# Reporte de Validación de Modelos 3D – Cáncer de Pulmón

Generado: 2025-07-10 12:16:21

Métricas Globales

| Modelo	Precisión	Sensibilidad	Especificidad	F1-Score	AUC-ROC	AP	Dice Score	MCC	Tiempo Inferencia (s)
3D ResNet50	0.648	0.256	0.907	0.367	0.588	0.542	0.367	0.219	2.400
3D DenseNet121	0.556	0.526	0.576	0.485	0.604	0.518	0.485	0.100	2.900
CNN 3D Personalizada	0.602	0.064	0.958	0.114	0.540	0.448	0.114	0.048	1.700

Gráficos Comparativos
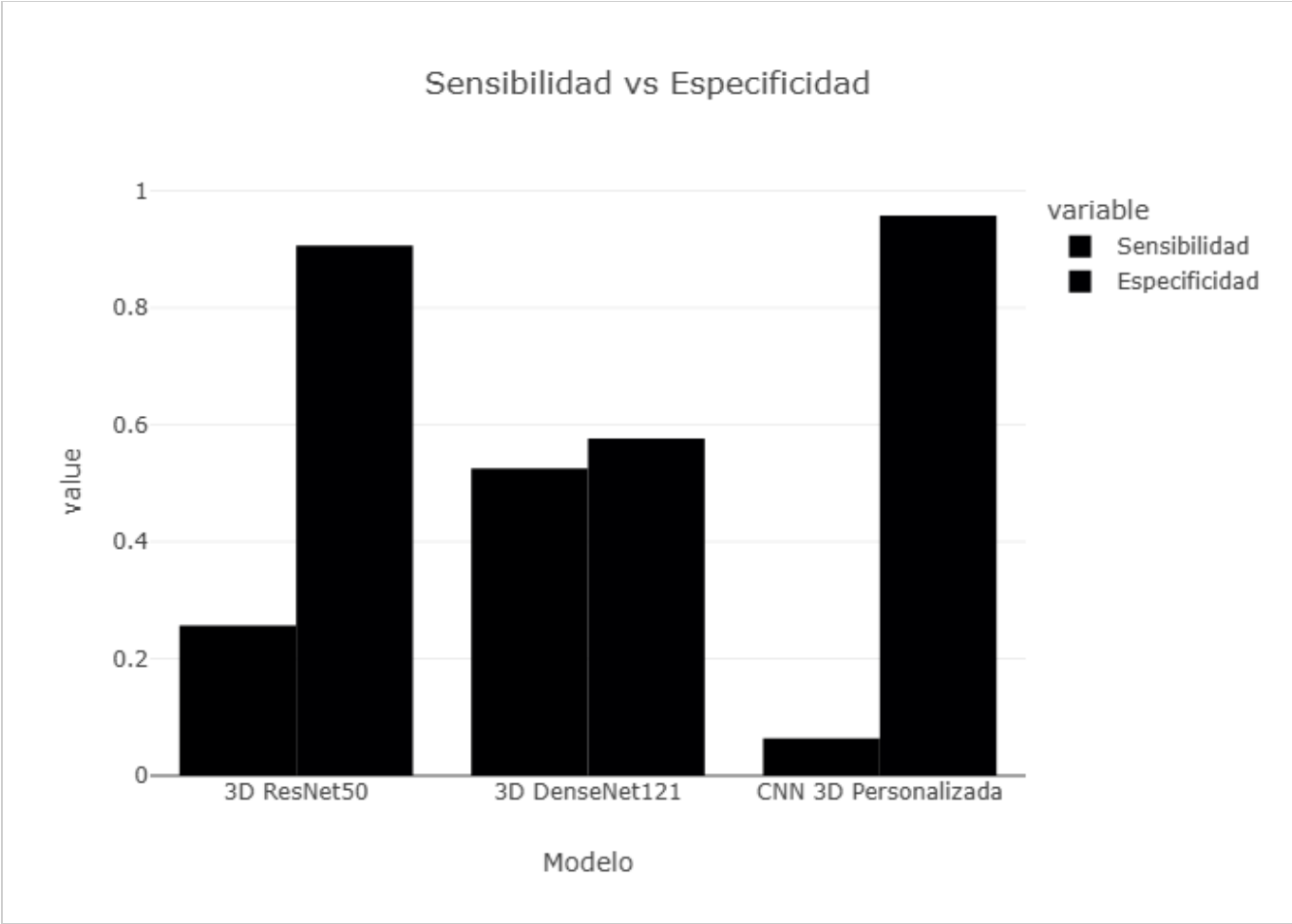
Rendimiento vs Velocidad

Dice Score por Modelo

Curva Optimización de Hiperparámetros
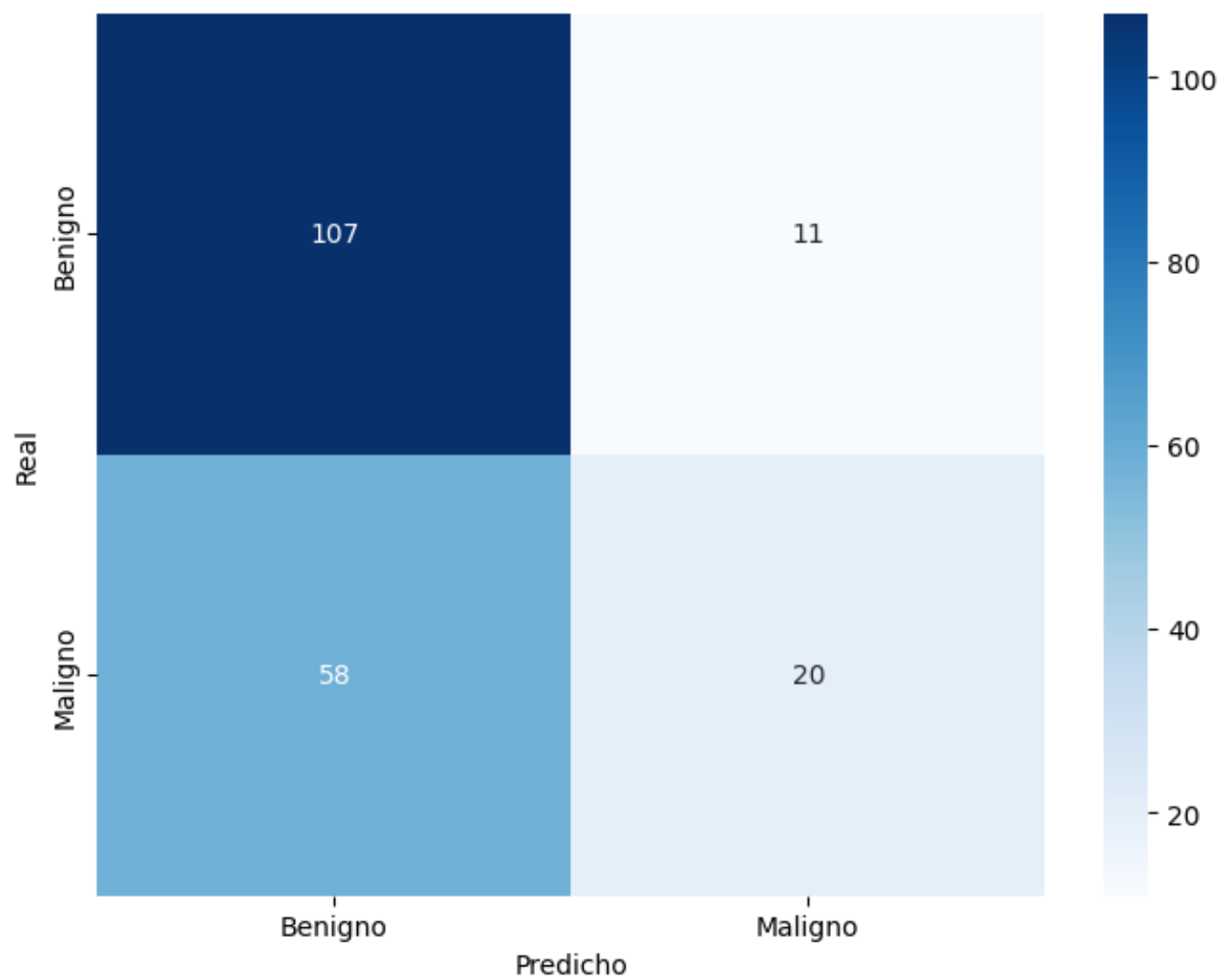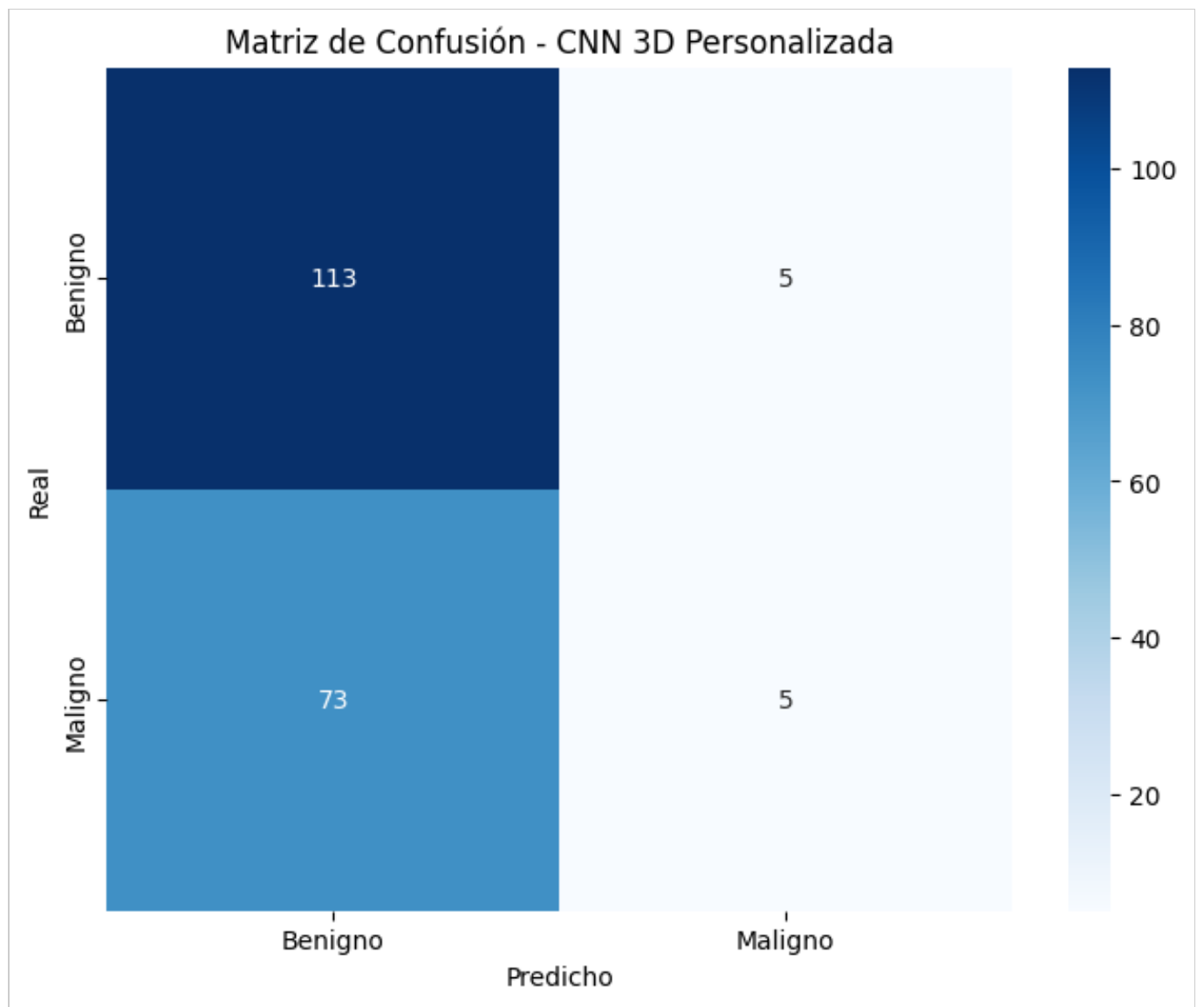
Evolución de la Búsqueda
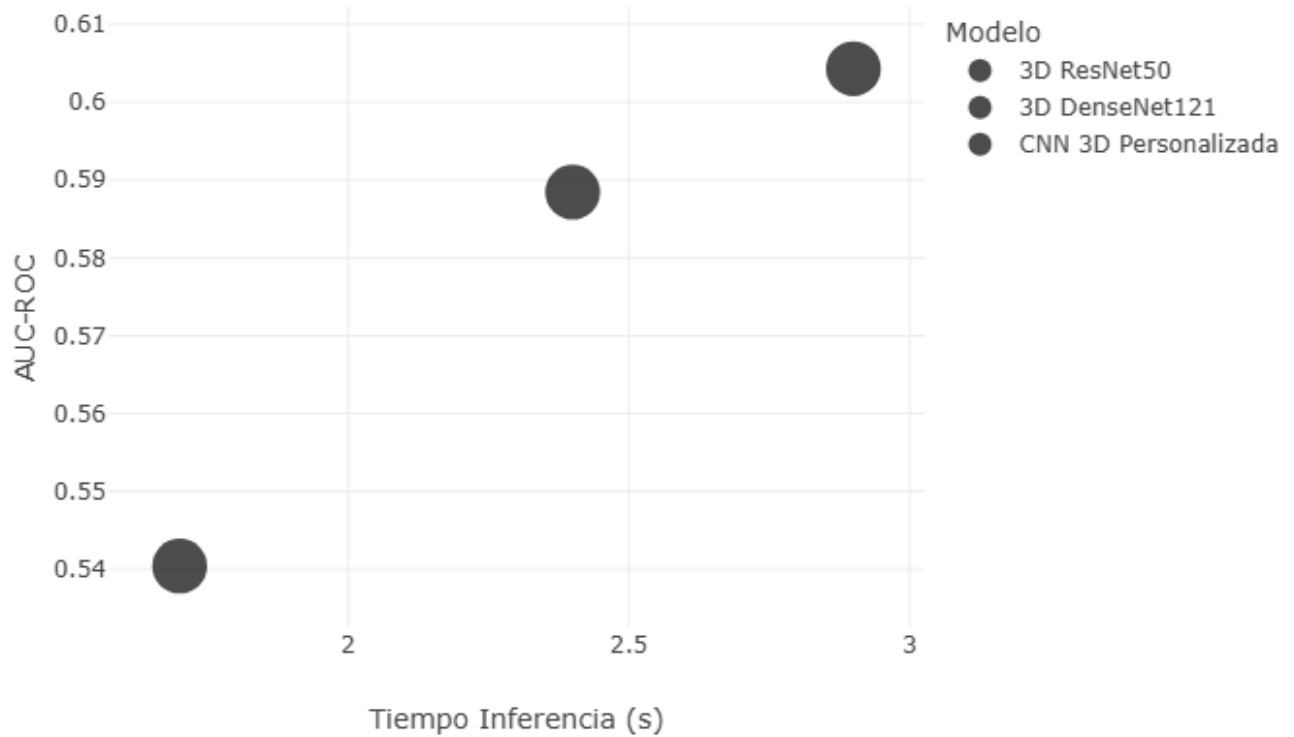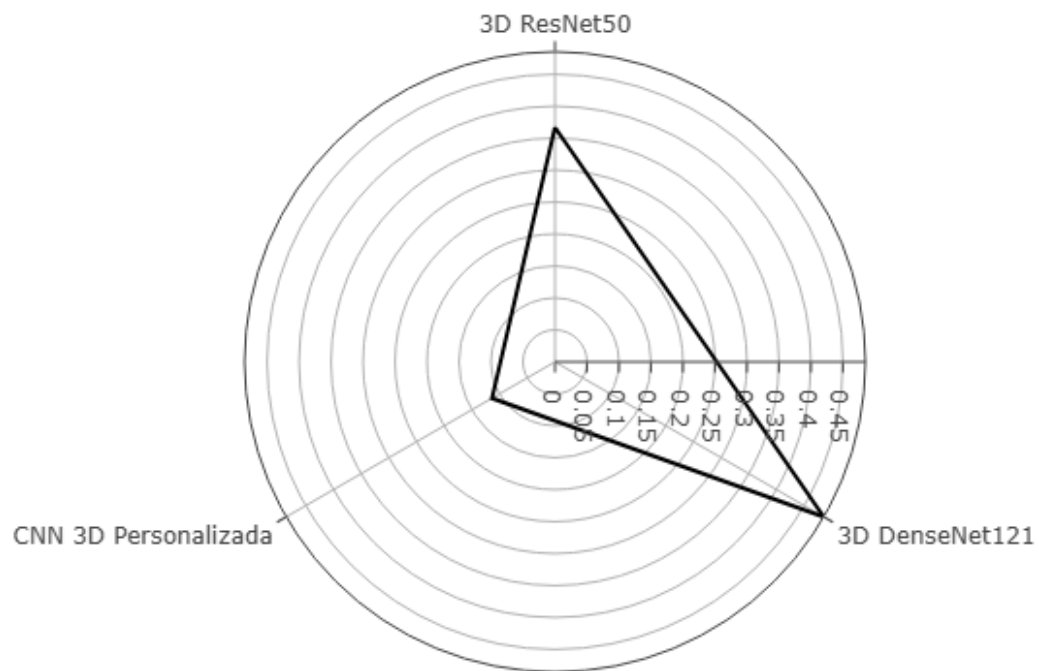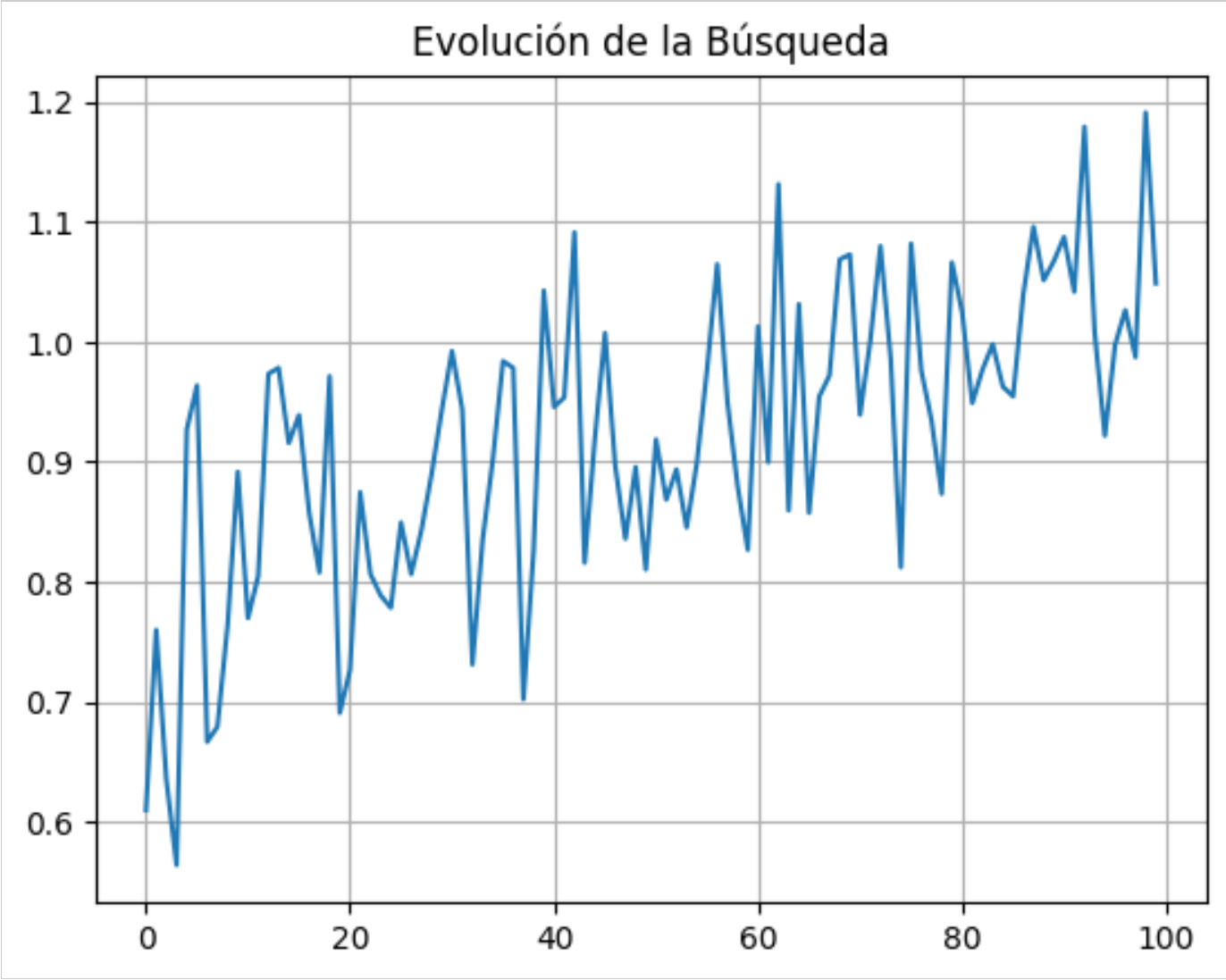
Matrices de Confusión

Matriz de Confusión - 3D DenseNet121
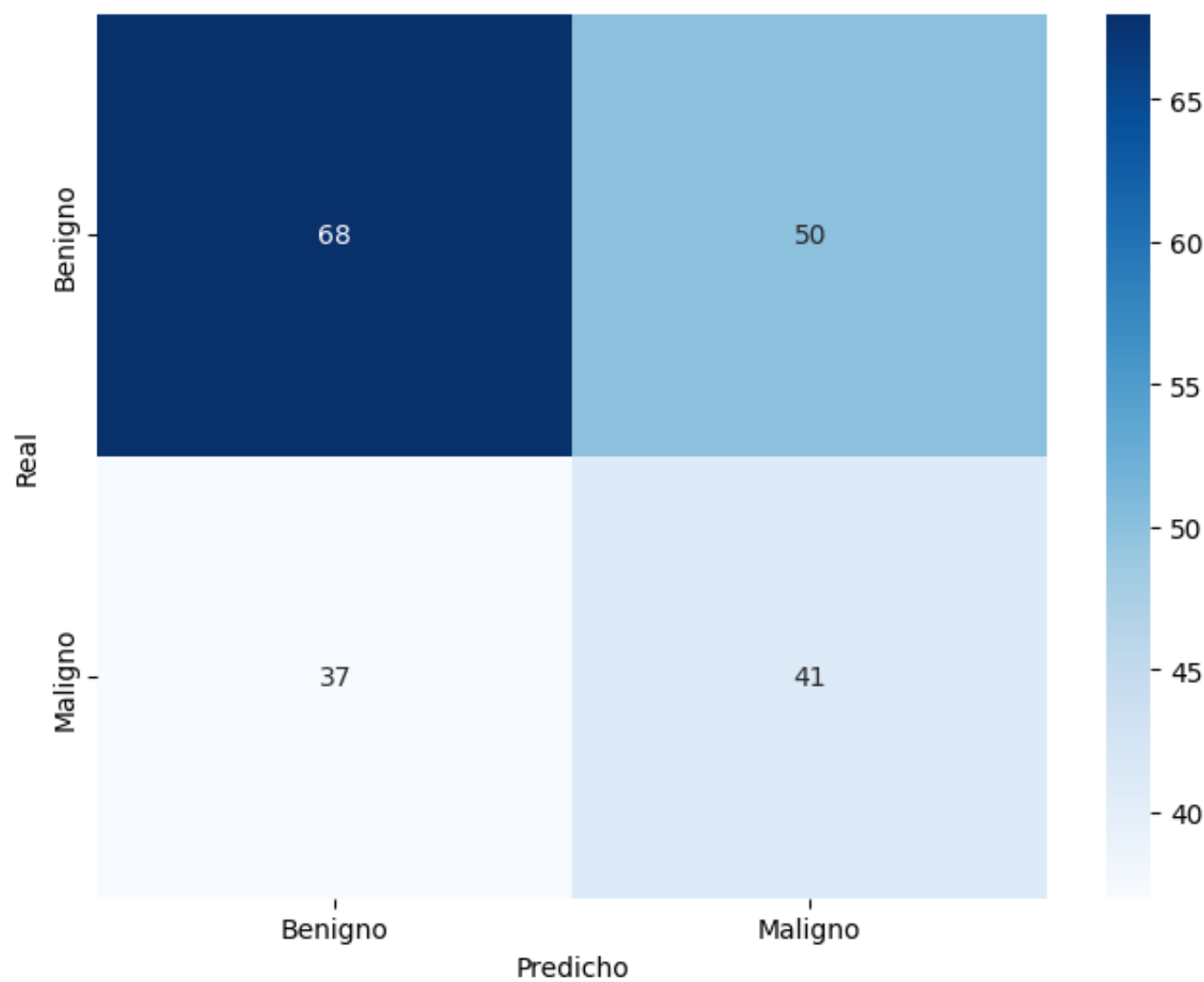
Matriz de Confusión - 3D ResNet50

Matriz de Confusión - CNN 3D Personalizada

Curvas ROC / PR

Curva ROC - 3D DenseNet121

ROC curve (area = 0.60)

Curva ROC - 3D ResNet50

True Positive Rate

False Positive Rate

ROC curve (area = 0.59)
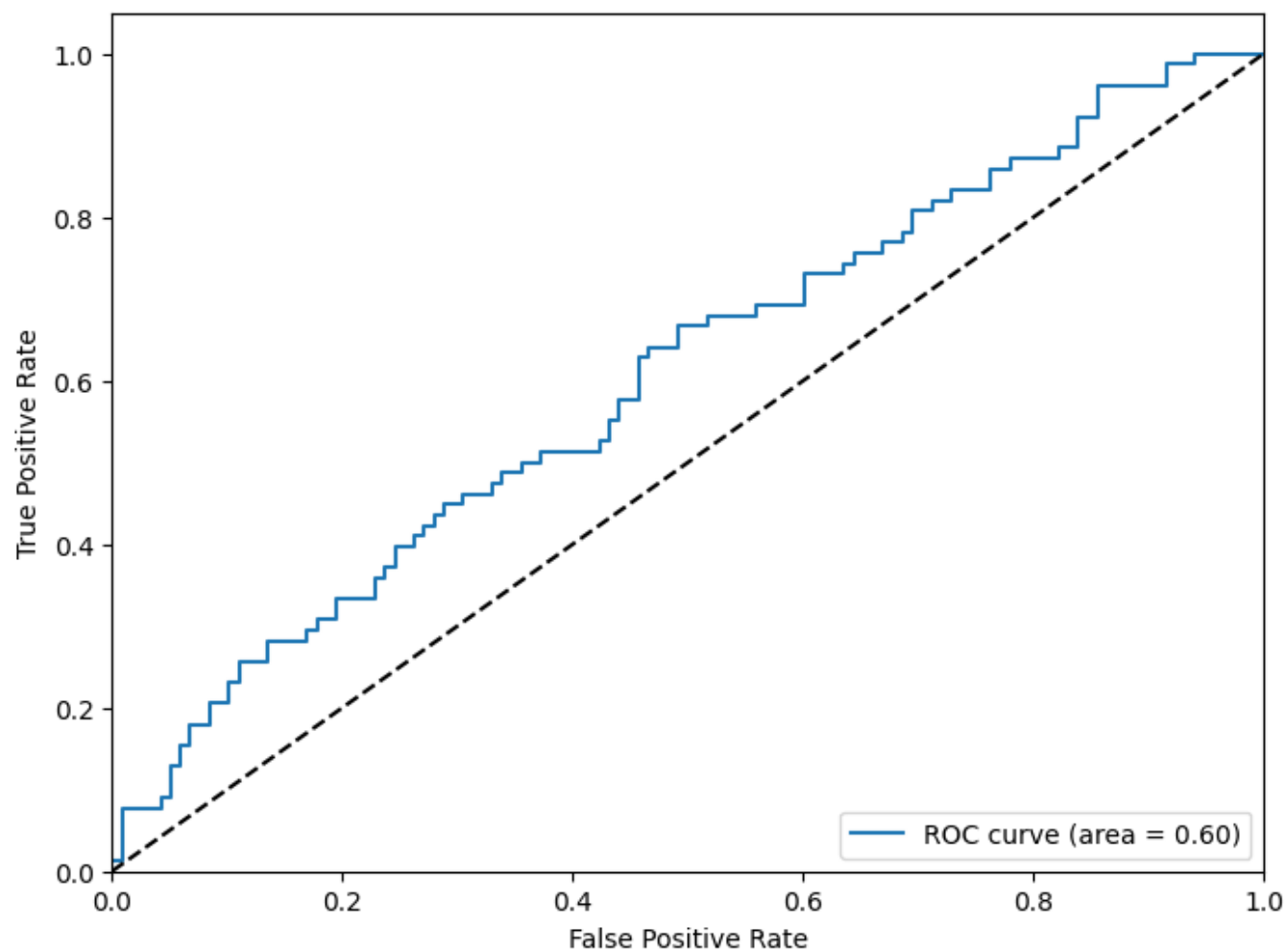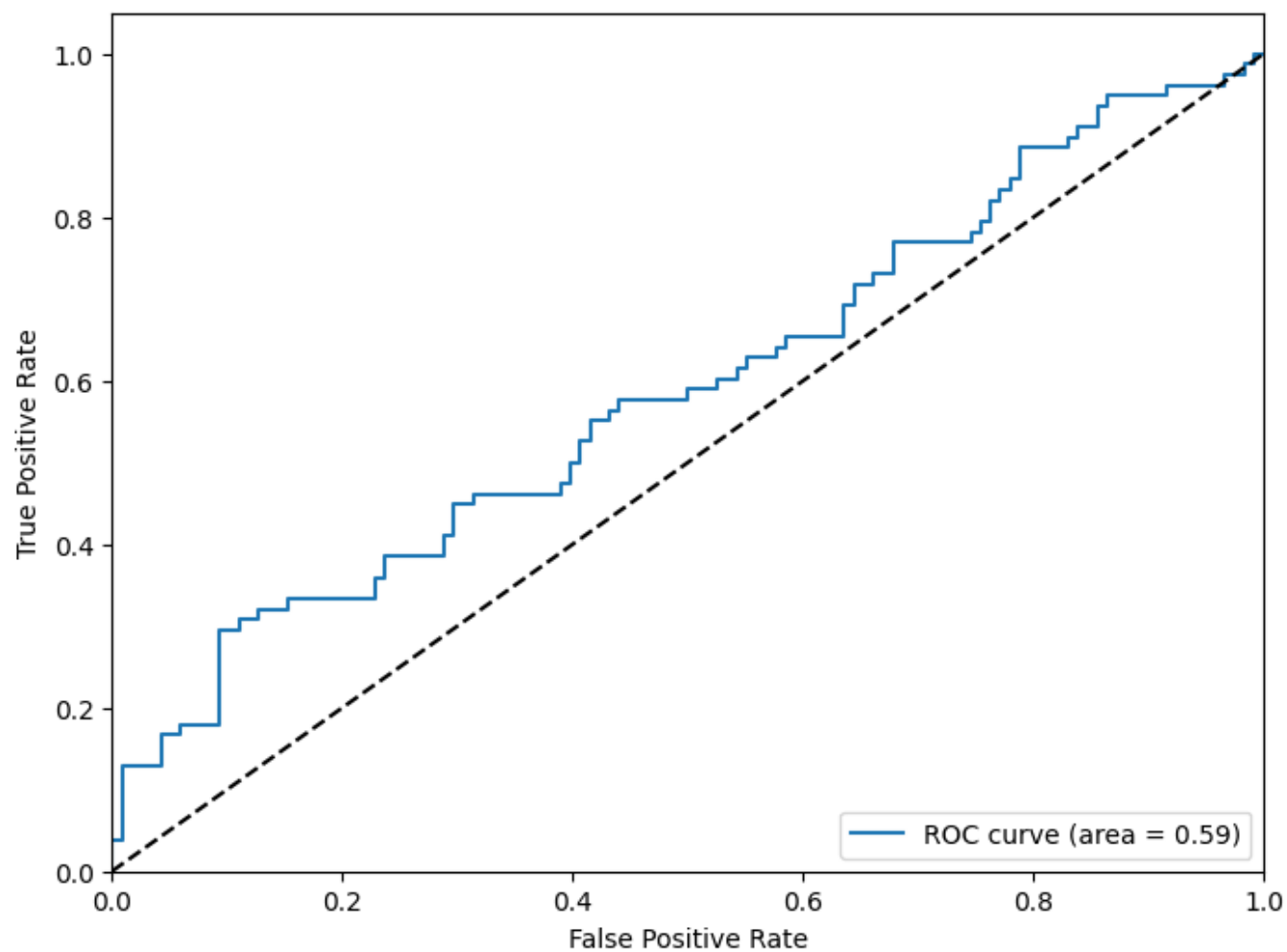
Curva ROC - CNN 3D Personalizada
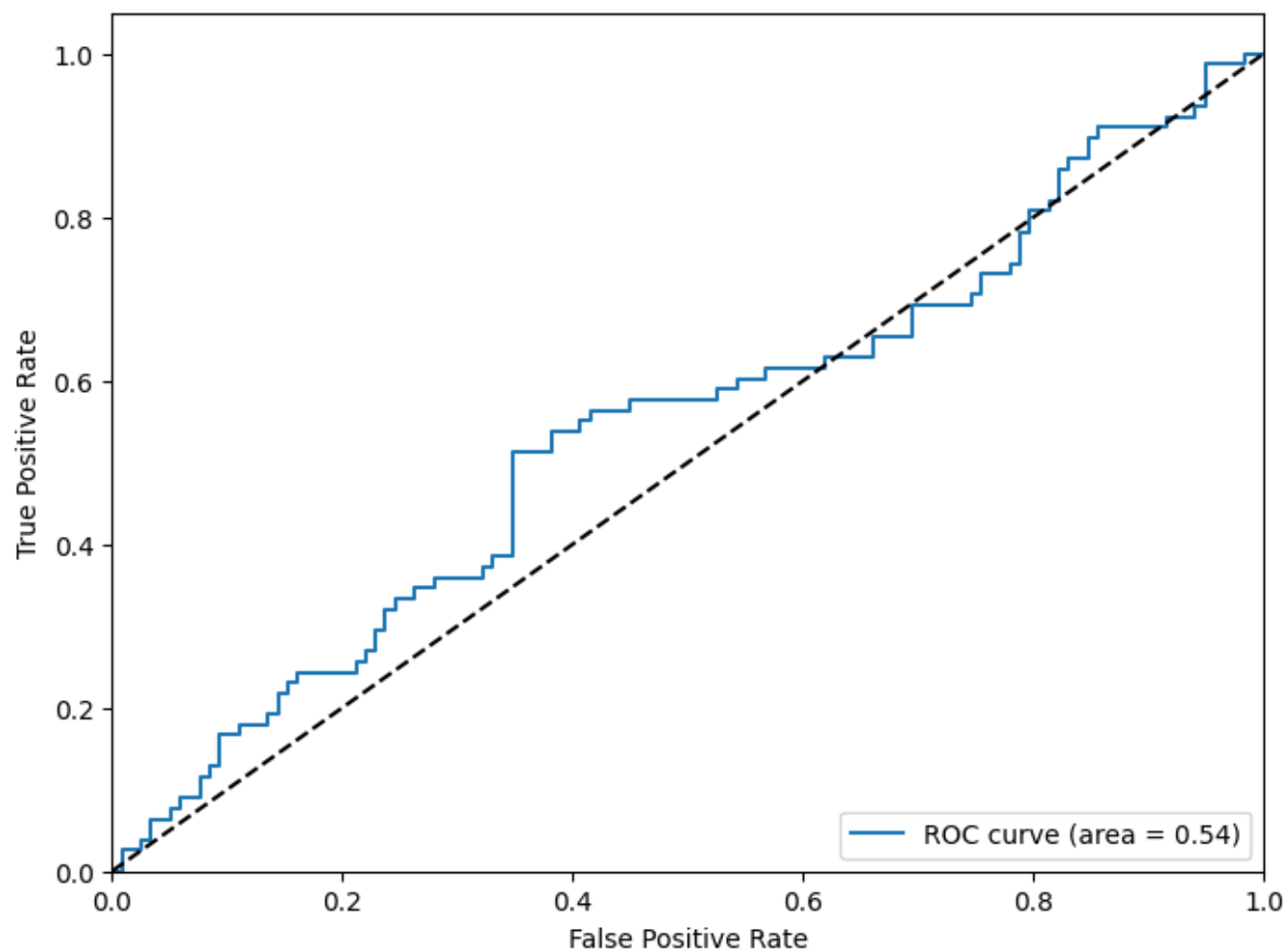
Curva Precision-Recall - 3D DenseNet121
PR curve (AP = 0.52)
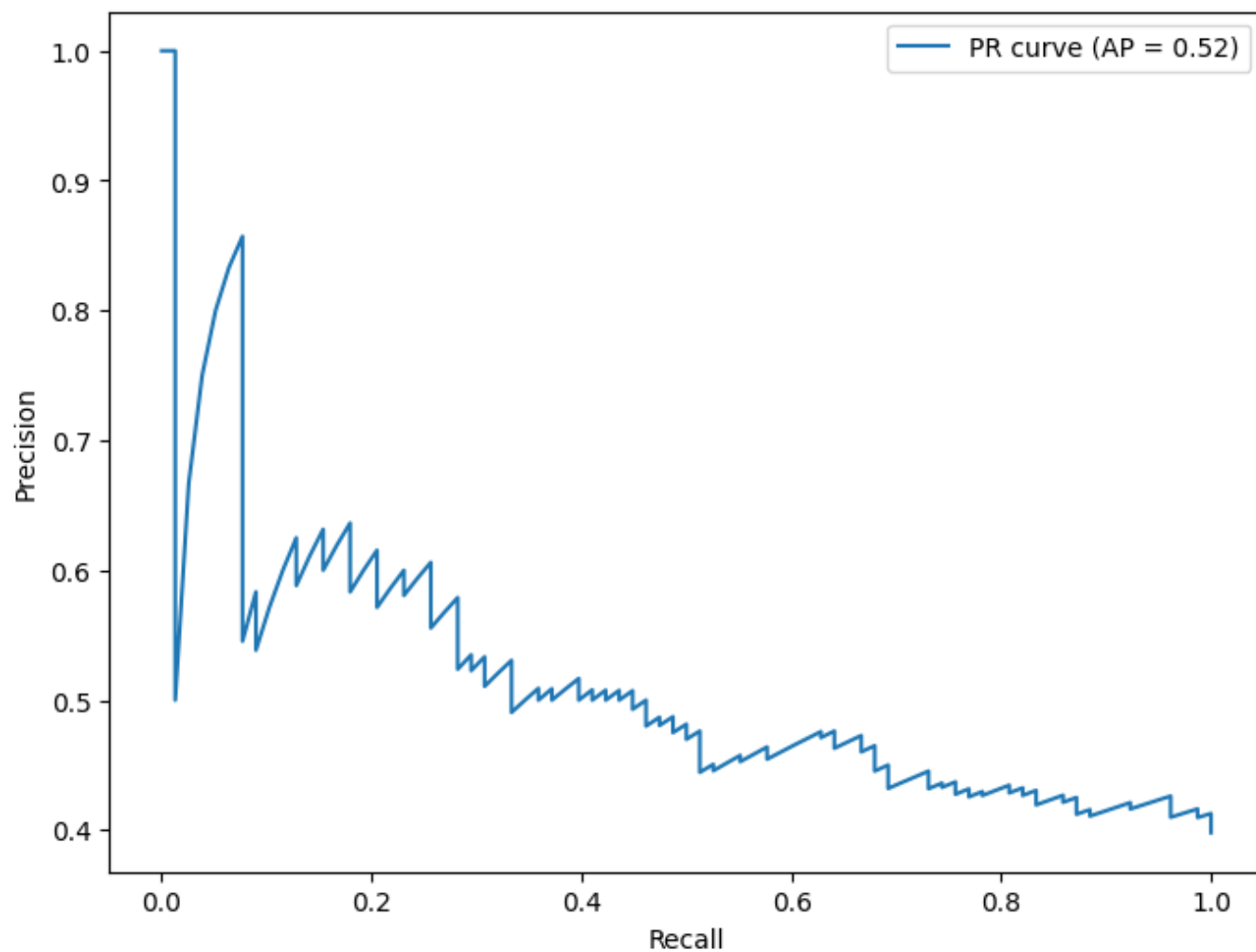
Curva Precision-Recall - 3D ResNet50

Curva Precision-Recall - CNN 3D Personalizada
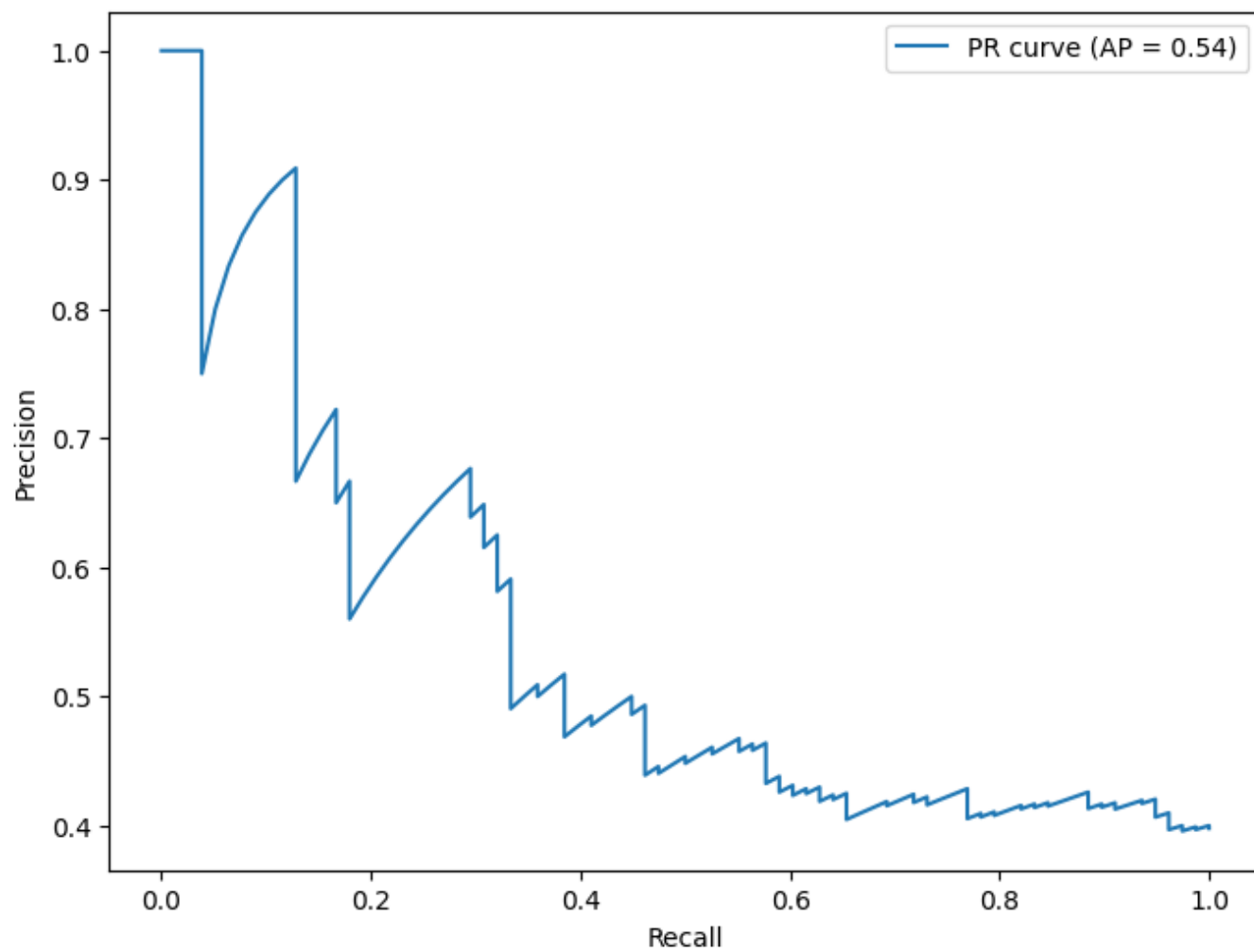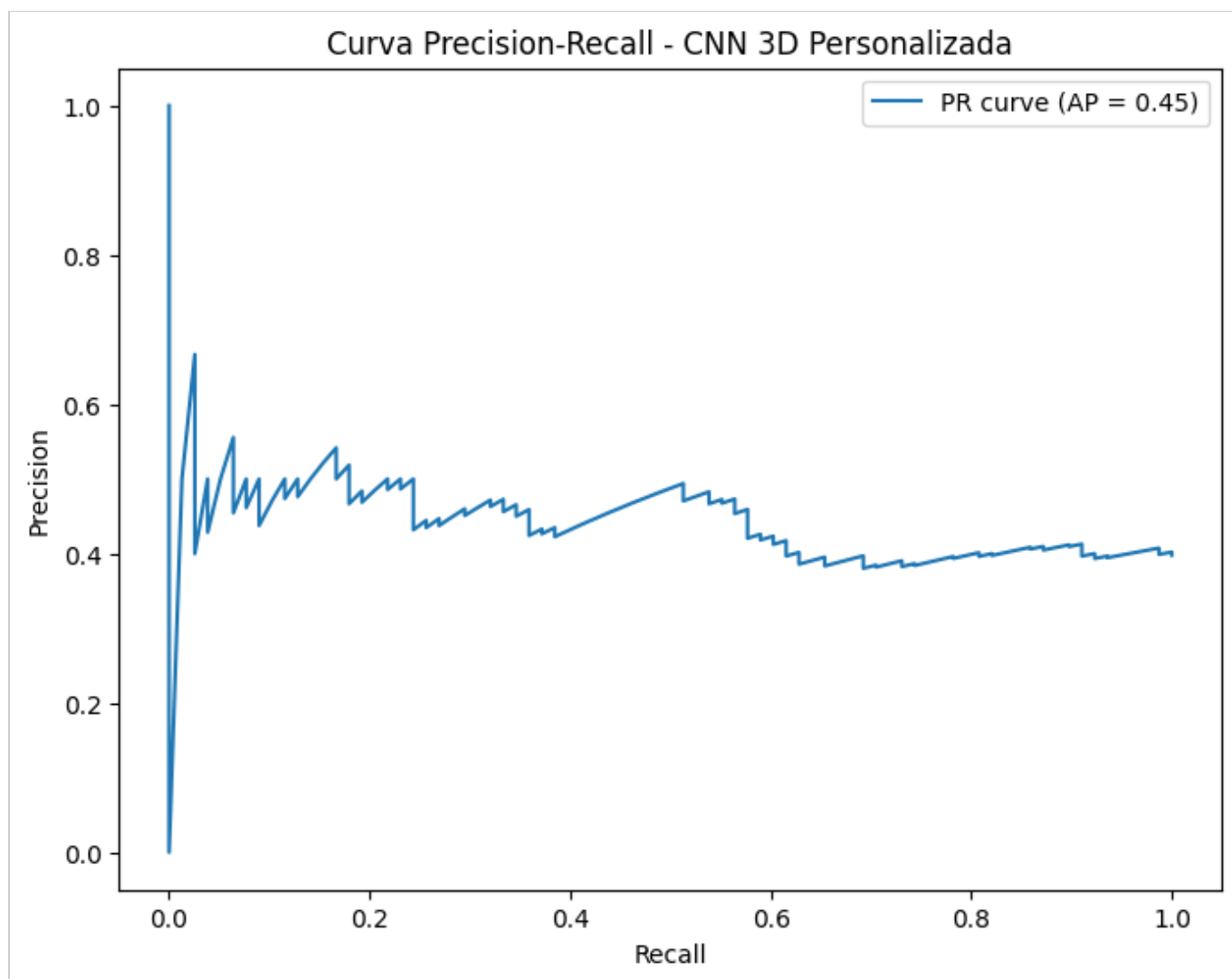
Pruebas McNemar

McNemar: 3D DenseNet121 vs CNN 3D Personalizada
$\chi^2=0.79$, p=0.374

	CNN 3D Personalizada acierto	CNN 3D Personalizada error
3D DenseNet121 acierto	73	36
3D DenseNet121 error	45	42

McNemar: 3D ResNet50 vs 3D DenseNet121
$\chi^2=4.13$, p=0.042

	3D DenseNet121 acierto	3D DenseNet121 error
3D ResNet50 acierto	83	44
3D ResNet50 error	26	43

McNemar: 3D ResNet50 vs CNN 3D Personalizada
$\chi^2=1.73$, p=0.188

	CNN 3D Personalizada acierto	CNN 3D Personalizada error
3D ResNet50 acierto	104	23
3D ResNet50 error	14	55