# Comparison of Machine Learning Models for Gender Classification

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| Model | Test Accuracy | Cross-Validation Accuracy (Mean) | Precision (F/M) | Recall (F/M) | F1-Score (Macro Avg) | Key Insights |
| Logistic Regression | 98.91% | 98.91% | High | High | High | No overfitting, robust generalization |
| Decision Tree | 93.28% | 93.13% | 91.35% / 94.33% | 89.69% / 95.28% | 92.66% | Better at classifying males, potential recall improvement for females |
| Linear SVM | 99.35% | 99.22% | Very High | Very High | Very High | Strong performance, but slightly outperformed by RBF SVM |
| RBF SVM | 99.94% | 99.94% | Extremely High | Extremely High | Extremely High | Best model overall, captures non-linear patterns |
| LSTM | 98.61% | 98.18% | High | High | High | Performs well, benefits from sequential dependencies, slightly lower than SVMs |