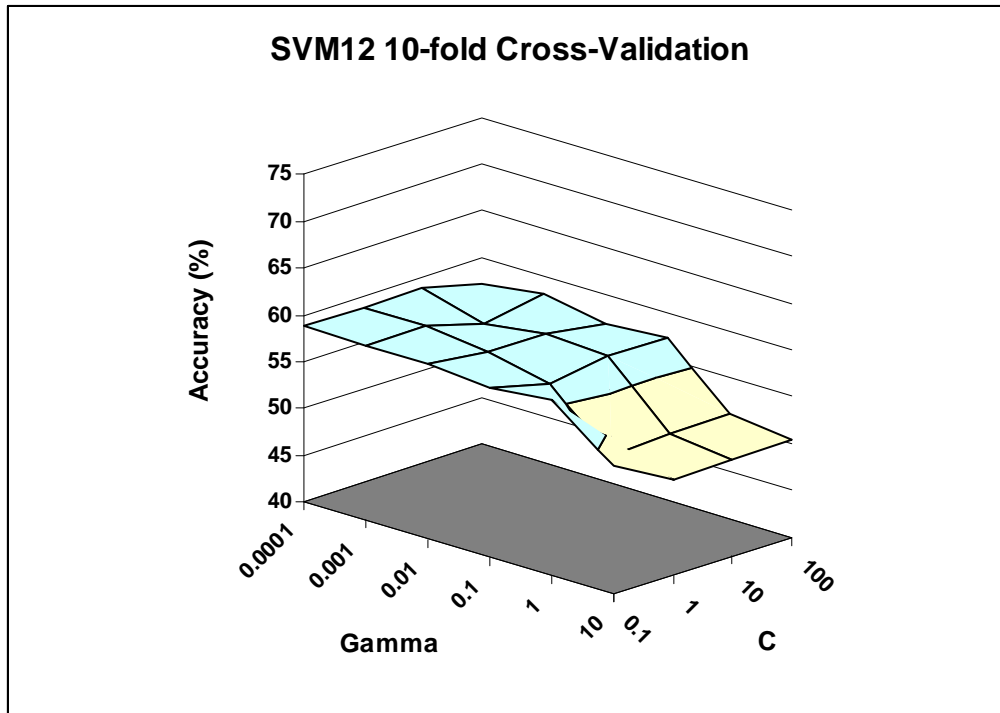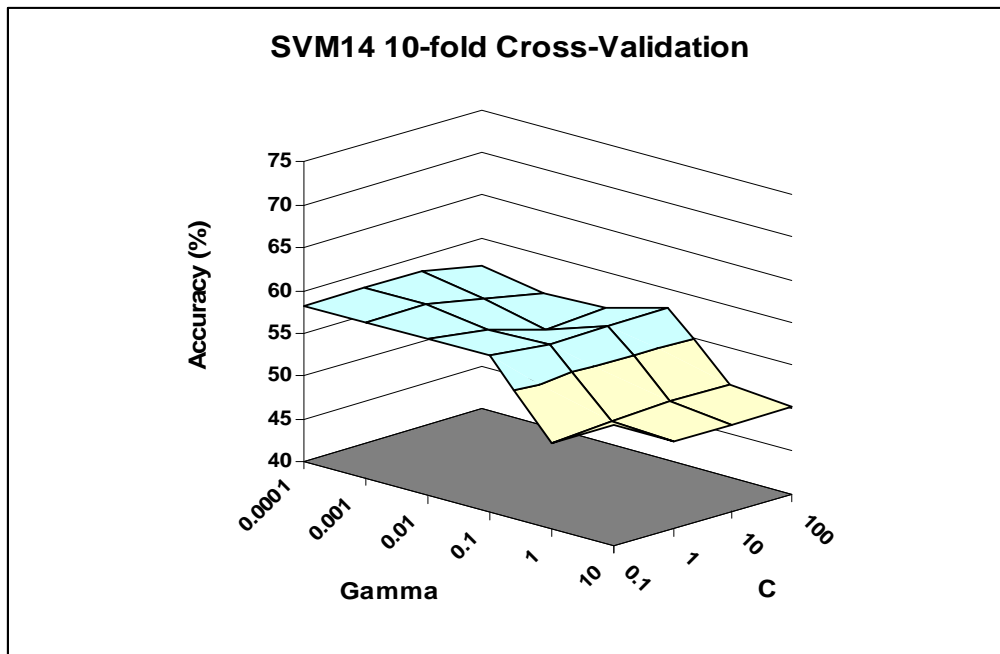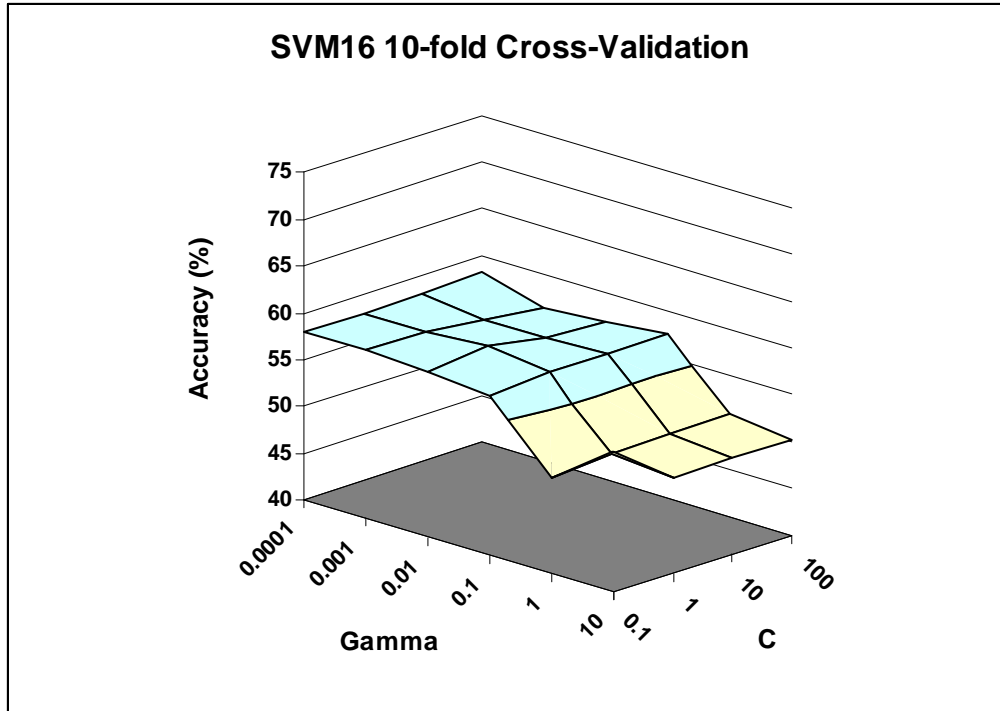**SVM parameter optimization:** Training sets from EL-Manzalawy and Chen datasets were trained under 10-fold cross-validation using various C and γ values. Optimal set of C and γ values for each peptide representation is indicated below the plot.
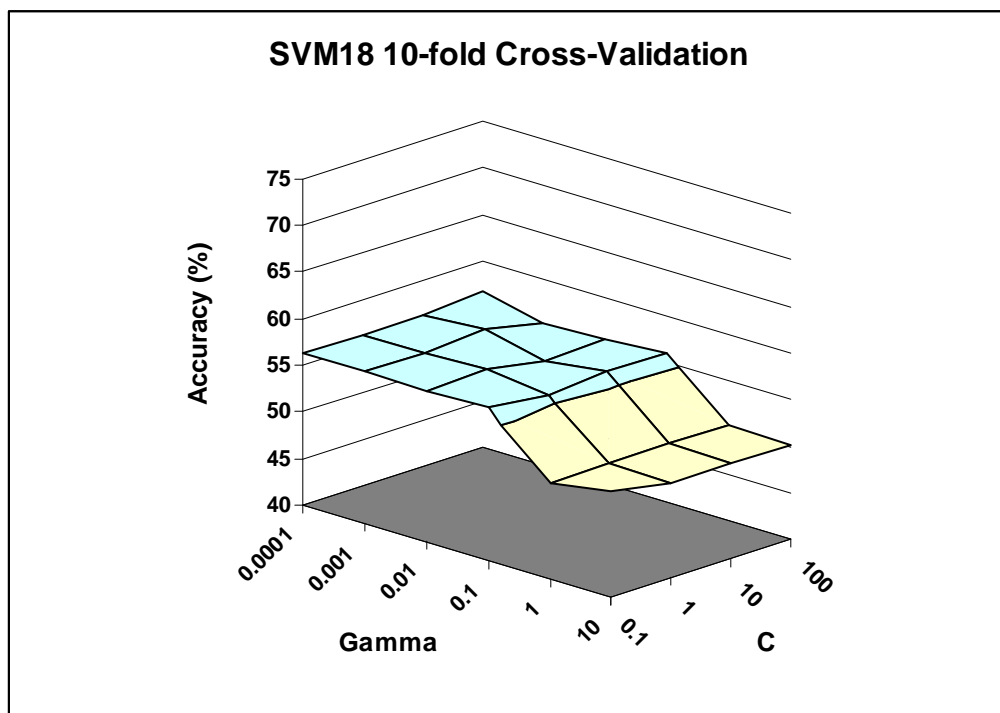

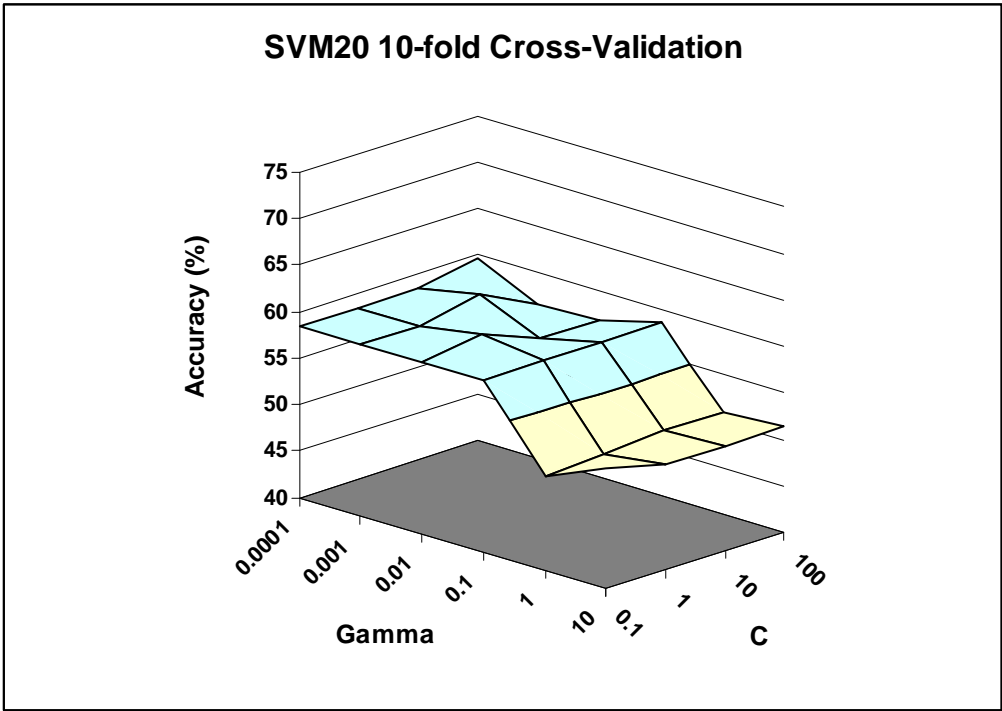### SVM12 10-fold Cross-Validation

C=0.1 and γ =0.0001

SVM14 10-fold Cross-Validation

C=0.1 and γ =0.0001

SVM16 10-fold Cross-Validation

C=1 and γ =0.01

SVM18 10-fold Cross-Validation

C=10 and γ =0.001

SVM20 10-fold Cross-Validation

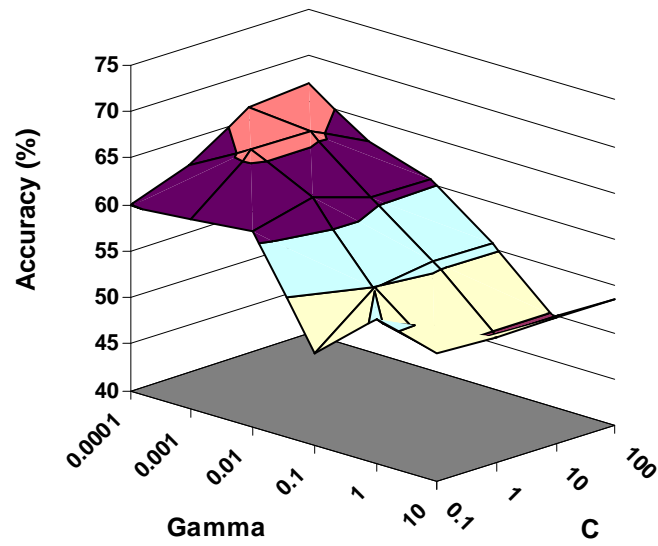C=10 and γ =0.001

BFE-SVM12 10-fold Cross-Validation
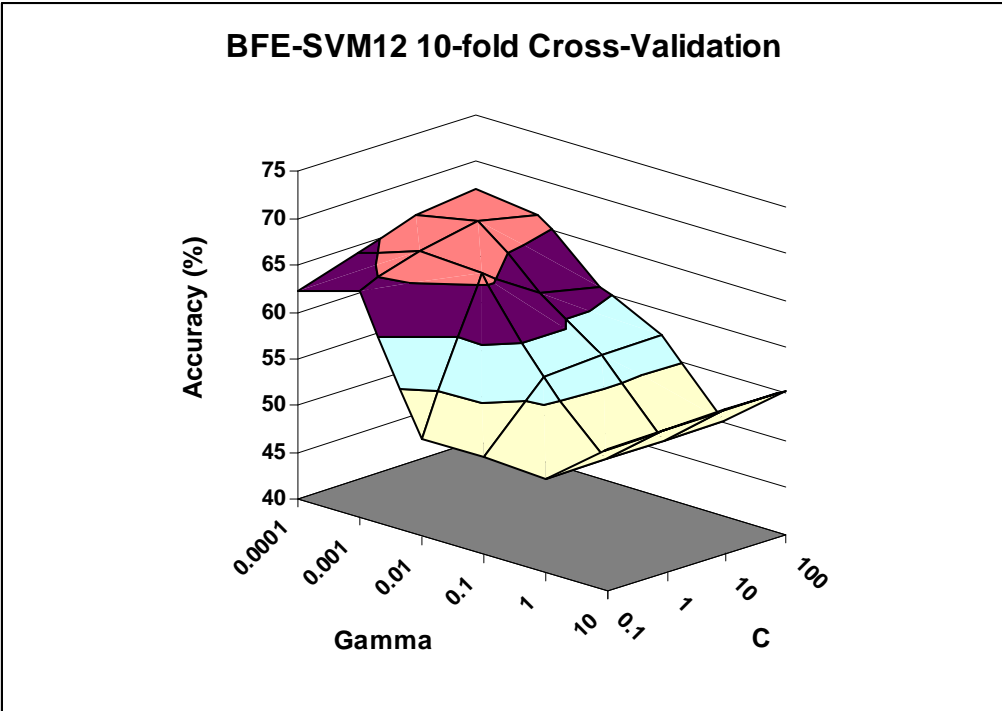
C=100 and γ =0.0001

BFE-SVM14 10-fold Cross-Validation
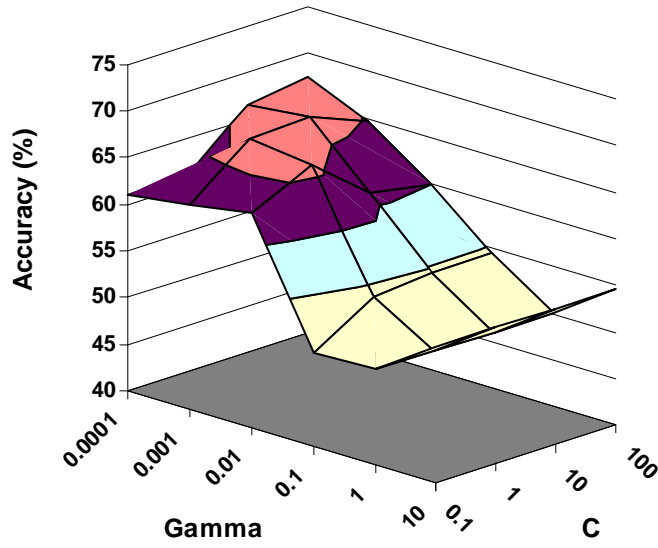
C=100 and γ =0.0001

BFE-SVM16 10-fold Cross-Validation
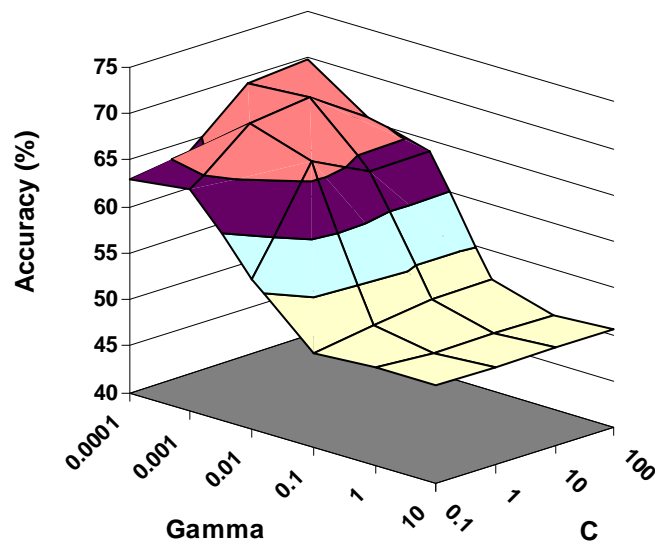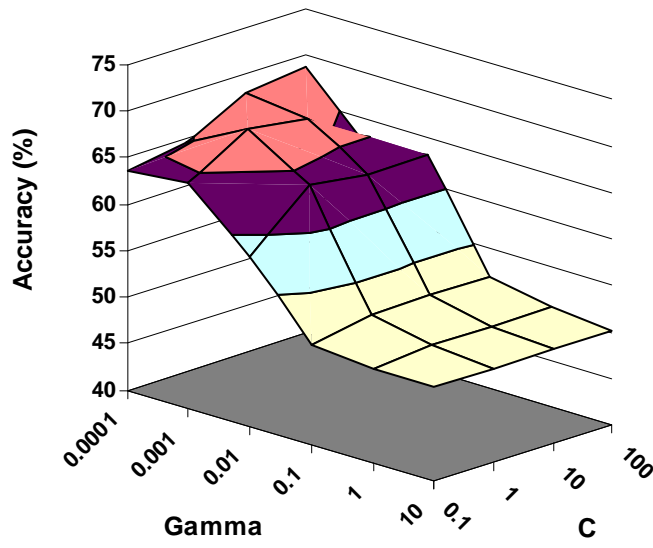
C=100 and γ =0.0001

BFE-SVM18 10-fold Cross-Validation
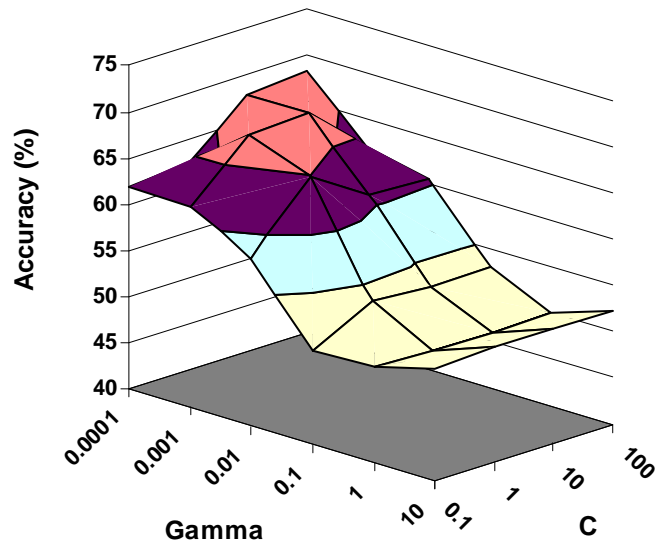
C=100 and γ =0.0001

BFE-SVM20 10-fold Cross-Validation

C=100 and γ =0.0001

BFE-Chen 10-fold Cross-Validation

C=100 and γ =0.0001