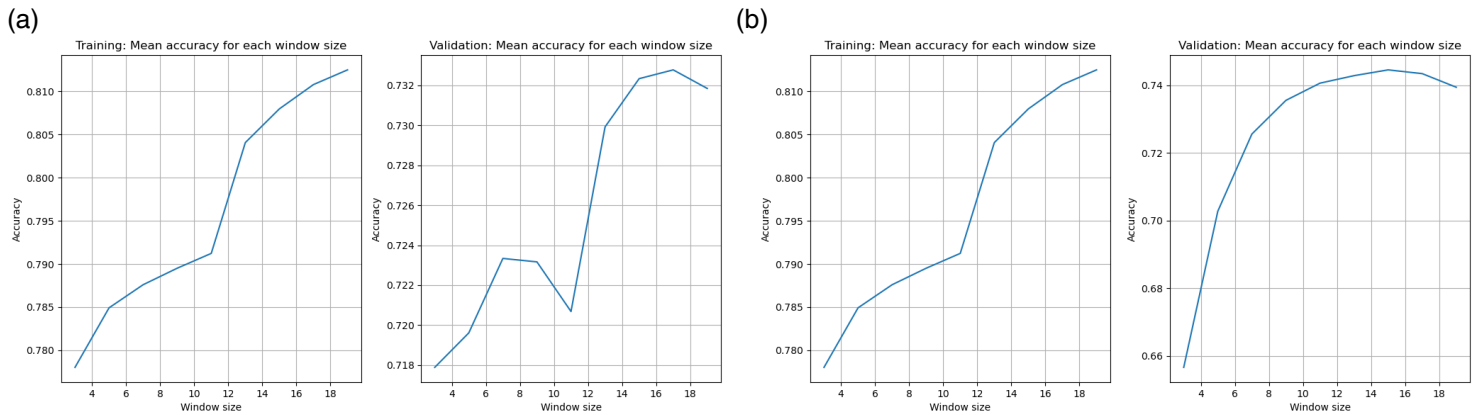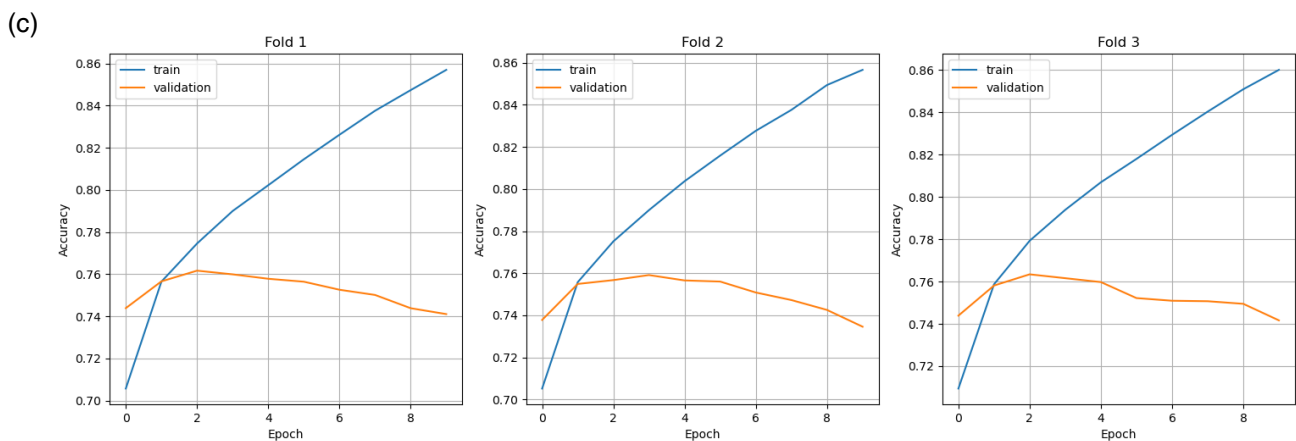# Supplementary material

Hyperparameters tuning:

- **Window size**

(a)
(b)

- **Number of epochs:**

(c)

Sup 1. Window size for feature selection comparison between two model architectures selected as the best models according to the Keras hyperparameter optimization framework. (a) Model selected by the Bayesian Optimization algorithm. (b) Model selected by the Hyperband algorithm. (c) train and validation set accuracy during training across number of epochs: four epochs was selected as the appropiate number for training of the model to avoid overfitting.
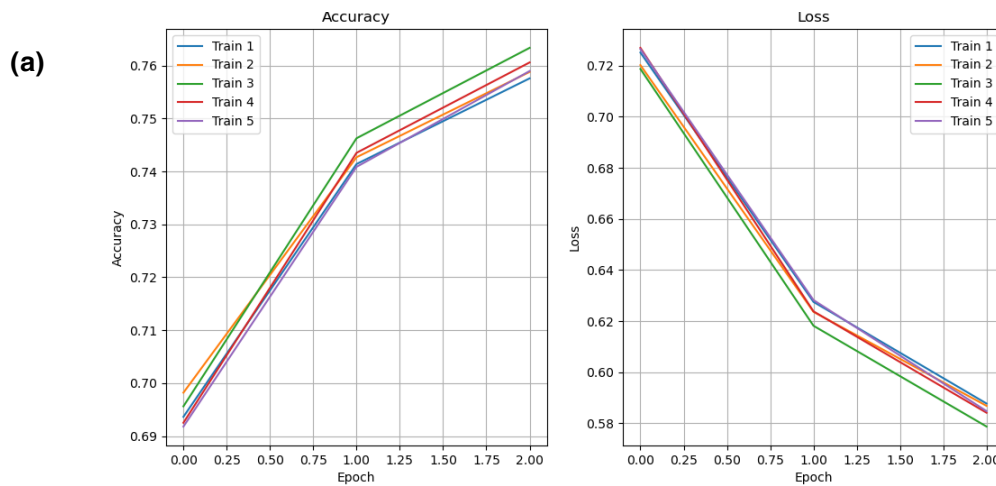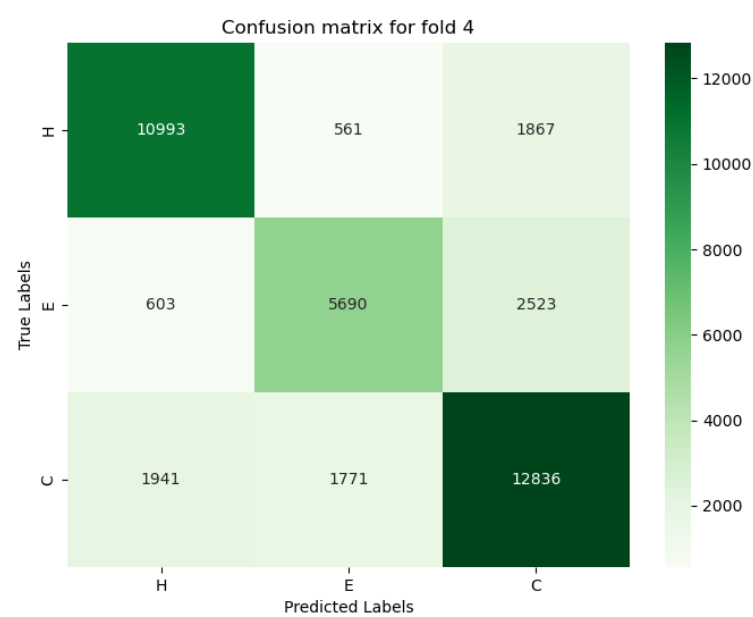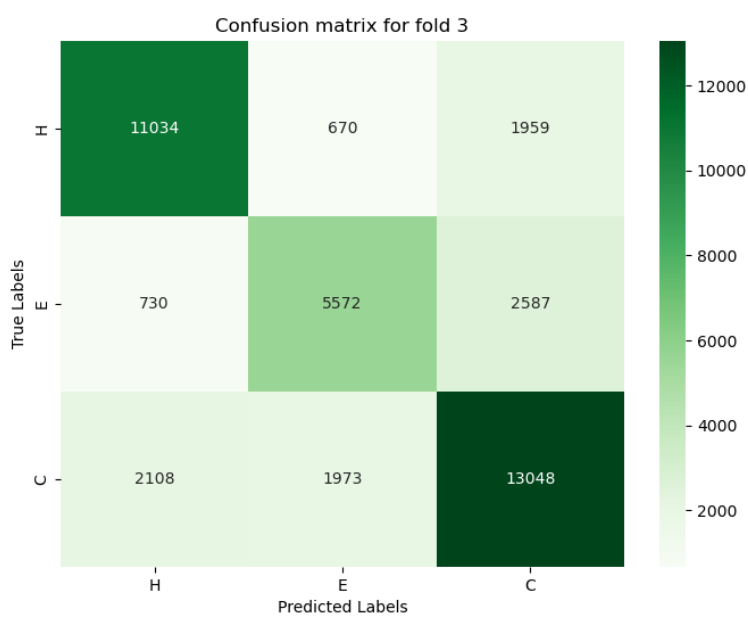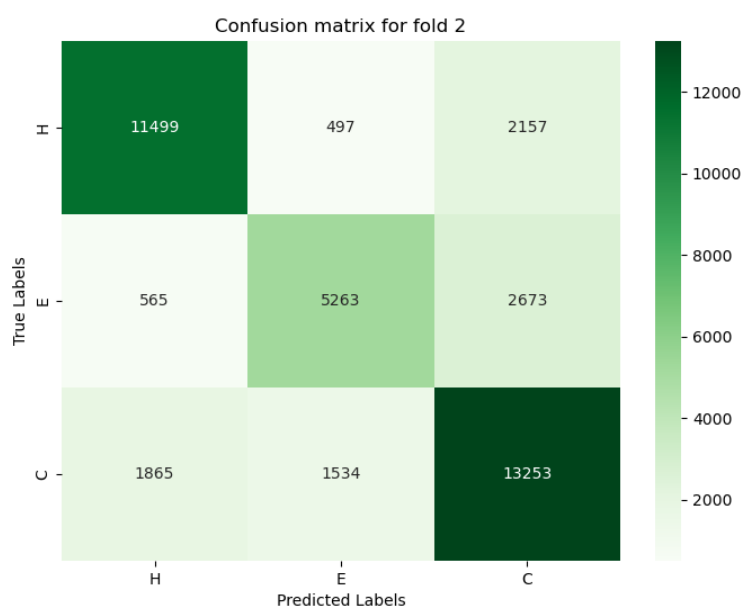
Regularization techniques:

- L1/L2
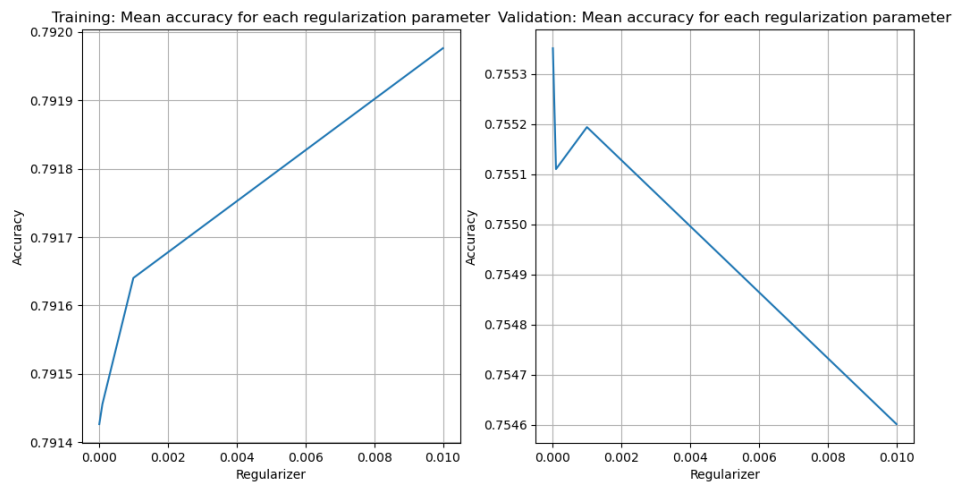
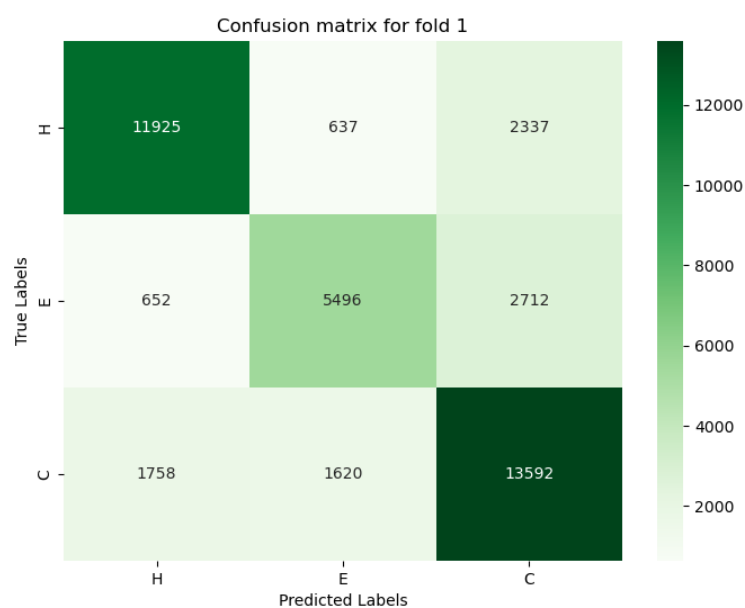**Sup 2.** Test accuracy mean for the five cross-validation models evaluating four different values for the Activity regularization option [0.01, 0.001, 0.0001, 0.00001]

Accuracy and loss during model training

Sup 3. Training accuracy for cross-validation test set with final architecture (upper panel).

Sup 4. Confusion matrix for cross-validation sets training and test on blind set

Table 1. Cross-validation accuracy during training for hyperparameter tuning

CV set	Initial accuracy	EPOCHS:4	Regularization: 0.00001	Activation function	Dropout
1	0,7349	0,7540	0,7560	0,7614	0,7619
2	0,7412	0,7576	0,7539	0,7576	0,7603
3	0,7282	0,7460	0,7463	0,7461	0,7508
4	0,7331	0,7553	0,7525	0,7603	0,7607
5	0,7306	0,7543	0,7584	0,7622	0,7623

Table 2. Prediction accuracy for each cross-validation set against the blind test

Train-model	Blind-set accuracy	
1	0,7622	
2	0,7631	
3	0,7512	
4	0,7609	
5	0,7634	
Mean accuracy	0,7601	0,00456244