Training involves forward propagation to compute outputs and backpropagation to update weights based on error gradients. This concept is fundamental to understanding modern AI systems. Research from leading institutions has shown that training involves forward propagation to compute outputs and backpropagation to update weights based on error gradients. Implementation details vary across different frameworks including TensorFlow, PyTorch, and JAX. Performance benchmarks indicate significant improvements when training involves forward propagation to compute outputs and backpropagation to update weights based on error gradients. Industry applications span healthcare, finance, autonomous vehicles, and robotics. Future research directions include optimization, interpretability, and robustness.

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Metric	Baseline	Improved	Enhancement
Accuracy	87.2%	94.7%	+7.5%
F1-Score	0.832	0.923	+0.091
Precision	0.845	0.935	+0.090
Recall	0.819	0.912	+0.093
Training Time	24.3h	18.7h	-23.0%
Memory Usage	8.2GB	6.8GB	-17.1%