Skenario 1 : Analisis jumlah codebook

Codebook = 8,16,32,64,128,256

Coeff : 55

|  |  |  |
| --- | --- | --- |
| Jumlah Codebook | Akurasi Training | Akurasi Testing |
| 8 | 79.05 % | 70.83% |
| 16 | 98.33% | 95.83% |
| 32 | 98.57% | 96.50% |
| 64 | 98.81% | 96.94% |
| 128 | 98.69% | 96.11% |
| 256 | 98.81% | 97.78% |

Chroma biasa

|  |  |  |
| --- | --- | --- |
| Jumlah Codebook | Akurasi Training | Akurasi Testing |
| 8 | 79.05 % | 70.83% |
| 16 | 98.33% | 95.83% |
| 32 | 98.57% | 96.50% |
| 64 | 98.81% | 96.94% |
| 128 | 98.69% | 96.11% |
| 256 | 98.81% | 98.06% |

Skenario 2 : Analisis jumlah coefficient chroma

Codebook : 64

Coeff : 15, 35, 55, 75

|  |  |  |
| --- | --- | --- |
| Jumlah Coefficient | Akurasi Training | Akurasi Testing |
| 15 | 99.05 % | 97.78% |
| 35 | 99.40% | 97.50% |
| 55 | 98.10% | 96.39% |
| 75 | 97.02% | 96.94% |

Codebook : 16

|  |  |  |
| --- | --- | --- |
| Jumlah Coefficient | Akurasi Training | Akurasi Testing |
| 15 | 96.07 % | 97.78% |
| 35 | 97.26% | 95.56% |
| 55 | 97.02% | 96.11% |
| 75 | 96.07% | 96.94% |

Codebook : 32

|  |  |  |
| --- | --- | --- |
| Jumlah Coefficient | Akurasi Training | Akurasi Testing |
| 15 | 99.64 % | 97.50% |
| 35 | 97.26% | 96.11% |
| 55 | 98.69% | 95% |
| 75 | 93.69% | 95.28% |

Codebook : 128

|  |  |  |
| --- | --- | --- |
| Jumlah Coefficient | Akurasi Training | Akurasi Testing |
| 15 | 99.40 % | 97.22% |
| 35 | 98.81% | 96.67% |
| 55 | 98.81% | 97.22% |
| 75 | 99.17% | 97.22% |

Codebook : 256

|  |  |  |
| --- | --- | --- |
| Jumlah Coefficient | Akurasi Training | Akurasi Testing |
| 15 | 99.29 % | 96.94% |
| 35 | 99.76% | 97.50% |
| 55 | 98.81% | 98.06% |
| 75 | 99.05% | 98.06% |

Skenario 3 : K fold Cross Validation

K = 10

Coeff = 55

Codebook = 64

|  |  |  |
| --- | --- | --- |
| K Fold ke- | Akurasi Training | Akurasi Testing |
| 1 | 0.981481481481482 | 96.67% |
| 2 | 0.987962962962963 | 66.67% |
| 3 | 0.996296296296296 | 90% |
| 4 | 0.984259259259259 | 63.33% |
| 5 | 0.989814814814815 | 63.33% |
| 6 | 0.981481481481482 | 90% |
| 7 | 0.984259259259259 | 80.83% |
| 8 | 0.987037037037037 | 80% |
| 9 | 0.996296296296296 | 95.83% |
| 10 | 0.979629629629630 | 96.67% |
| Rata-rata akurasi | 98.69% | 82.33% |

Codebook = 16

|  |  |  |
| --- | --- | --- |
| K Fold ke- | Akurasi Training | Akurasi Testing |
| 1 | 0.988888888888889 | 96.67% |
| 2 | 0.975925925925926 | 98.33% |
| 3 | 0.981481481481482 | 90% |
| 4 | 0.965740740740741 | 88.33% |
| 5 | 0.958333333333333 | 95.83% |
| 6 | 0.950000000000000 | 95% |
| 7 | 0.988888888888889 | 97.50% |
| 8 | 0.984259259259259 | 95% |
| 9 | 0.982407407407407 | 95.83% |
| 10 | 0.979629629629630 | 95.83% |
| Rata-rata akurasi | 97.56% | 94.83% |

Codebook = 32

|  |  |  |
| --- | --- | --- |
| K Fold ke- | Akurasi Training | Akurasi Testing |
| 1 | 98.70% | 98.33% |
| 2 | 98.80% | 80% |
| 3 | 97.59% | 85% |
| 4 | 97.50 | 98.33% |
| 5 | 98.42% | 95.83% |
| 6 | 97.96% | 95% |
| 7 | 98.51% | 90.83% |
| 8 | 98.51% | 92.50% |
| 9 | 98.14% | 94.16% |
| 10 | 99.25% | 81.66% |
| Rata-rata akurasi | 98.34% | 91.17% |

Codebook = 128

|  |  |  |
| --- | --- | --- |
| K Fold ke- | Akurasi Training | Akurasi Testing |
| 1 | 99.53% | 73.33% |
| 2 | 98.70% | 50% |
| 3 | 99.16% | 33.33% |
| 4 | 99.53% | 41.67% |
| 5 | 99.16% | 25% |
| 6 | 99.44% | 65.83% |
| 7 | 99.62% | 48.33% |
| 8 | 99.35% | 57.50% |
| 9 | 99.16% | 65% |
| 10 | 0.990740740740741 | 80.83% |
| Rata-rata akurasi | 99.28% | 54.08% |

Codebook = 256

|  |  |  |
| --- | --- | --- |
| K Fold ke- | Akurasi Training | Akurasi Testing |
| 1 | 99.26% | 33.33% |
| 2 | 1 | 25% |
| 3 | 99.54% | 25% |
| 4 | 99.72% | 24.17% |
| 5 | 1 | 16.67% |
| 6 | 99.72% | 25% |
| 7 | 99.63% | 25% |
| 8 | 1 | 15% |
| 9 | 99.81% | 25% |
| 10 | 99.81% | 25% |
| Rata-rata akurasi | 99.75% | 23.91% |

**Hasil klasifikasi dengan model terbaik,**

Codebook : 256

Coeff : 55

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Kunci Nada | Total da data latih | Total dalam data uji | Total klasifikasi yang benar (data latih) | Total klasifikasi yang benar (data uji) |
| C | 70 | 30 | 70 | 30 |
| C# | 70 | 30 | 70 | 30 |
| D | 70 | 30 | 70 | 30 |
| D# | 70 | 30 | 70 | 30 |
| E | 70 | 30 | 70 | 30 |
| F | 70 | 30 | 70 | 25 |
| F# | 70 | 30 | 70 | 30 |
| G | 70 | 30 | 70 | 30 |
| G# | 70 | 30 | 70 | 30 |
| A | 70 | 30 | 70 | 30 |
| A# | 70 | 30 | 69 | 27 |
| B | 70 | 30 | 70 | 30 |
| Total | 840 | 360 | 839 | 352 |

Data yang salah

A#5 = 1

A#5 = 3

F2 = 5

Frame Sinyal

|  |  |  |
| --- | --- | --- |
| Jumlah Frame | Akurasi Training | Akurasi Testing |
| 5 | 97.74% | 97.50% |
| 10 | 98.57% | 96.67% |
| 15 | 98.69% | 96.94% |