Table: Performance Comparison of Pre-trained CNN Architectures for Brain Cancer Classification

Dataset: Multi-Cancer (Brain Cancer) — Classes: brain_glioma, brain_menin, brain_tumor | Transfer Learning: Frozen backbone + fine-tuned classifier head | Optimizer: Adam | LR: 0.001

Metric	ResNet-50 (20 Epochs)				VGG-16 (50 Epochs)				EfficientNet-B0 (50 Epochs)				Paired T-Test Statistical Comparison		
	Overall	Glioma	Menin	Tumor	Overall	Glioma	Menin	Tumor	Overall	Glioma	Menin	Tumor	Comparison	t-stat	p-value
Accuracy	**96.87%**				**97.00%**				**96.27%**				ResNet vs VGG	-8.9944	< 0.0001 ■
Class Accuracy	—	98.08%	94.83%	97.77%	—	98.77%	93.13%	98.10%	—	98.37%	93.57%	96.98%	ResNet vs EffNet	-2.4929	0.0127 ■
Precision (Macro Avg)	**0.97**	0.97	0.97	0.96	**0.97**	0.98	0.97	0.95	**0.96**	0.97	0.96	0.96	VGG vs EffNet	6.7359	< 0.0001 ■
Recall (Macro Avg)	**0.97**	0.98	0.95	0.98	**0.97**	0.99	0.93	0.98	**0.96**	0.98	0.94	0.97			
F1-Score (Macro Avg)	**0.97**	0.98	0.96	0.97	**0.97**	0.99	0.95	0.97	**0.96**	0.98	0.95	0.96			
AUC (OVR)	**—***				**0.9972**				**0.9964**						
Training Time	**40 min**				**84 min 3 sec**				**58 min 52 sec**						
Testing Time	**20.47 sec**				**17.92 sec**				**23.38 sec**						