**Supplementary File 1A**

| **Metric** | **AUROC** | **AUPRC** |
| --- | --- | --- |
| Mean, pixel-wise color distance between the original and simulated image | 0.44 | 0.12 |
| Color-distance ratio between the original and simulated images for the color pair with the largest distance in the original image | 0.63 | 0.19 |
| Number of color pairs that exhibited a high color-distance ratio between the original and simulated images | 0.75 | 0.34 |
| Proportion of pixels in the original image that used a color from one of the high-ratio color pairs | 0.73 | 0.28 |
| Mean Euclidean distance between pixels for high-ratio color pairs | 0.67 | 0.24 |
| Rank-based score that combines the metrics | 0.71 | 0.26 |

**Supplementary File 1B**

| **Algorithm** | **AUROC** | **AUPRC** |
| --- | --- | --- |
| Logistic Regression | 0.82 | 0.43 |
| Nearest Neighbors | 0.72 | 0.32 |
| Random Forests | 0.80 | 0.42 |

**Supplementary File 1C**

| **Combination** | **Class weighting** | **Early stopping** | **Random rotation** | **Dropout** | **Transfer learning** | **Fine tuning** | **AUROC** | **AUPRC** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | No | No | 0.0 | 0.0 | None | No | 0.77 | 0.48 |
| 1 | Yes | No | 0.0 | 0.0 | None | No | 0.83 | 0.51 |
| 2 | No | Yes | 0.0 | 0.0 | None | No | 0.88 | 0.58 |
| 3 | No | No | 0.2 | 0.0 | None | No | 0.91 | 0.68 |
| 4 | No | No | 0.3 | 0.0 | None | No | 0.91 | 0.68 |
| 5 | No | No | 0.0 | 0.2 | None | No | 0.78 | 0.51 |
| 6 | No | No | 0.0 | 0.5 | None | No | 0.80 | 0.45 |
| 7 | No | No | 0.0 | 0.0 | MobileNetV2 | No | 0.85 | 0.55 |
| 8 | No | No | 0.0 | 0.0 | ResNet50 | No | 0.87 | 0.62 |
| 9 | No | No | 0.0 | 0.0 | MobileNetV2 | Yes | 0.85 | 0.61 |
| 10 | No | No | 0.0 | 0.0 | ResNet50 | Yes | 0.85 | 0.62 |
| 11 | Yes | Yes | 0.2 | 0.0 | ResNet50 | No | 0.89 | 0.62 |
| 12 | Yes | Yes | 0.2 | 0.2 | ResNet50 | No | 0.88 | 0.60 |
| 13 | Yes | Yes | 0.2 | 0.5 | ResNet50 | No | 0.88 | 0.58 |
| 14 | Yes | Yes | 0.2 | 0.0 | ResNet50 | Yes | 0.92 | 0.74 |
| 15 | Yes | Yes | 0.2 | 0.2 | ResNet50 | Yes | 0.92 | 0.74 |
| 16 | Yes | Yes | 0.2 | 0.5 | ResNet50 | Yes | 0.93 | 0.75 |
| 17 | Yes | Yes | 0.2 | 0.0 | MobileNetV2 | No | 0.86 | 0.52 |
| 18 | Yes | Yes | 0.2 | 0.2 | MobileNetV2 | No | 0.86 | 0.52 |
| 19 | Yes | Yes | 0.2 | 0.5 | MobileNetV2 | No | 0.87 | 0.53 |
| 20 | Yes | Yes | 0.2 | 0.0 | MobileNetV2 | Yes | 0.89 | 0.65 |
| 21 | Yes | Yes | 0.2 | 0.2 | MobileNetV2 | Yes | 0.90 | 0.68 |
| 22 | Yes | Yes | 0.2 | 0.5 | MobileNetV2 | Yes | 0.91 | 0.69 |