

Model Optimization and Tuning Phase Template

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Team ID	SWTID1720439521
Project Title	Covidvision: Advanced Covid-19 Detection From Lung X-Rays With Deep Learning
Maximum Marks	10 Marks

Model Optimization and Tuning Phase

The Model Optimization and Tuning Phase involves refining neural network models for peak performance. It includes optimized model code, fine-tuning hyperparameters, comparing performance metrics, and justifying the final model selection for enhanced predictive accuracy and efficiency.

Hyperparameter Tuning Documentation (8 Marks):

Model	Tuned Hyperparameters
ANN	<pre> class ANN(nn.Module): def __init__(self,hidden_layer=64): super(ANN,self).__init__() self.fc1=nn.Linear(120*120*3,hidden_layer) self.fc2=nn.Linear(hidden_layer,3) self.relu=nn.ReLU() def forward(self,img): out=img.view(-1,120*120*3) out=self.fc1(out) out=self.relu(out) out=self.fc2(out) return out </pre>

Final Model Selection Justification (2 Marks):

Final Model	Reasoning
Model 1 (or other)	<p>Epoch 1, Training Loss: 0.7760, Training Acc: 0.6135, Validation Loss: 1.5132, Validation Acc: 0.5400</p> <p>Epoch 2, Training Loss: 0.5417, Training Acc: 0.7928, Validation Loss: 0.7174, Validation Acc: 0.6400</p> <p>Epoch 3, Training Loss: 0.3652, Training Acc: 0.8606, Validation Loss: 0.5825, Validation Acc: 0.7200</p> <p>Epoch 4, Training Loss: 0.3747, Training Acc: 0.8566, Validation Loss: 0.6591, Validation Acc: 0.8000</p> <p>Epoch 5, Training Loss: 0.3990, Training Acc: 0.8486, Validation Loss: 0.6517, Validation Acc: 0.7000</p> <p>Epoch 6, Training Loss: 0.3824, Training Acc: 0.8725, Validation Loss: 2.7382, Validation Acc: 0.5400</p> <p>Epoch 7, Training Loss: 0.5186, Training Acc: 0.8167, Validation Loss: 0.5404, Validation Acc: 0.7600</p> <p>Epoch 8, Training Loss: 0.2699, Training Acc: 0.9084, Validation Loss: 0.6816, Validation Acc: 0.7800</p> <p>Epoch 9, Training Loss: 0.2754, Training Acc: 0.8685, Validation Loss: 0.5456, Validation Acc: 0.7200</p> <p>Epoch 10, Training Loss: 0.2403, Training Acc: 0.9084, Validation Loss: 0.6111, Validation Acc: 0.8000</p> <p>Epoch 11, Training Loss: 0.2678, Training Acc: 0.9044, Validation Loss: 1.2478, Validation Acc: 0.5800</p> <p>Epoch 12, Training Loss: 0.2496, Training Acc: 0.8924, Validation Loss: 0.5200, Validation Acc: 0.8200</p> <p>Epoch 13, Training Loss: 0.2416, Training Acc: 0.9243, Validation Loss: 0.9556, Validation Acc: 0.6200</p> <p>Epoch 14, Training Loss: 0.2448, Training Acc: 0.9044, Validation Loss: 0.4517, Validation Acc: 0.8600</p> <p>Epoch 15, Training Loss: 0.1866, Training Acc: 0.9243, Validation Loss: 0.4795, Validation Acc: 0.8200</p>