normalization_77 (BatchNo (None, None, None, 3 1152 conv2d_77[0][0]  
1088 [ ]  
1089 batch_normalization_81 (BatchNo (None, None, None, 3 1152 conv2d_81[0][0]  
1090 [ ]  
1091 activation_77 (Activation)  
1092 [0] (None, None, None, 3 0 batch_normalization_77[0]  
1093 activation_81 (Activation)  
1094 [0] (None, None, None, 3 0 batch_normalization_81[0]  
1095 conv2d_78 (Conv2D)  
1096 [ ] (None, None, None, 3 442368 activation_77[0][0]  
1097 conv2d_79 (Conv2D)  
1098 [ ] (None, None, None, 3 442368 activation_77[0][0]
```

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```
1098 conv2d_82 (Conv2D)           (None, None, None, 3 442368      activation_81[0][0]
1099 conv2d_82 (Conv2D)
1100 ]                                     (None, None, None, 3 442368      activation_81[0][0]
1101 conv2d_83 (Conv2D)           (None, None, None, 3 442368      activation_81[0][0]
1102 ]
1103 average_pooling2d_7 (AveragePoo (None, None, None, 1 0          mixed8[0][0]
1104 ]
1105 conv2d_76 (Conv2D)           (None, None, None, 3 409600      mixed8[0][0]
1106 ]
1107 batch_normalization_78 (BatchNo (None, None, None, 3 1152      conv2d_78[0][0]
1108 ]
1109 batch_normalization_79 (BatchNo (None, None, None, 3 1152      conv2d_79[0][0]
1110 ]
1111 batch_normalization_82 (BatchNo (None, None, None, 3 1152      conv2d_82[0][0]
1112 ]
1113 batch_normalization_83 (BatchNo (None, None, None, 3 1152      conv2d_83[0][0]
1114 ]
```

```
File - model_summary
1114 conv2d_84 (Conv2D)
1115     (None, None, None, 1 245760
1116     ]
1117 batch_normalization_76 (BatchNo (None, None, None, 3 960
1118     ]
1119 activation_78 (Activation)
1120     (None, None, None, 3 0
1121 activation_79 (Activation)
1122     (None, None, None, 3 0
1123 activation_82 (Activation)
1124     (None, None, None, 3 0
1125 activation_83 (Activation)
1126     (None, None, None, 3 0
1127 batch_normalization_84 (BatchNo (None, None, None, 1 576
1128     ]
1129 activation_76 (Activation)
1130     (None, None, None, 3 0
1131 batch_normalization_76[0]
```

```
File - model_summary
1130 mixed9_0 (Concatenate)
1131 [None, None, None, 7 0
      activation_78[0][0]
1132 ]
1133 ]
1134 concatenate (Concatenate)
1135 [None, None, None, 7 0
      activation_82[0][0]
1136 ]
1137 activation_84 (Activation)
1138 [0]
1139 mixed9 (Concatenate)
1140 [None, None, None, 2 0
      activation_76[0][0]
1141 ]
1142 ]
1143 ]
1144 conv2d_89 (Conv2D)
1145 [None, None, None, 4 917504
      mixed9[0][0]
1146 batch_normalization_89 (BatchNo (None,
      None, 4 1344
      conv2d_89[0][0]
```

```
File - model_summary  
1146 ]  
1147 -----  
1148 activation_89 (Activation) (None, None, None, 4 0 batch_normalization_89[0]  
] [0]  
1149 -----  
1150 conv2d_86 (Conv2D)  
] (None, None, None, 3 786432 mixed9[0][0]  
]  
1151 -----  
1152 conv2d_90 (Conv2D)  
] (None, None, None, 3 1548288 activation_89[0][0]  
]  
1153 -----  
1154 batch_normalization_86 (BatchNo (None, None, None, 3 1152 conv2d_86[0][0]  
]  
]  
1155 -----  
1156 batch_normalization_90 (BatchNo (None, None, None, 3 1152 conv2d_90[0][0]  
]  
]  
1157 -----  
1158 activation_86 (Activation) (None, None, None, 3 0 batch_normalization_86[0]  
] [0]  
1159 -----  
1160 activation_90 (Activation) (None, None, None, 3 0 batch_normalization_90[0]  
] [0]  
1161 -----  
1162 conv2d_87 (Conv2D) (None, None, None, 3 442368 activation_86[0][0]  
]  
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```

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```
1162 ]  
1163  
1164 conv2d_88 (Conv2D)           (None, None, None, 3 442368    activation_86[0][0]  
]  
1165  
1166 conv2d_91 (Conv2D)           (None, None, None, 3 442368    activation_90[0][0]  
]  
1167  
1168 conv2d_92 (Conv2D)           (None, None, None, 3 442368    activation_90[0][0]  
]  
1169  
1170 average_pooling2d_8 (AveragePool) (None, None, None, 2 0      mixed9[0][0]  
]  
1171  
1172 conv2d_85 (Conv2D)           (None, None, None, 3 655360    mixed9[0][0]  
]  
1173  
1174 batch_normalization_87 (BatchNo) (None, None, None, 3 1152     conv2d_87[0][0]  
]  
1175  
1176 batch_normalization_88 (BatchNo) (None, None, None, 3 1152     conv2d_88[0][0]  
]  
1177  
1178 batch_normalization_91 (BatchNo) (None, None, None, 3 1152     conv2d_91[0][0]
```

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1178]

1179 -----

1180 batch_normalization_92 (BatchNo (None, None, None, 3 1152 conv2d_92[0])[0]
1181] -----

1182 conv2d_93 (Conv2D)
1183 (None, None, None, 1 393216 average_pooling2d_8[0][0]) -----

1184 batch_normalization_85 (BatchNo (None, None, None, 3 960 conv2d_85[0])[0)
1185] -----

1186 activation_87 (Activation)
1187 (None, None, None, 3 0 batch_normalization_87[0][0]) -----

1188 activation_88 (Activation)
1189 (None, None, None, 3 0 batch_normalization_88[0][0]) -----

1190 activation_91 (Activation)
1191 (None, None, None, 3 0 batch_normalization_91[0][0]) -----

1192 activation_92 (Activation)
1193 (None, None, None, 3 0 batch_normalization_92[0][0]) -----

1194 batch_normalization_93 (BatchNo (None, None, None, 1 576 conv2d_93[0])[0)

```
File - model_summary
1194 ]
1195 -----
1196 activation_85 (Activation) (None, None, None, 3 0
1197 ] [0] batch_normalization_85[0]
-----
1198 mixed9_1 (Concatenate)
1199 [
1200 ] (None, None, None, 7 0
1201 ] activation_87[0][0]
1202 ] activation_88[0][0]
-----
1203 concatenate_1 (Concatenate) (None, None, None, 7 0
1204 ] [0] activation_91[0][0]
1205 ] activation_92[0][0]
-----
1206 mixed10 (Concatenate) (None, None, None, 2 0
1207 ] [0] activation_93[0][0]
1208 ] mixed9_1[0][0]
1209 ] concatenate_1[0][0]
1210 ] activation_94[0][0]
```

```
File - model_summary
1210 avg_pool (GlobalAveragePooling2 (None, 2048)
1211     0
1212     mixed1@[@][@]
1213 predictions (Dense)
1214     (None, 1000)
1215     2049000
1216     avg_pool[@][@]
1217 do_akhir (Dropout)
1218     (None, 1000)
1219     0
1220     predictions[@][@]
1221     do_akhir[@][@]
1222 =====
1223 Total params: 23,858,791
1224 Trainable params: 3,548,999
1225 Non-trainable params: 20,309,792
1226 =====
1227 None
1228 =====
1229 Process finished with exit code 0
1230 =====
```