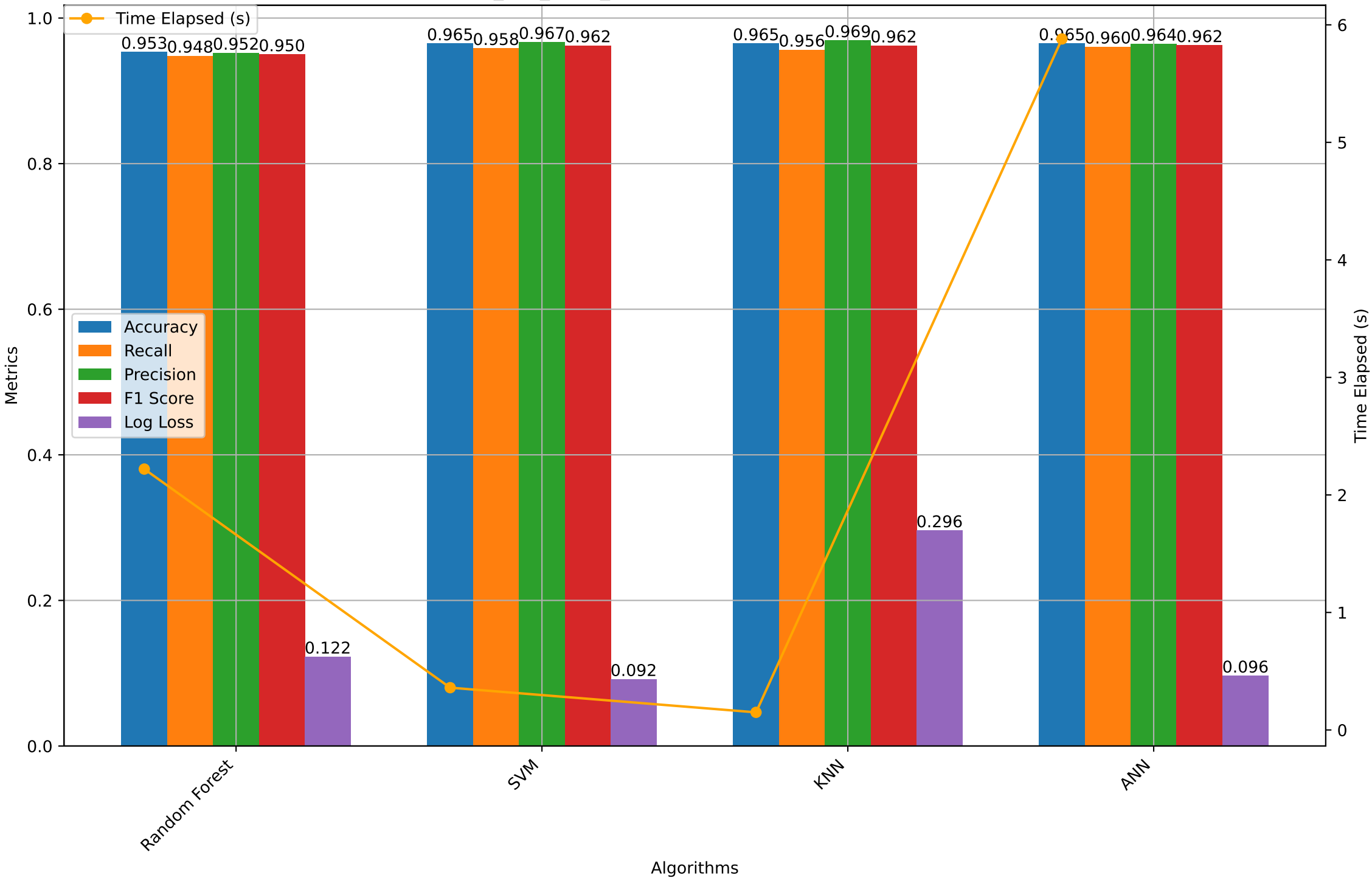
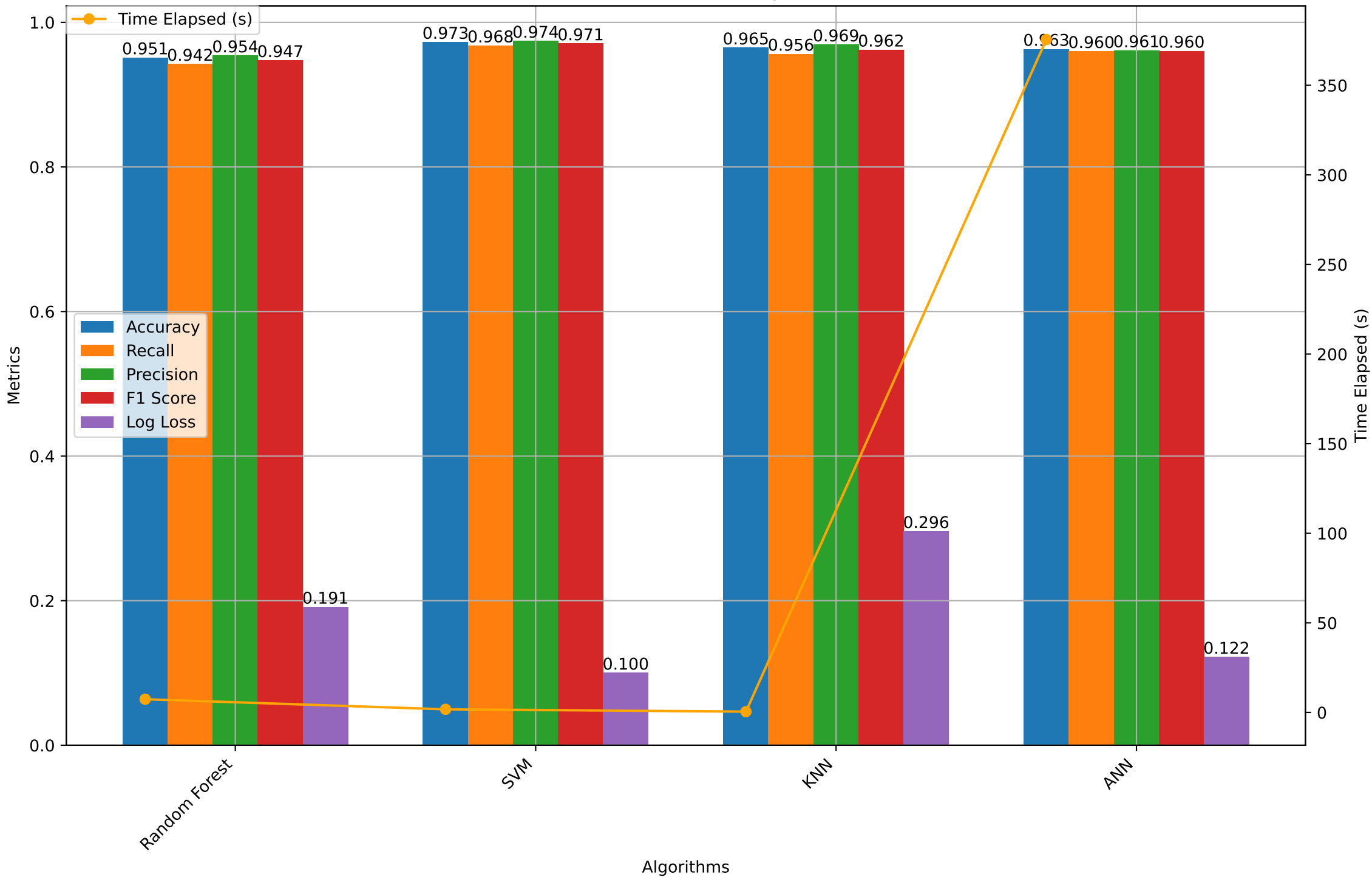


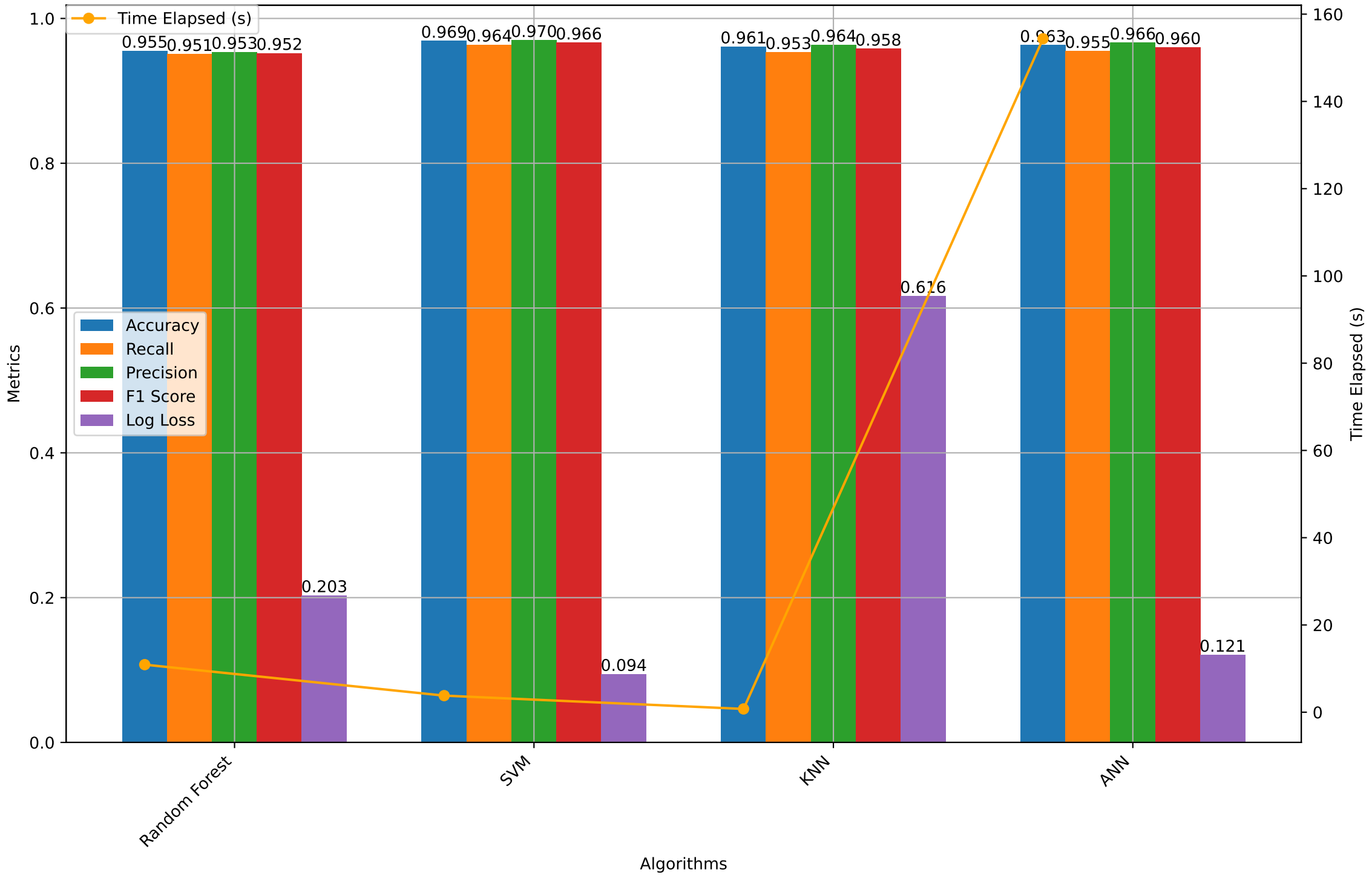
# 3\_fold\_cross\_validation - Metric Comparison



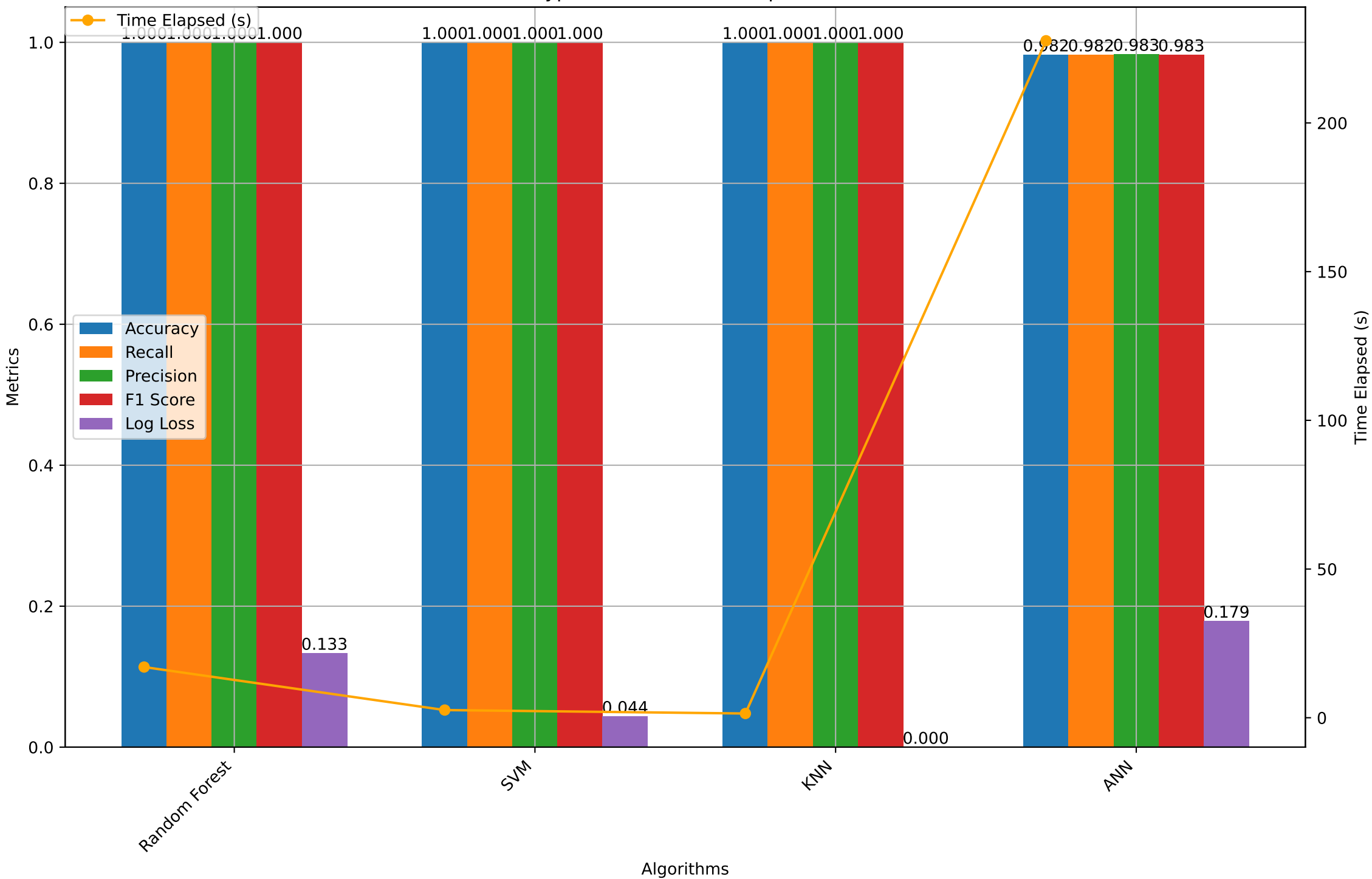
Grid Search - Metric Comparison



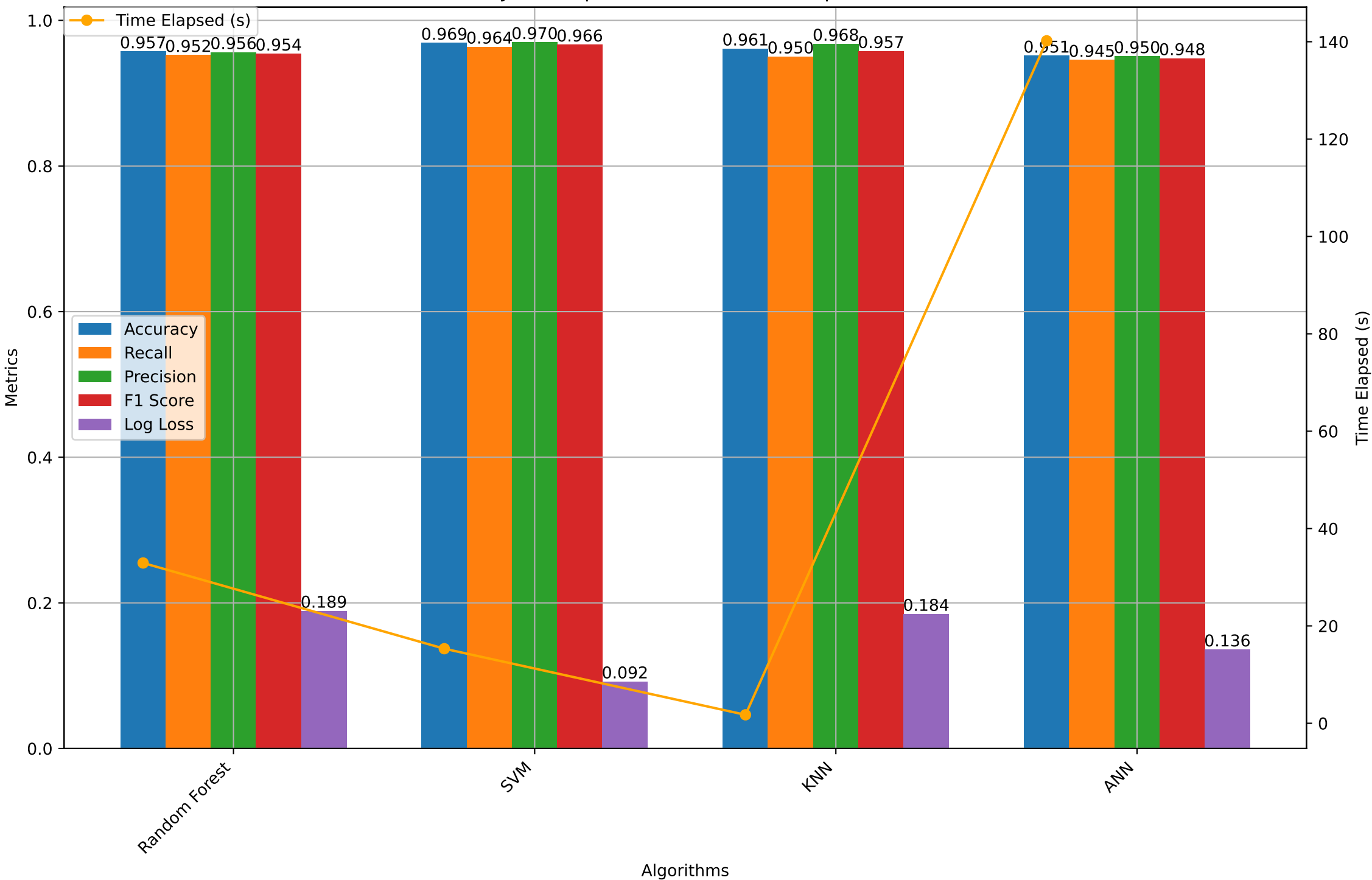
Random Search - Metric Comparison



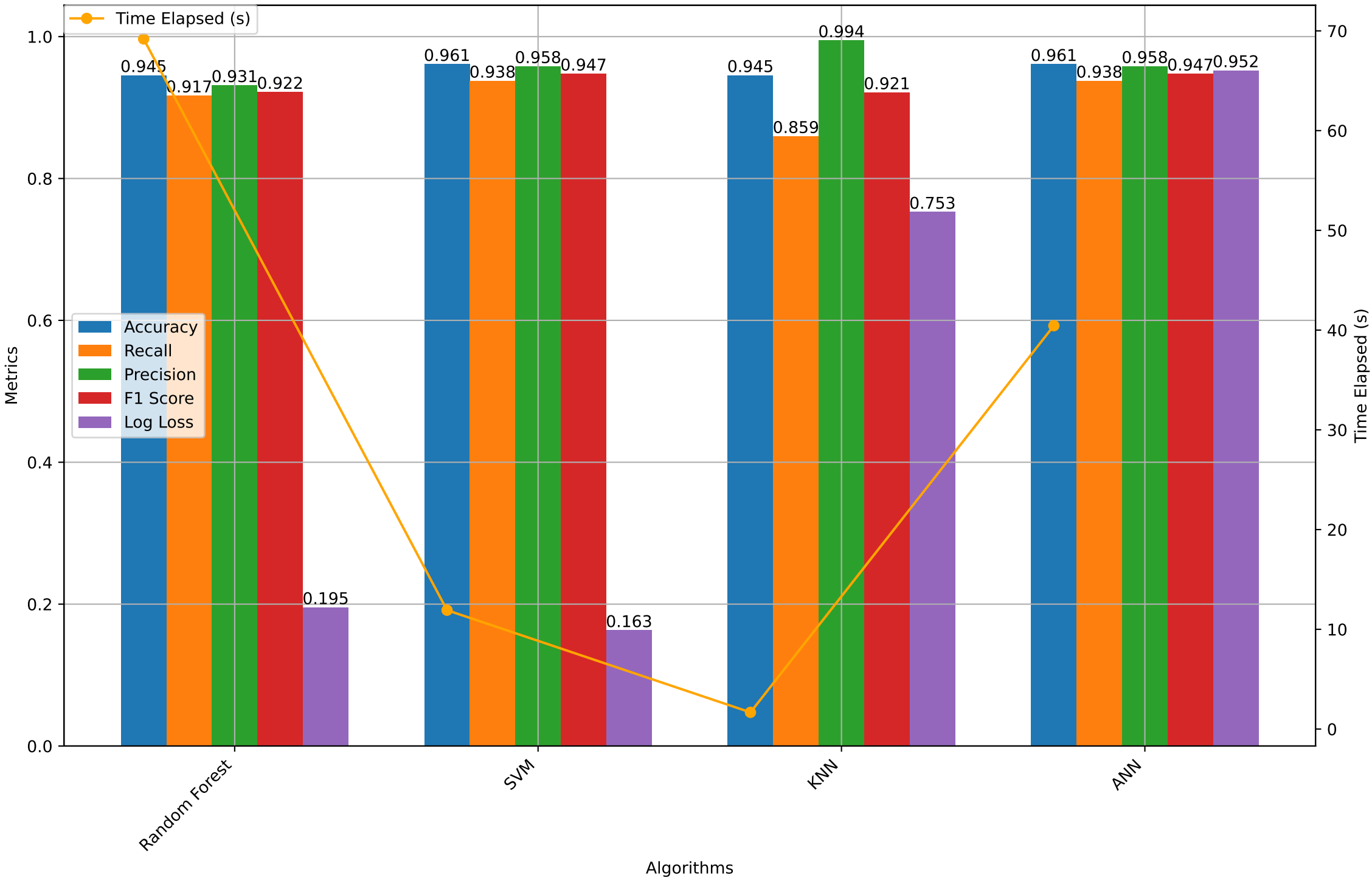
Hyperband - Metric Comparison



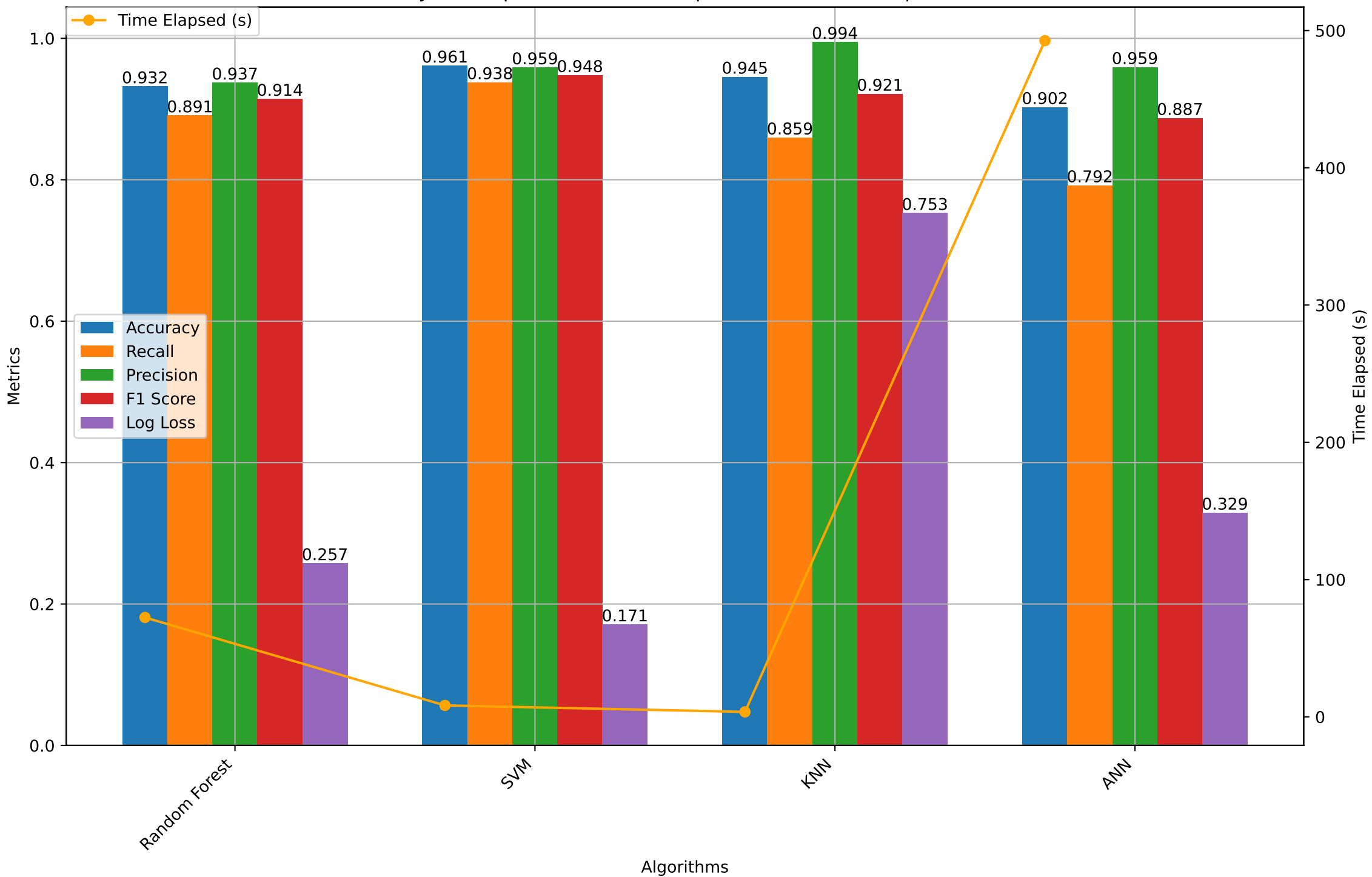
# Bayesian Optimization - Metric Comparison



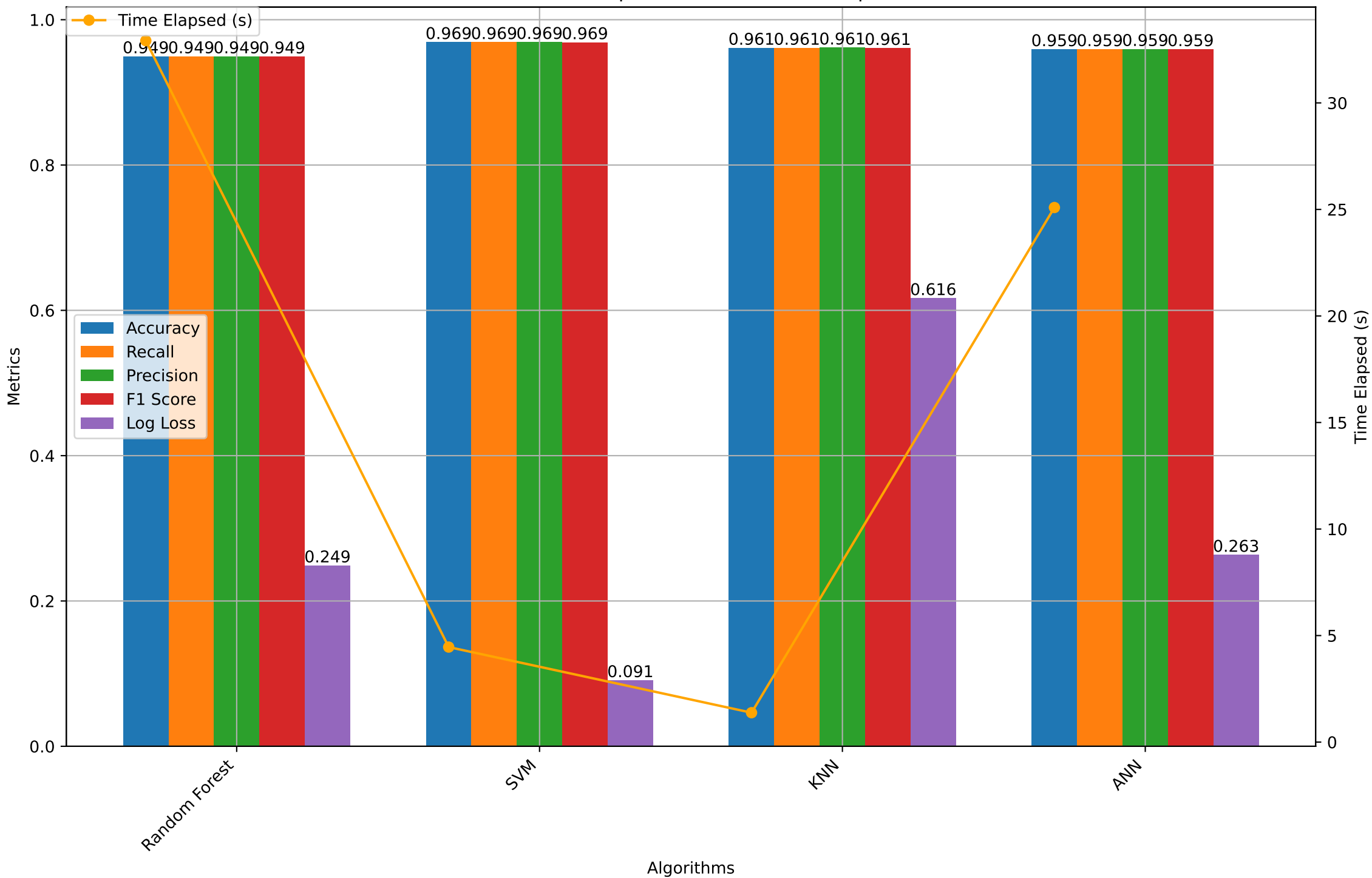
# Sequential Model-Based Optimization (skopt) - Metric Comparison



# Bayesian Optimization (scikit-optimize) - Metric Comparison

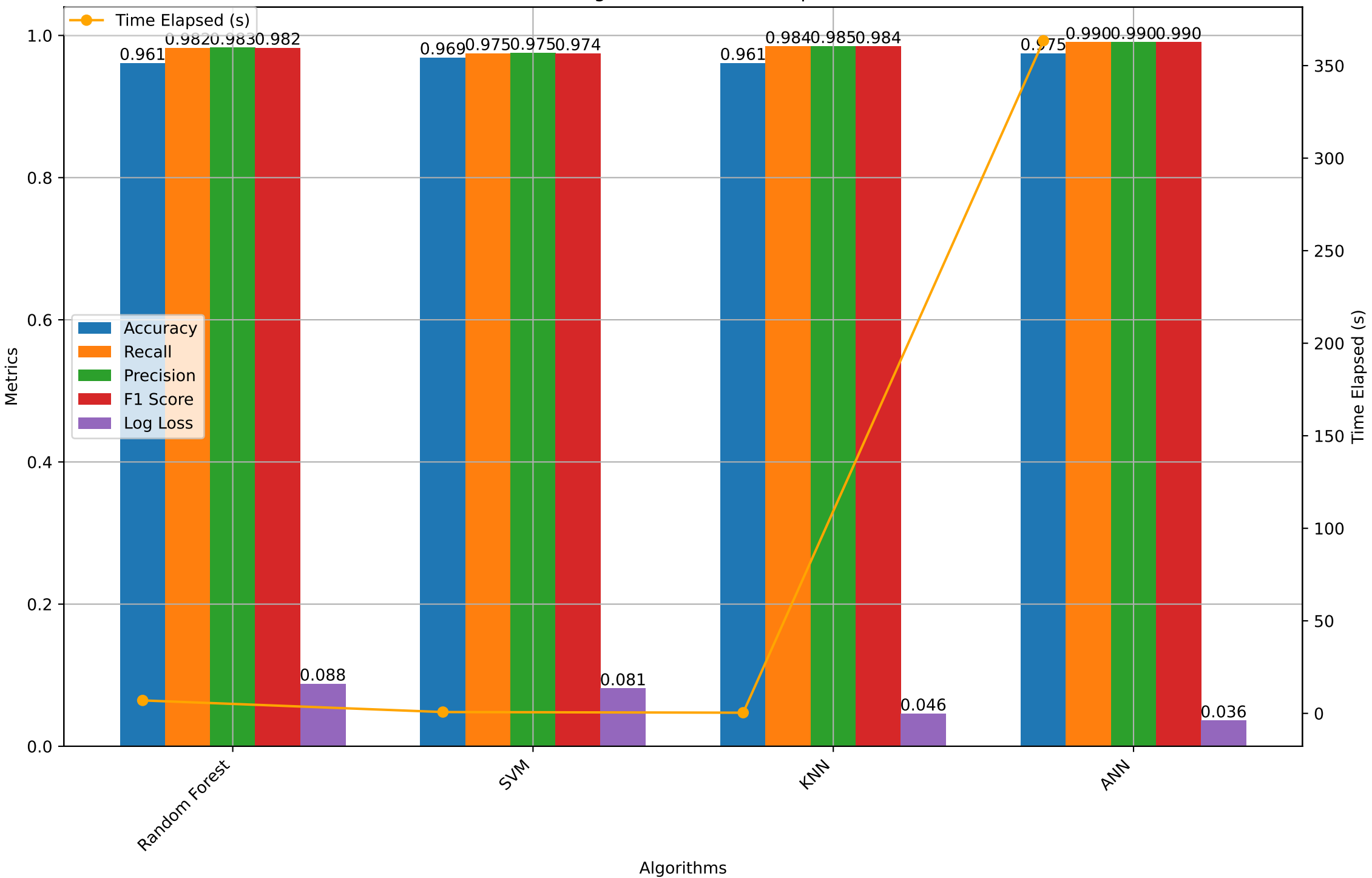


Particle Swarm Optimization - Metric Comparison

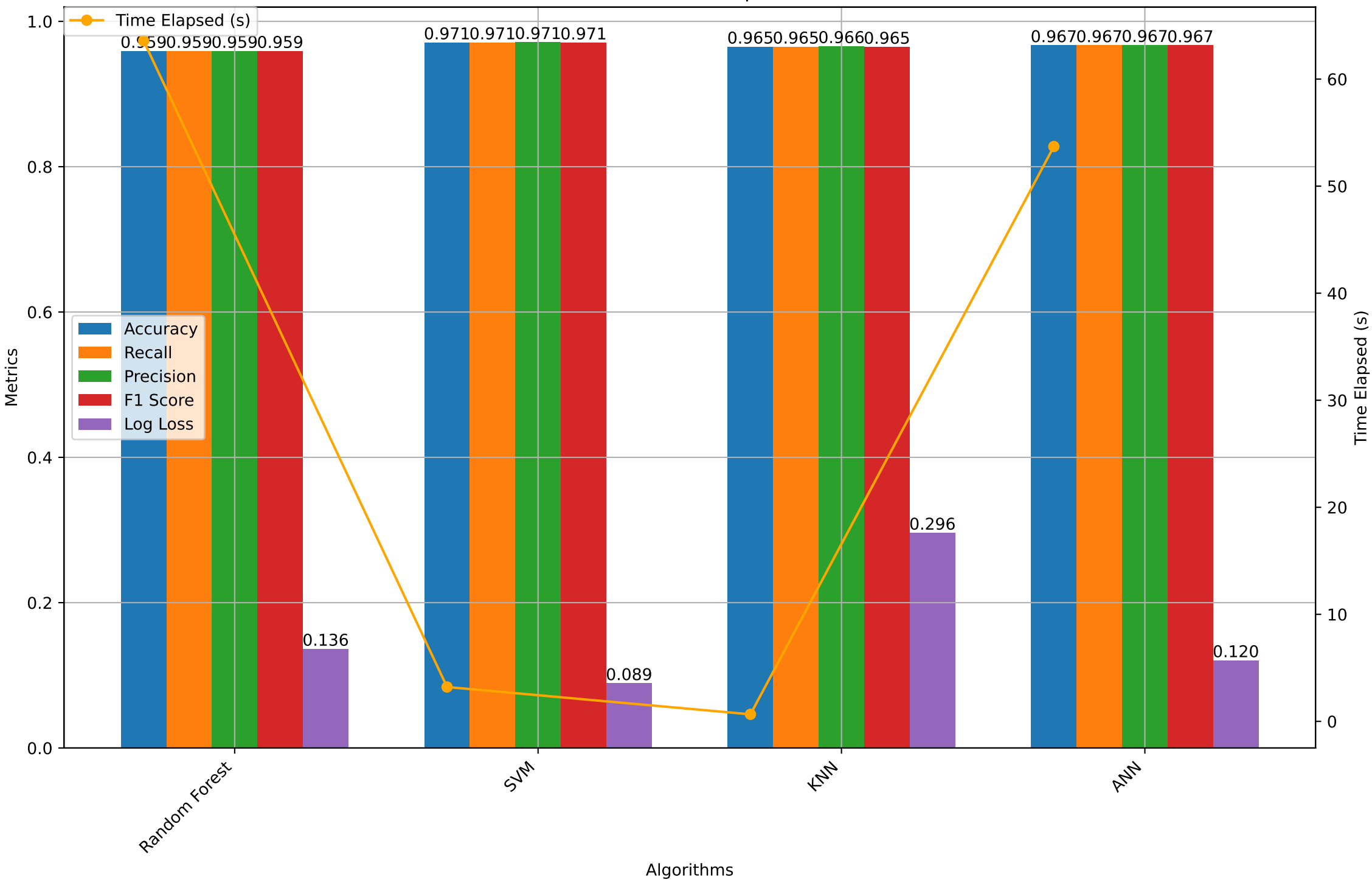




Genetic Algorithm - Metric Comparison



TPOT - Metric Comparison



Best Algorithm and Procedure Summary:

Procedure	Accuracy Winner	Recall Winner	Precision Winner	F1 Score Winner	Log Loss Winner	Accuracy Value	Recall Value	Precision Value	F1 Score Value	Log Loss Value	Time Winner	Time Elapsed (s)
3_fold_cross_validation	SVM	ANN	KNN	ANN	SVM	0.964866414402018	0.9604360452301184	0.9690791614249742	0.9623683133211188	0.0915615517023837	KNN	0.15
Grid Search	SVM	SVM	SVM	SVM	SVM	0.9726866185070518	0.9677131090930464	0.974107724215432	0.970634208139568	0.0999931071190243	KNN	0.46
Random Search	SVM	SVM	SVM	SVM	SVM	0.9687879830294692	0.963551310027626	0.9697430293891592	0.9664041514505984	0.0942206470190002	KNN	0.75
Hyperband	Random Forest	Random Forest	Random Forest	Random Forest	KNN	1.0	1.0	1.0	1.0	9.992007221626417e-16	KNN	1.4242537021636963
Bayesian Optimization	SVM	SVM	SVM	SVM	SVM	0.9687879830294692	0.963551310027626	0.9697430293891592	0.9664041514505984	0.0917012430223489	KNN	1.74
Sequential Model-Based Optimization (skopt)	SVM	SVM	KNN	SVM	SVM	0.9609907120743032	0.9375	0.9944444444444444	0.9474531807555064	0.1628984512248371	KNN	1.675440549850464
	Bayesian Optimization (scikit-optimize)	SVM	KNN	SVM	SVM	0.9609907120743034	0.9375	0.9944444444444444	0.947562592723883	0.1707854648817487	KNN	3.61
Particle Swarm Optimization	SVM	SVM	SVM	SVM	SVM	0.9687879830294692	0.9687879830294692	0.9689361427979912	0.9686491413014932	0.0905713253215405	KNN	1.38
Genetic Algorithm	ANN	ANN	ANN	ANN	ANN	0.974609375	0.990234375	0.9903846153846154	0.9902078092082388	0.0359774796578163	KNN	0.37
TPOT	SVM	SVM	SVM	SVM	SVM	0.9707029010434584	0.9707029010434584	0.9710880297729908	0.9705465270530022	0.0887966590633024	KNN	0.66

Overall Best Algorithm and Procedure:

Procedure	Accuracy Winner	Recall Winner	Precision Winner	F1 Score Winner	Log Loss Winner	Accuracy Value	Recall Value	Precision Value	F1 Score Value	Log Loss Value	Time Winner	Time Elapsed (s)
Hyperband	Random Forest	Random Forest	Random Forest	Random Forest	KNN	1.0	1.0	1.0	1.0	9.992007221626417e-16	KNN	1.4242537021636963