1. **Evaluation**
2. **The ROI result**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Algorithm  ROI | AUC | AC | SN | SP | PR | FM |
| Literal Femur  (LF) | 0.816 | 0.585 | 0.585 | 0.849 | 0.618 | 0.577 |
| Medial Femur  (MF) | 0.822 | 0.569 | 0.569 | 0.849 | 0.58 | 0.553 |
| Literal Tibia  (LT) | 0.828 | 0.592 | 0.592 | 0.833 | 0.635 | 0.563 |
| Medial Tibia  (MT) | 0.871 | 0.654 | 0.654 | 0.907 | 0.691 | 0.658 |

Table1. The ROI best result comparison.

1. **The Best feature descriptor result**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Algorithm  Texture  Descriptor | AUC | AC | SN | SP | PR | FM |
| 1st Level GLCM(Histogram) | 0.647 | 0.496 | 0.496 | 0.776 | 0.418 | 0.408 |
| CLBP | 0.789 | 0.569 | 0.569 | 0.836 | 0.58 | 0.553 |
| Gabor | 0.772 | 0.523 | 0.523 | 0.833 | 0.537 | 0.514 |
| Haralick | 0.644 | 0.454 | 0.454 | 0.801 | 0.431 | 0.416 |
| LBP | 0.871 | 0.654 | 0.654 | 0.907 | 0.678 | 0.658 |
| LBP\_hf | 0.682 | 0.438 | 0.438 | 0.801 | 0.418 | 0.416 |
| LBP\_ri | 0.682 | 0.477 | 0.477 | 0.815 | 0.478 | 0.45 |
| LCP | 0.747 | 0.515 | 0.515 | 0.834 | 0.509 | 0.503 |
| LTP | 0.741 | 0.508 | 0.508 | 0.824 | 0.532 | 0.492 |
| RLBP | 0.817 | 0.585 | 0.585 | 0.856 | 0.578 | 0.559 |

Table2. Texture Descriptor Result Comparison

1. **The Best learning algorithm**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Algorithm  Learning  Algorithm | AUC | AC | SN | SP | PR | FM |
| J48 | 0.628 | 0.446 | 0.446 | 0.798 | 0.41 | 0.425 |
| J48 binary tree | 0.659 | 0.438 | 0.438 | 0.832 | 0.46 | 0.445 |
| AODE | 0.848 | 0.562 | 0.562 | 0.82 | 0.573 | 0.518 |
| Bayes network | 0.858 | 0.615 | 0.615 | 0.834 | 0.635 | 0.583 |
| Naïve bay | 0.854 | 0.623 | 0.623 | 0.827 | 0.691 | 0.583 |
| SVM | 0.612 | 0.469 | 0.469 | 0.772 | 0.415 | 0.353 |
| Logistic | 0.871 | 0.654 | 0.654 | 0.907 | 0.671 | 0.658 |
| SMO | 0.762 | 0.577 | 0.577 | 0.846 | 0.678 | 0.646 |
| Multilayer | 0.842 | 0.654 | 0.654 | 0.864 | 0.678 | 0.646 |

Table 4. The best learning algorithm result comparison