**SDC TABLE 1**. Hyperparameters During Training Models

|  |  |
| --- | --- |
| Hyperparameters | Optimal Values |
| Input size | 480\*480 |
| Optimizer info |  |
| Optimizer | SGD |
| Learning rate | 0.0001 |
| Learning rate policy | step |
| Weight decay | 0.0005 |
| Gamma | 0.1 |
| Momentum | 0.9 |
| Max iteration | 12000 |
| Batch size | 16 |
| Epochs | 15 |

**SDC TABLE 2**. Myopic Traction Maculopathy (MTM) Model Outputs as Levels of Predicted Probabilities With Oversampling and Iterations

|  |  |  |  |
| --- | --- | --- | --- |
| Predicted Probabilities(𝑥) | Hard label with OS and Iter (*N*=1315 images) |  | Soft label with OS and Iter (*N*=1315 images) |
| 0/3 | 1/3 | 2/3 | 3/3 |  | 0/3 | 1/3 | 2/3 | 3/3 |
| *N=844* | *N=163* | *N=114* | *N=194* |  | *N=844* | *N=163* | *N=114* | *N=194* |
| 𝑥 < 0.1 | 803 (95.1%) | 126 (77.3%) | 49 (43.0%) | 10 (5.15%) |  | 688 (81.5%) | 70 (42.9%) | 21 (18.4%) | 1 (0.52%) |
| 0.1 ≤ 𝑥 < 0.2 | 11 (1.30%) | 5 (3.07%) | 6 (5.26%) | 2 (1.03%) |  | 84 (9.95%) | 25 (15.3%) | 11 (9.65%) | 5 (2.58%) |
| 0.2 ≤ 𝑥 < 0.3 | 4 (0.47%) | 5 (3.07%) | 3 (2.63%) | 2 (1.03%) |  | 26 (3.08%) | 22 (13.5%) | 12 (10.5%) | 0 (0.00%) |
| 0.3 ≤ 𝑥 < 0.4 | 4 (0.47%) | 2 (1.23%) | 3 (2.63%) | 2 (1.03%) |  | 19 (2.25%) | 13 (7.98%) | 7 (6.14%) | 4 (2.06%) |
| 0.4 ≤ 𝑥 < 0.5 | 2 (0.24%) | 3 (1.84%) | 2 (1.75%) | 1 (0.52%) |  | 9 (1.07%) | 8 (4.91%) | 7 (6.14%) | 2 (1.03%) |
| 0.5 ≤ 𝑥 < 0.6 | 2 (0.24%) | 0 (0.00%) | 2 (1.75%) | 2 (1.03%) |  | 6 (0.71%) | 6 (3.68%) | 11 (9.65%) | 10 (5.15%) |
| 0.6 ≤ 𝑥 < 0.7 | 0 (0.00%) | 4 (2.45%) | 1 (0.88%) | 5 (2.58%) |  | 3 (0.36%) | 4 (2.45%) | 10 (8.77%) | 8 (4.12%) |
| 0.7 ≤ 𝑥 < 0.8 | 6 (0.71%) | 1 (0.61%) | 2 (1.75%) | 2 (1.03%) |  | 3 (0.36%) | 6 (3.68%) | 11 (9.65%) | 9 (4.64%) |
| 0.8 ≤ 𝑥 < 0.9 | 4 (0.47%) | 1 (0.61%) | 3 (2.63%) | 4 (2.06%) |  | 6 (0.71%) | 3 (1.84%) | 9 (7.89%) | 16 (8.25%) |
| 0.9 ≤ 𝑥 | 8 (0.95%) | 16 (9.82%) | 43 (37.7%) | 164 (84.5%) |  | 0 (0.00%) | 6 (3.68%) | 15 (13.2%) | 139 (71.6%) |

OS indicates oversampling; Iter, iterations.

**SDC TABLE 3.** Dome-shaped Macular (DSM) Model Outputs as Levels of Predicted Probabilities With Oversampling and Iterations

|  |  |  |  |
| --- | --- | --- | --- |
| Predicted Probabilities(𝑥) | Hard label with OS and Iter (*N*=1315 images) |  | Soft label with OS and Iter (*N*=1315 images) |
| 0/3 | 1/3 | 2/3 | 3/3 |  | 0/3 | 1/3 | 2/3 | 3/3 |
| *N=1170* | *N=67* | *N=40* | *N=38* |  | *N=1170* | *N=67* | *N=40* | *N=38* |
| 𝑥 < 0.1 | 1160 (99.1%) | 52 (77.6%) | 27 (67.5%) | 4 (10.5%) |  | 1098 (93.8%) | 17 (25.4%) | 5 (12.5%) | 0 (0.00%) |
| 0.1 ≤ 𝑥 < 0.2 | 0 (0.00%) | 2 (2.99%) | 1 (2.50%) | 0 (0.00%) |  | 30 (2.56%) | 18 (26.9%) | 3 (7.50%) | 0 (0.00%) |
| 0.2 ≤ 𝑥 < 0.3 | 1 (0.09%) | 1 (1.49%) | 1 (2.50%) | 1 (2.63%) |  | 11 (0.94%) | 11 (16.4%) | 3 (7.50%) | 0 (0.00%) |
| 0.3 ≤ 𝑥 < 0.4 | 1 (0.09%) | 0 (0.00%) | 1 (2.50%) | 0 (0.00%) |  | 14 (1.20%) | 4 (5.97%) | 7 (17.5%) | 0 (0.00%) |
| 0.4 ≤ 𝑥 < 0.5 | 1 (0.09%) | 0 (0.00%) | 0 (0.00%) | 0 (0.00%) |  | 8 (0.68%) | 8 (11.9%) | 6 (15.0%) | 4 (10.5%) |
| 0.5 ≤ 𝑥 < 0.6 | 0 (0.00%) | 1 (1.49%) | 0 (0.00%) | 1 (2.63%) |  | 3 (0.26%) | 3 (4.48%) | 5 (12.5%) | 5 (13.2%) |
| 0.6 ≤ 𝑥 < 0.7 | 1 (0.09%) | 0 (0.00%) | 0 (0.00%) | 2 (5.26%) |  | 1 (0.09%) | 1 (1.49%) | 3 (7.50%) | 3 (7.89%) |
| 0.7 ≤ 𝑥 < 0.8 | 1 (0.09%) | 0 (0.00%) | 0 (0.00%) | 0 (0.00%) |  | 3 (0.26%) | 2 (2.99%) | 3 (7.50%) | 4 (10.5%) |
| 0.8 ≤ 𝑥 < 0.9 | 0 (0.00%) | 0 (0.00%) | 0 (0.00%) | 2 (5.26%) |  | 1 (0.09%) | 2 (2.99%) | 2 (5.00%) | 2 (5.26%) |
| 0.9 ≤ 𝑥 | 5 (0.43%) | 11 (16.4%) | 10 (25.0%) | 28 (73.7%) |  | 1 (0.09%) | 1 (1.49%) | 3 (7.50%) | 20 (52.6%) |

OS indicates oversampling; Iter, iteration.

**SDC FIGURE 1.** Grading samples of myopic maculopathy in ocular coherence tomographic (OCT) images.A,Myopic eye without myopic maculopathy. Each retinochoroidal layer is clearly seen. B, Myopic neovascularization (MNV). Hyperreflective materials can be seen above the retina pigment epithelium (RPE), and this component is attenuated in the tissue coherence signals below. C, Retinoschisis. The splitting of the inner retina from the outer retinal layers with multiple perpendicularly aligned columnar structures connecting the split retinal layers. D, Dome-shaped macular (DSM). An inward bulging of the retina pigment epithelium above the baseline connecting the RPE lines on both sides away from the DSM. E and F, Retinal detachment. The neurosensory retina is detached from the RPE. G and H, Macular hole. A tear above the RPE layer and an anvil-shaped deformity of the cracked edges of the retina.



**SDC FIGURE 2.** Uncertain images from myopic eyes. A, In this case, there was a reflection artifact on the right side due to the extremely long axial length. The choroid was almost absent, and the retinal layers were collapsed and appeared as exudation-like reflection at the center of the fovea. It was difficult for myopia specialists and models when grading myopic neovascularization. B, In this case, choroid was also absent and the fovea was not obvious. There was a small lacuna-like schisis near the foveal area. This case was difficult to grade whether the eye had myopic traction maculopathy. C, This was a difficult case in grading a dome-shaped macular. There were atrophic changes at the macular area, and a severe thinning of the retinochoroidal layers. It appeared like an inward bulging of the retina pigment epithelium line above a baseline connection.

