Multimedia Appendix 4. Evaluation metrics.

Precision = \frac{\text{True Positive}}{\text{True Positive + False Positive}}

Recall = \frac{\text{True Positive}}{\text{True Positive + False Negative}}

F1 = 2 \times \frac{\text{Precision} \times \text{Recall}}{\text{Precision} + \text{Recall}}

Precision_{macro} = \frac{1}{n} \sum_{i=1}^{n} \text{Precision}_i

Recall_{macro} = \frac{1}{n} \sum_{i=1}^{n} \text{Recall}_i

F1_{macro} = \frac{1}{n} \sum_{i=1}^{n} F1_i

Precision_{micro} = \frac{\sum_{i=1}^{n} \text{True Positive}_i}{\sum_{i=1}^{n} \text{True Positive}_i + \sum_{i=1}^{n} \text{False Positive}_i}

Recall_{micro} = \frac{\sum_{i=1}^{n} \text{True Positive}_i}{\sum_{i=1}^{n} \text{True Positive}_i + \sum_{i=1}^{n} \text{False Negative}_i}

F1_{micro} = 2 \times \frac{\text{Precision}_{micro} \times \text{Recall}_{micro}}{\text{Precision}_{micro} + \text{Recall}_{micro}}