Data Structure for av7_c3, constructed in Training Phase

Feature 1	Class 0	Class 1	Class 2
Discrete Value 0	0.8673	0.5880	0.8359
Discrete Value 1	0.0006	0.0010	0.0029
Discrete Value 2	0.0006	0.0010	0.0029
Discrete Value 3	0.0006	0.0010	0.0029
Discrete Value 4	0.0006	0.0010	0.0029
Discrete Value 5	0.0518	0.1454	0.0820
Discrete Value 6	0.0809	0.2666	0.0820

Feature 2 | Class 0 | Class 1 | Class 2

Feature ... | Class 0 | Class 1 | Class 2

Feature 57 | Class 0 | Class 1 | Class 2

Confusion Matrix for av2/3_c2		Predicted Label (av2)		Predicted Label (av3)	
		0	1	0	1
Actual Label	0	1293	110	1293	110
	1	146	751	139	758

Confusion Matrix for av7_c3		Predicted Label		
		0	1	2
Actual Label	0	1194	2	89
	1	0	635	134
	2	52	38	156

Estimation of Conditional Probabilities, computed in Training Phase

$$\hat{P}(X_j = a_{jk} \mid C = c_i) = \frac{n_c + mp}{n + m}$$

- **X** set of all features (all x)
- **a** discrete value for x
- **C** set of all classes
- $\mathbf{c_i}$ class that x is classified as
- $\mathbf{n_c}$ number of training samples for which x = a and C = c_i
- **n** number of training samples for which C = c_i
- **m** weight to prior, small percentage of training samples
- **p** prior estimate (1 / number of discrete values for x)

Probabilistic Model used for classification, applied in Testing Phase

$$p(C_k|x_1, \ldots, x_n) = p(C_k) \prod_{i=1}^{n} p(x_i|C_k)$$

- **x** feature vector
- **n** number of discrete values for x
- $\mathbf{C_k}$ class to be assigned to x

Feature weighting with the help of a Perceptron