













Clip-Based One-Versus-Rest Phase Recognition

VGG16-LSTM	92.1 (2.3)	74.3 (3.6)	86.3 (3.4)	83.4 (3.2)	86.2 (1.9)	76.8 (1.9)	88.8 (1.1)	88.2 (3.7)	81.6 (6.4)	81.4 (6.1)	86.6 (4.1)
VGG16-BiLSTM	93.4 (1.9)	72.1 (2.2)	86.5 (3.3)	82.2 (2.9)	85.7 (2.0)	76.7 (2.2)	88.8 (2.5)	89.6 (3.3)	78.9 (3.3)	82.0 (4.7)	87.2 (2.8)
VGG16-GRU	94.0 (2.5)	71.6 (3.1)	85.0 (4.1)	82.9 (3.2)	85.4 (1.6)	75.6 (5.1)	89.2 (3.4)	88.3 (3.1)	79.9 (3.6)	78.3 (4.0)	86.6 (3.9)
VGG16-BiGRU	93.1 (2.1)	74.5 (3.1)	87.1 (1.3)	82.7 (3.5)	85.3 (2.7)	76.6 (2.6)	86.3 (4.3)	88.3 (1.4)	79.2 (4.2)	82.4 (3.6)	87.9 (3.7)
VGG16-Transformer	92.5 (3.6)	76.8 (3.0)	85.5 (2.9)	82.1 (2.6)	84.5 (2.7)	77.8 (2.0)	89.3 (3.3)	86.3 (2.8)	80.9 (1.7)	83.5 (2.9)	89.6 (3.7)
VGG16-Mamba	92.6 (1.6)	72.4 (4.1)	82.9 (4.4)	80.9 (1.6)	84.6 (3.4)	69.9 (4.2)	88.3 (2.3)	87.3 (2.8)	76.3 (3.4)	78.8 (1.9)	85.7 (3.3)
ResNet50-LSTM	93.4 (2.3)	76.9 (1.6)	83.6 (2.8)	83.9 (3.2)	86.8 (1.5)	76.7 (2.9)	88.2 (2.6)	89.6 (1.6)	84.7 (2.5)	79.9 (6.4)	86.6 (3.4)
ResNet50-BiLSTM	92.1 (2.1)	76.6 (2.5)	85.0 (1.9)	85.1 (3.7)	85.4 (1.1)	79.2 (2.7)	91.1 (2.9)	90.2 (1.9)	81.4 (3.3)	83.1 (3.8)	87.1 (2.9)
ResNet50-GRU	93.4 (2.9)	76.1 (2.9)	86.6 (1.4)	85.4 (1.3)	87.6 (2.1)	77.8 (1.8)	89.4 (2.3)	88.4 (3.7)	83.6 (4.8)	81.3 (5.0)	86.4 (3.3)
ResNet50-BiGRU	93.6 (2.5)	79.4 (3.2)	86.0 (3.6)	83.3 (2.3)	86.2 (2.9)	77.1 (3.9)	89.0 (5.2)	90.6 (1.5)	80.6 (4.9)	83.3 (4.2)	86.3 (3.3)
ResNet50-Transformer	92.2 (2.9)	79.6 (3.0)	86.3 (2.3)	84.7 (5.4)	85.6 (2.2)	75.8 (2.1)	87.7 (3.1)	90.0 (2.7)	81.6 (3.2)	82.6 (4.9)	86.7 (4.1)
ResNet50-Mamba	93.4 (2.4)	75.9 (2.7)	82.3 (3.7)	83.5 (3.2)	86.8 (0.7)	73.2 (3.8)	87.5 (3.1)	89.9 (2.2)	81.0 (3.6)	79.5 (4.6)	85.7 (3.4)
Average	93.0	75.5	85.3	83.3	85.8	76.1	88.6	88.9	80.8	81.4	86.9
	Inc	Vis- ACF	Cap	Hyd	Pha	IA	CP	LI	LP	VS	TA

Phases	
	Inc = Incision
	Vis = Viscoelastic
	ACF = Anterior-Chamber Flushing
	Cap = Capsulorhexis
	Hyd = Hydrodissection
	Pha = Phacoemulsification
	IA = Irrigation-Aspiration
	CP = Capsule Polishing
	LI = Lens Implantation
	LP = Lens Positioning
	VS = Viscoelastic-Suction
	TA = Tonifying/Antibiotics