

## Feature Descriptor: LBP\_hf

### 1. Feature Selection: CFS

Algorithm	AUC	AC	SN	SP	PR	FM	TIME
J48	0.504	0.527	0.527	0.535	0.533	0.522	0
J48 binary tree	0.66	0.588	0.588	0.591	0.591	0.587	0
AODE	0.734	0.649	0.649	0.657	0.662	0.645	0
Bayes network	0.724	0.641	0.641	0.65	0.655	0.637	0
Naïve bay	0.725	0.641	0.641	0.651	0.658	0.636	0
SVM	0.678	0.679	0.679	0.672	0.679	0.679	0
Logistic	0.667	0.625	0.625	0.631	0.632	0.625	0
SMO	0.673	0.672	0.672	0.675	0.675	0.671	0
Muti layer	0.762	0.664	0.664	0.665	0.666	0.664	3.74

### 2. Feature Selection: Chi-Square

K=10

Algorithm	AUC	AC	SN	SP	PR	FM	TIME
J48	0.49	0.489	0.489	0.492	0.491	0.487	0
J48 binary tree	0.564	0.557	0.557	0.556	0.557	0.557	0
AODE	0.611	0.557	0.557	0.562	0.561	0.556	0
Bayes network	0.616	0.588	0.588	0.595	0.595	0.585	0
Naïve bay	0.62	0.588	0.588	0.595	0.595	0.585	0
SVM	0.465	0.481	0.481	0.449	0.391	0.37	0
Logistic	0.545	0.542	0.542	0.539	0.541	0.542	0.35
SMO	0.579	0.58	0.58	0.577	0.58	0.58	0.03
Muti layer	0.6	0.557	0.557	0.557	0.558	0.557	87.68

K=20

Algorithm	AUC	AC	SN	SP	PR	FM	TIME
J48	0.49	0.489	0.489	0.492	0.491	0.487	0
J48 binary tree	0.564	0.557	0.557	0.556	0.557	0.557	0
AODE	0.611	0.557	0.557	0.562	0.561	0.556	0
Bayes network	0.616	0.588	0.588	0.595	0.595	0.585	0
Naïve bay	0.62	0.588	0.588	0.595	0.595	0.585	0
SVM	0.465	0.481	0.481	0.449	0.391	0.37	0
Logistic	0.545	0.542	0.542	0.539	0.541	0.542	0.35
SMO	0.579	0.58	0.58	0.577	0.58	0.58	0.03
Muti layer	0.6	0.557	0.557	0.557	0.558	0.557	87.68

K=30

Algorithm	AUC	AC	SN	SP	PR	FM	TIME
J48	0.49	0.489	0.489	0.492	0.491	0.487	0
J48 binary tree	0.564	0.557	0.557	0.556	0.557	0.557	0
AODE	0.611	0.557	0.557	0.562	0.561	0.556	0
Bayes network	0.616	0.588	0.588	0.595	0.595	0.585	0
Naïve bay	0.62	0.588	0.588	0.595	0.595	0.585	0
SVM	0.465	0.481	0.481	0.449	0.391	0.37	0
Logistic	0.545	0.542	0.542	0.539	0.541	0.542	0.35
SMO	0.579	0.58	0.58	0.577	0.58	0.58	0.03
Muti layer	0.6	0.557	0.557	0.557	0.558	0.557	87.68

K=39

Algorithm	AUC	AC	SN	SP	PR	FM	TIME
J48	0.49	0.489	0.489	0.492	0.491	0.487	0
J48 binary tree	0.564	0.557	0.557	0.556	0.557	0.557	0
AODE	0.611	0.557	0.557	0.562	0.561	0.556	0
Bayes network	0.616	0.588	0.588	0.595	0.595	0.585	0
Naïve bay	0.62	0.588	0.588	0.595	0.595	0.585	0
SVM	0.465	0.481	0.481	0.449	0.391	0.37	0
Logistic	0.545	0.542	0.542	0.539	0.541	0.542	0.35
SMO	0.579	0.58	0.58	0.577	0.58	0.58	0.03
Muti layer	0.6	0.557	0.557	0.557	0.558	0.557	87.68

### 3. Feature Selection: Gain Ratio

K=10

Algorithm	AUC	AC	SN	SP	PR	FM	TIME
J48	0.49	0.489	0.489	0.492	0.491	0.487	0
J48 binary tree	0.57	0.55	0.55	0.548	0.549	0.549	0
AODE	0.611	0.557	0.557	0.562	0.561	0.556	0
Bayes network	0.616	0.588	0.588	0.595	0.595	0.585	0
Naïve bay	0.62	0.588	0.588	0.595	0.595	0.585	0
SVM	0.465	0.481	0.481	0.449	0.391	0.37	0
Logistic	0.545	0.542	0.542	0.539	0.541	0.542	0.44
SMO	0.579	0.58	0.58	0.577	0.58	0.58	0.03

Muti layer							100.48
------------	--	--	--	--	--	--	--------

K=20

Algorithm	AUC	AC	SN	SP	PR	FM	TIME
J48	0.49	0.489	0.489	0.492	0.491	0.487	0
J48 binary tree	0.57	0.55	0.55	0.548	0.549	0.549	0
AODE	0.611	0.557	0.557	0.562	0.561	0.556	0
Bayes network	0.616	0.588	0.588	0.595	0.595	0.585	0
Naïve bay	0.62	0.588	0.588	0.595	0.595	0.585	0
SVM	0.465	0.481	0.481	0.449	0.391	0.37	0
Logistic	0.545	0.542	0.542	0.539	0.541	0.542	0.44
SMO	0.579	0.58	0.58	0.577	0.58	0.58	0.03
Muti layer							87.68

K=30

Algorithm	AUC	AC	SN	SP	PR	FM	TIME
J48	0.49	0.489	0.489	0.492	0.491	0.487	0
J48 binary tree	0.57	0.55	0.55	0.548	0.549	0.549	0
AODE	0.611	0.557	0.557	0.562	0.561	0.556	0
Bayes network	0.616	0.588	0.588	0.595	0.595	0.585	0
Naïve bay	0.62	0.588	0.588	0.595	0.595	0.585	0
SVM	0.465	0.481	0.481	0.449	0.391	0.37	0
Logistic	0.545	0.542	0.542	0.539	0.541	0.542	0.44
SMO	0.579	0.58	0.58	0.577	0.58	0.58	0.03
Muti layer							87.68

K=39

Algorithm	AUC	AC	SN	SP	PR	FM	TIME
J48	0.49	0.489	0.489	0.492	0.491	0.487	0
J48 binary tree	0.57	0.55	0.55	0.548	0.549	0.549	0
AODE	0.611	0.557	0.557	0.562	0.561	0.556	0
Bayes network	0.616	0.588	0.588	0.595	0.595	0.585	0
Naïve bay	0.62	0.588	0.588	0.595	0.595	0.585	0
SVM	0.465	0.481	0.481	0.449	0.391	0.37	0
Logistic	0.545	0.542	0.542	0.539	0.541	0.542	0.44
SMO	0.579	0.58	0.58	0.577	0.58	0.58	0.03

Muti layer							87.68
------------	--	--	--	--	--	--	-------

#### 4. Feature Selection: Information Gain

K=10

Algorithm	AUC	AC	SN	SP	PR	FM	TIME
J48	0.49	0.489	0.489	0.492	0.491	0.487	0
J48 binary tree	0.576	0.565	0.565	0.563	0.565	0.565	0
AODE	0.611	0.557	0.557	0.562	0.561	0.556	0
Bayes network	0.616	0.588	0.588	0.595	0.595	0.585	0
Naïve bay	0.62	0.588	0.588	0.595	0.595	0.585	0
SVM	0.465	0.481	0.481	0.449	0.391	0.37	0
Logistic	0.545	0.542	0.542	0.539	0.541	0.542	0.25
SMO	0.579	0.58	0.58	0.577	0.58	0.58	0.03
Muti layer							87.68

K=20

Algorithm	AUC	AC	SN	SP	PR	FM	TIME
J48	0.49	0.489	0.489	0.492	0.491	0.487	0
J48 binary tree	0.576	0.565	0.565	0.563	0.565	0.565	0
AODE	0.611	0.557	0.557	0.562	0.561	0.556	0
Bayes network	0.616	0.588	0.588	0.595	0.595	0.585	0
Naïve bay	0.62	0.588	0.588	0.595	0.595	0.585	0
SVM	0.465	0.481	0.481	0.449	0.391	0.37	0
Logistic	0.545	0.542	0.542	0.539	0.541	0.542	0.25
SMO	0.579	0.58	0.58	0.577	0.58	0.58	0.03
Muti layer							87.68

K=30

Algorithm	AUC	AC	SN	SP	PR	FM	TIME
J48	0.49	0.489	0.489	0.492	0.491	0.487	0
J48 binary tree	0.576	0.565	0.565	0.563	0.565	0.565	0
AODE	0.611	0.557	0.557	0.562	0.561	0.556	0
Bayes network	0.616	0.588	0.588	0.595	0.595	0.585	0
Naïve bay	0.62	0.588	0.588	0.595	0.595	0.585	0
SVM	0.465	0.481	0.481	0.449	0.391	0.37	0

Logistic	0.545	0.542	0.542	0.539	0.541	0.542	0.25
SMO	0.579	0.58	0.58	0.577	0.58	0.58	0.03
Muti layer							87.68

K=39

Algorithm	AUC	AC	SN	SP	PR	FM	TIME
J48	0.49	0.489	0.489	0.492	0.491	0.487	0
J48 binary tree	0.576	0.565	0.565	0.563	0.565	0.565	0
AODE	0.611	0.557	0.557	0.562	0.561	0.556	0
Bayes network	0.616	0.588	0.588	0.595	0.595	0.585	0
Naïve bay	0.62	0.588	0.588	0.595	0.595	0.585	0
SVM	0.465	0.481	0.481	0.449	0.391	0.37	0
Logistic	0.545	0.542	0.542	0.539	0.541	0.542	0.31
SMO	0.579	0.58	0.58	0.577	0.58	0.58	0.03
Muti layer							87.68

## 5. Feature Selection: Relief

K=10

Algorithm	AUC	AC	SN	SP	PR	FM	TIME
J48	0.485	0.481	0.481	0.484	0.483	0.48	0
J48 binary tree	0.563	0.557	0.557	0.551	0.556	0.555	0
AODE	0.611	0.557	0.557	0.562	0.561	0.556	0
Bayes network	0.616	0.588	0.588	0.595	0.595	0.585	0
Naïve bay	0.62	0.588	0.588	0.595	0.595	0.585	0
SVM	0.465	0.481	0.481	0.449	0.391	0.37	0
Logistic	0.545	0.542	0.542	0.539	0.541	0.542	0.31
SMO	0.579	0.58	0.58	0.577	0.58	0.58	0.03
Muti layer							87.68

K=20

Algorithm	AUC	AC	SN	SP	PR	FM	TIME
J48	0.485	0.481	0.481	0.484	0.483	0.48	0
J48 binary tree	0.563	0.557	0.557	0.551	0.556	0.555	0
AODE	0.611	0.557	0.557	0.562	0.561	0.556	0
Bayes network	0.616	0.588	0.588	0.595	0.595	0.585	0

Naïve bay	0.62	0.588	0.588	0.595	0.595	0.585	0
SVM	0.465	0.481	0.481	0.449	0.391	0.37	0
Logistic	0.545	0.542	0.542	0.539	0.541	0.542	0.31
SMO	0.579	0.58	0.58	0.577	0.58	0.58	0.03
Muti layer							87.68

K=30

Algorithm	AUC	AC	SN	SP	PR	FM	TIME
J48	0.485	0.481	0.481	0.484	0.483	0.48	0
J48 binary tree	0.563	0.557	0.557	0.551	0.556	0.555	0
AODE	0.611	0.557	0.557	0.562	0.561	0.556	0
Bayes network	0.616	0.588	0.588	0.595	0.595	0.585	0
Naïve bay	0.62	0.588	0.588	0.595	0.595	0.585	0
SVM	0.465	0.481	0.481	0.449	0.391	0.37	0
Logistic	0.545	0.542	0.542	0.539	0.541	0.542	0.31
SMO	0.579	0.58	0.58	0.577	0.58	0.58	0.03
Muti layer							87.68

K=39

Algorithm	AUC	AC	SN	SP	PR	FM	TIME
J48	0.485	0.481	0.481	0.484	0.483	0.48	0
J48 binary tree	0.563	0.557	0.557	0.551	0.556	0.555	0
AODE	0.611	0.557	0.557	0.562	0.561	0.556	0
Bayes network	0.616	0.588	0.588	0.595	0.595	0.585	0
Naïve bay	0.62	0.588	0.588	0.595	0.595	0.585	0
SVM	0.465	0.481	0.481	0.449	0.391	0.37	0
Logistic	0.545	0.542	0.542	0.539	0.541	0.542	0.31
SMO	0.579	0.58	0.58	0.577	0.58	0.58	0.03
Muti layer							87.68