

Participant Results

Proprietary Fingerprint Template Evaluation II (PFT-II)

Participant 3Y — Beijing Hisign Technology Co. Ltd

Image Group

Information Access Division

Information Technology Laboratory



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1 1K Sample Evaluation

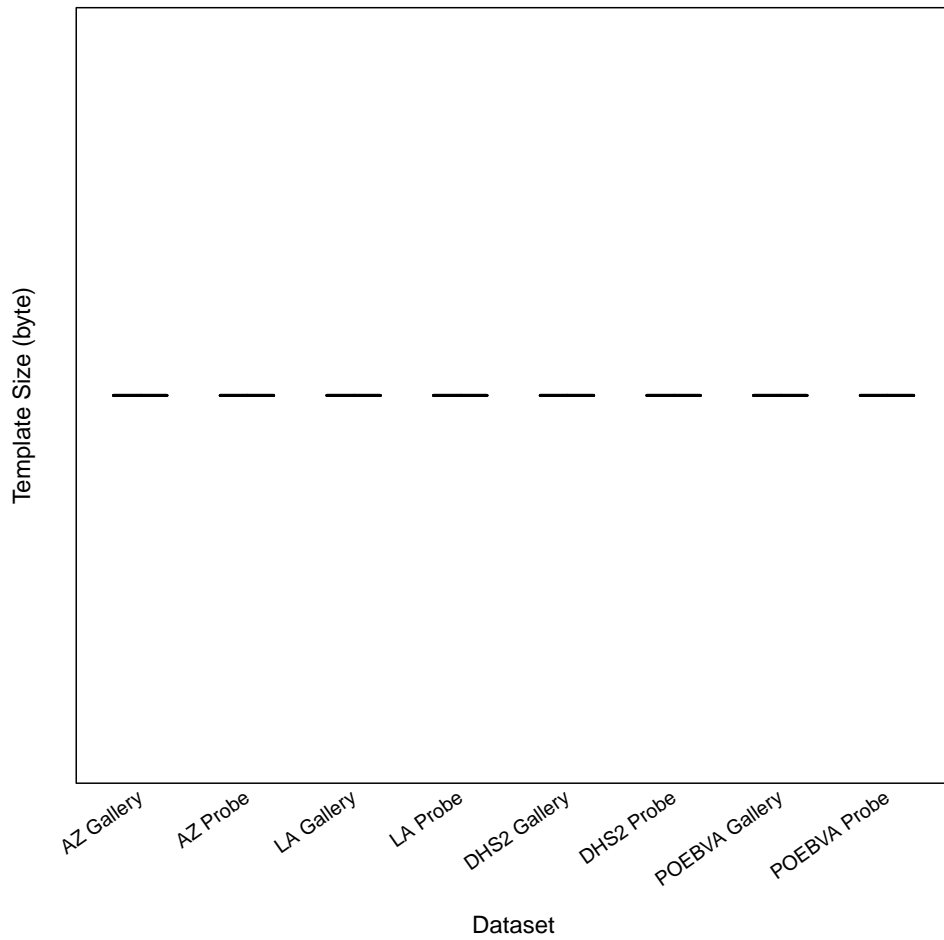


Figure 1: 1K Sample Evaluation – Template Size Distribution

| | AZ | | LA | | DHS2 | | POEBVA | |
|-------------------|---------|---------|----------|---------|---------|---------|---------|---------|
| | Gallery | Probe | Gallery | Probe | Gallery | Probe | Gallery | Probe |
| <i>Dimensions</i> | 800x800 | 800x800 | 412x1000 | 400x776 | 368x368 | 368x368 | 500x500 | 368x368 |
| <i>Maximum</i> | 8192 | 8192 | 8192 | 8192 | 8192 | 8192 | 8192 | 8192 |
| 75% | 8192 | 8192 | 8192 | 8192 | 8192 | 8192 | 8192 | 8192 |
| <i>Median</i> | 8192 | 8192 | 8192 | 8192 | 8192 | 8192 | 8192 | 8192 |
| 25% | 8192 | 8192 | 8192 | 8192 | 8192 | 8192 | 8192 | 8192 |
| <i>Minimum</i> | 8192 | 8192 | 8192 | 8192 | 8192 | 8192 | 8192 | 8192 |

Table 1: Sample Dataset — Template Size Distribution

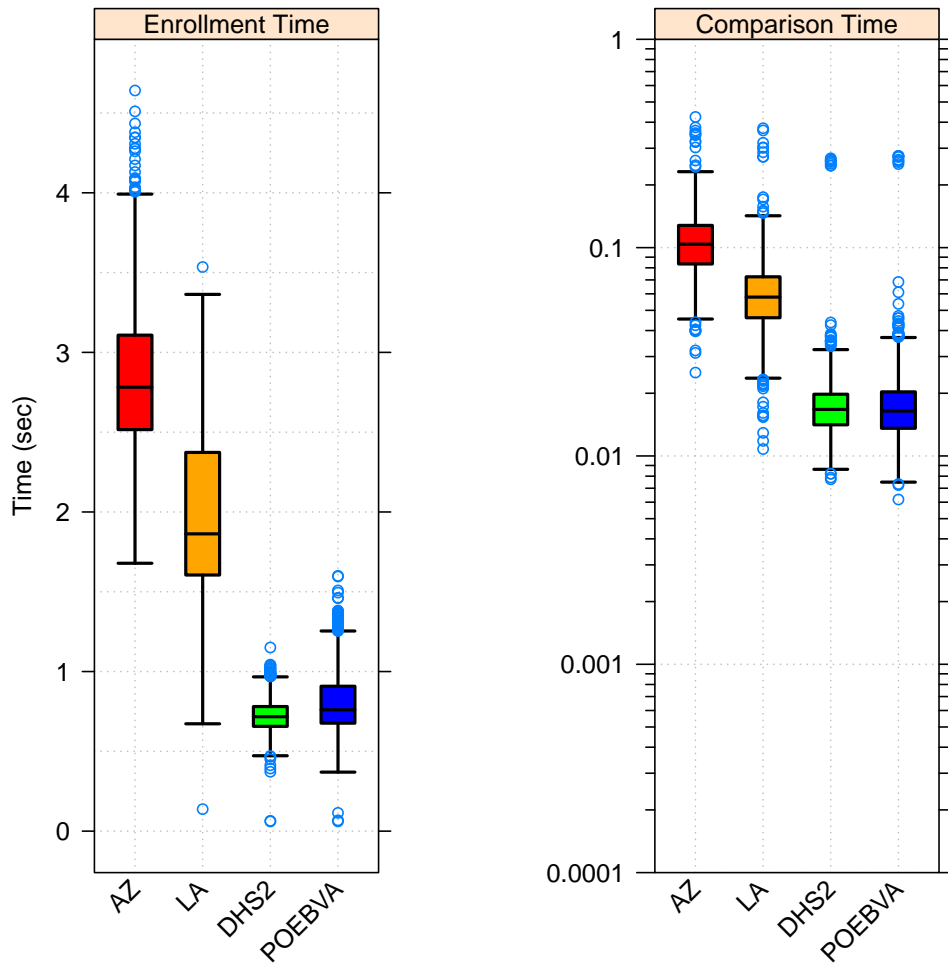


Figure 2: 1K Sample Evaluation – Enrollment and Comparison Timing

| | AZ | LA | DHS2 | POEBVA |
|----------------|-------|-------|-------|--------|
| <i>Maximum</i> | 4.641 | 3.535 | 1.151 | 1.600 |
| <i>75%</i> | 3.108 | 2.373 | 0.781 | 0.908 |
| <i>Median</i> | 2.782 | 1.863 | 0.717 | 0.760 |
| <i>25%</i> | 2.516 | 1.605 | 0.657 | 0.677 |
| <i>Minimum</i> | 1.679 | 0.138 | 0.061 | 0.061 |

Table 2: Enrollment Times (sec)

| | AZ | LA | DHS2 | POEBVA |
|----------------|-------|-------|-------|--------|
| <i>Maximum</i> | 0.424 | 0.374 | 0.269 | 0.276 |
| <i>75%</i> | 0.128 | 0.072 | 0.020 | 0.020 |
| <i>Median</i> | 0.104 | 0.058 | 0.017 | 0.016 |
| <i>25%</i> | 0.083 | 0.046 | 0.014 | 0.014 |
| <i>Minimum</i> | 0.025 | 0.011 | 0.008 | 0.006 |

Table 3: Comparison Times (sec)

2 Full Evaluation

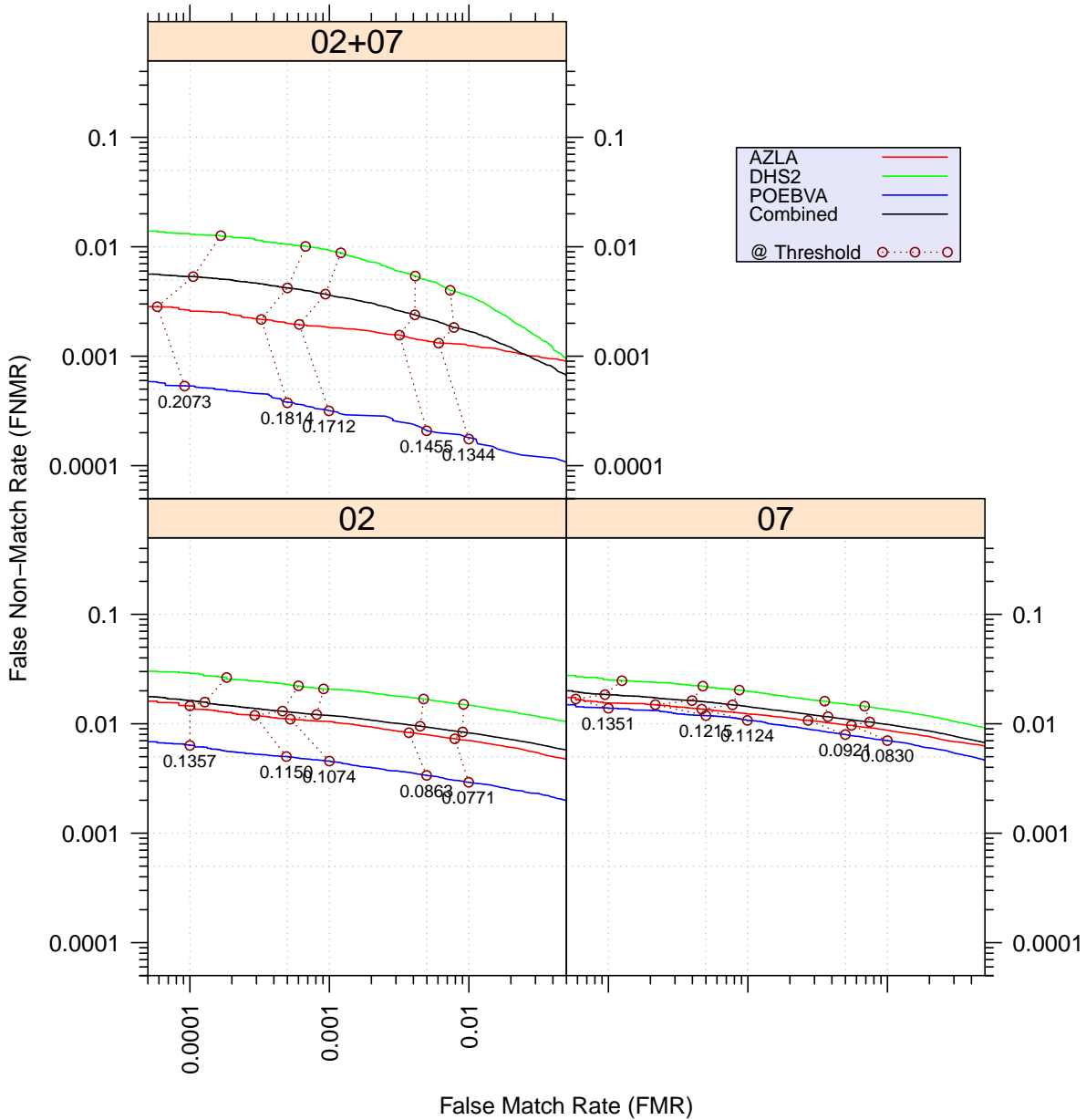


Figure 3: Full Evaluation – DET for POEBVA, DHS2, AZLA, and combined from R Index, L Index, and R/L Index

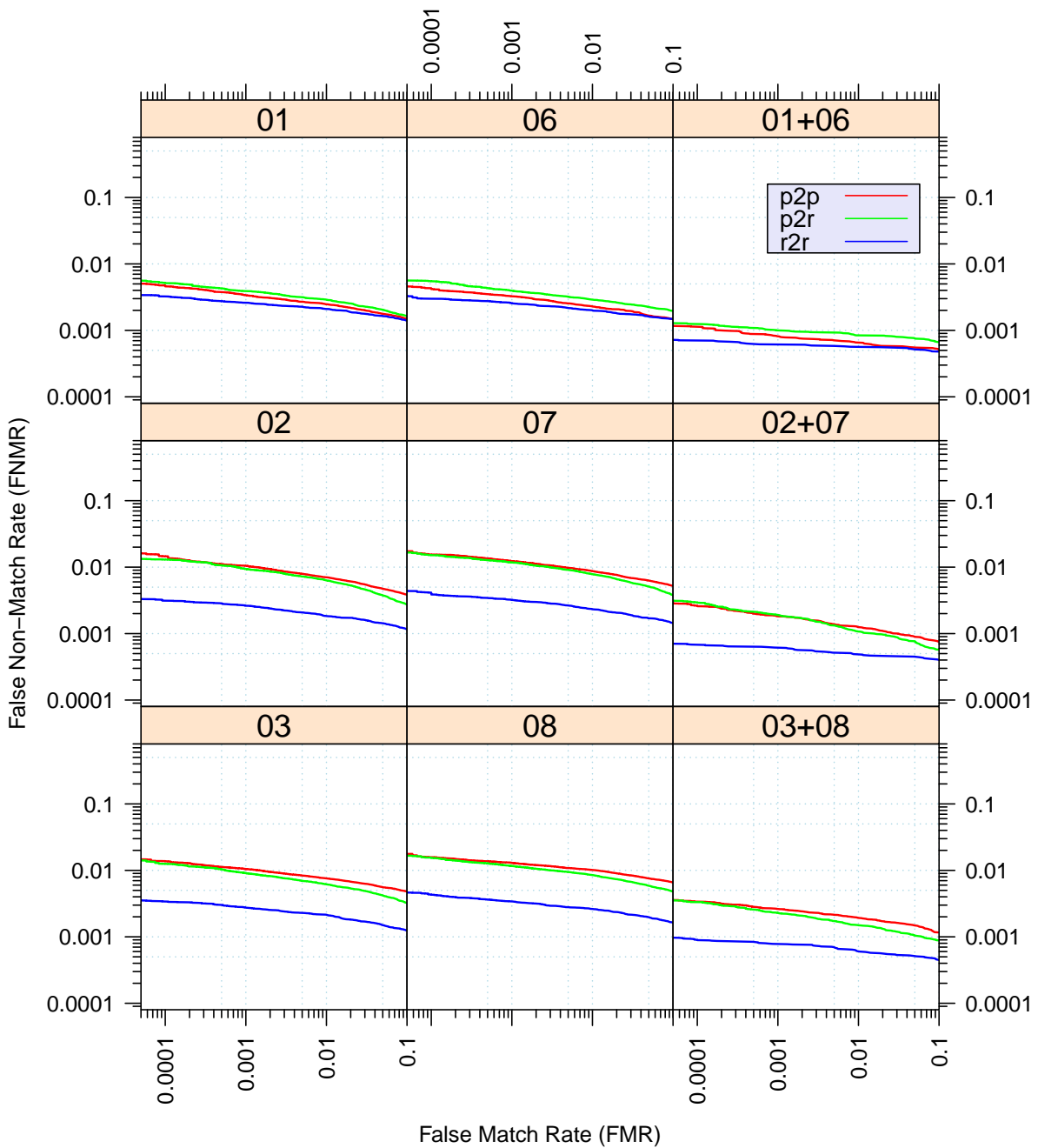


Figure 4: Full Evaluation – DET for all finger positions from AZLA

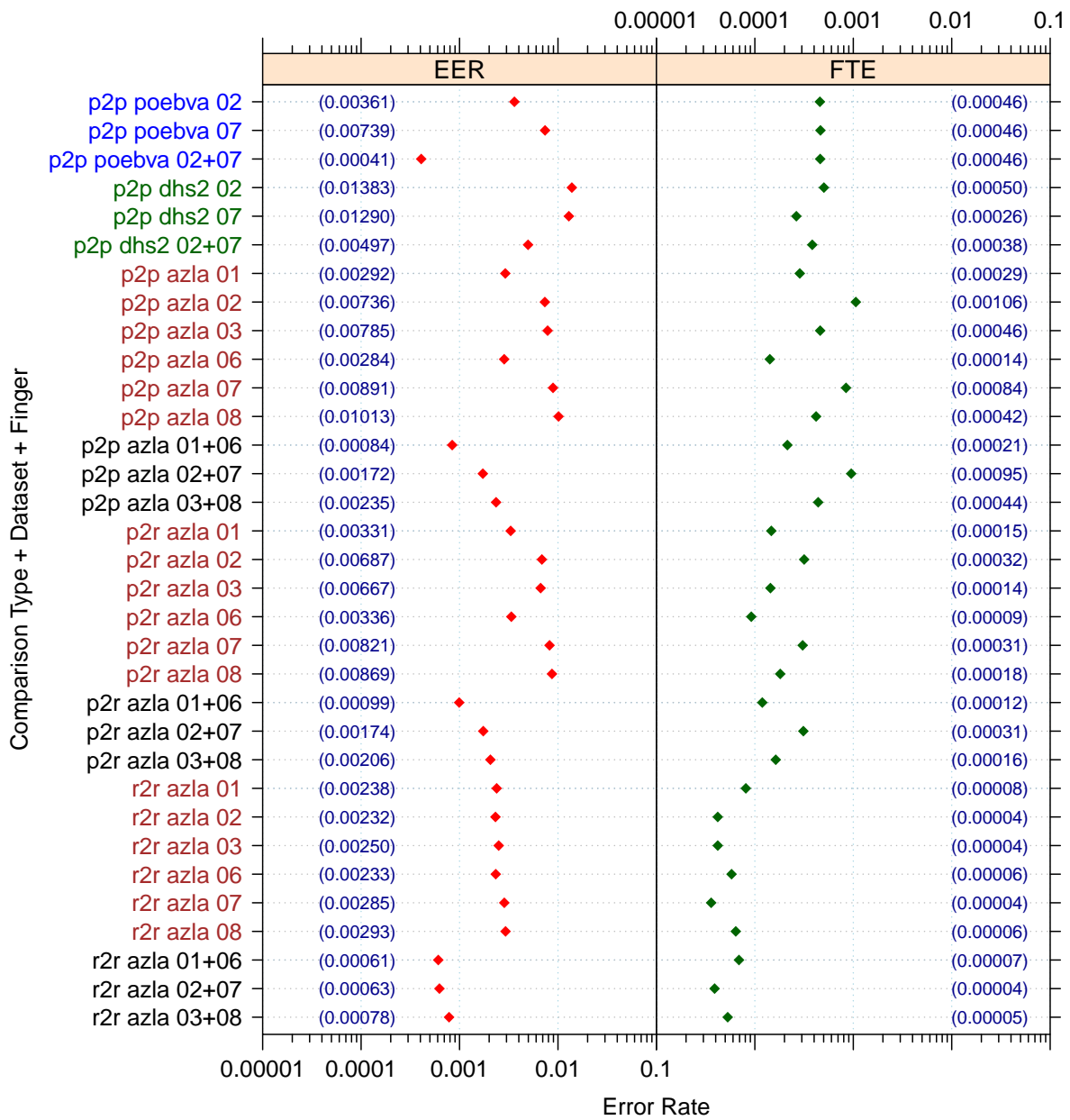


Figure 5: Full Evaluation – EERs and FTEs

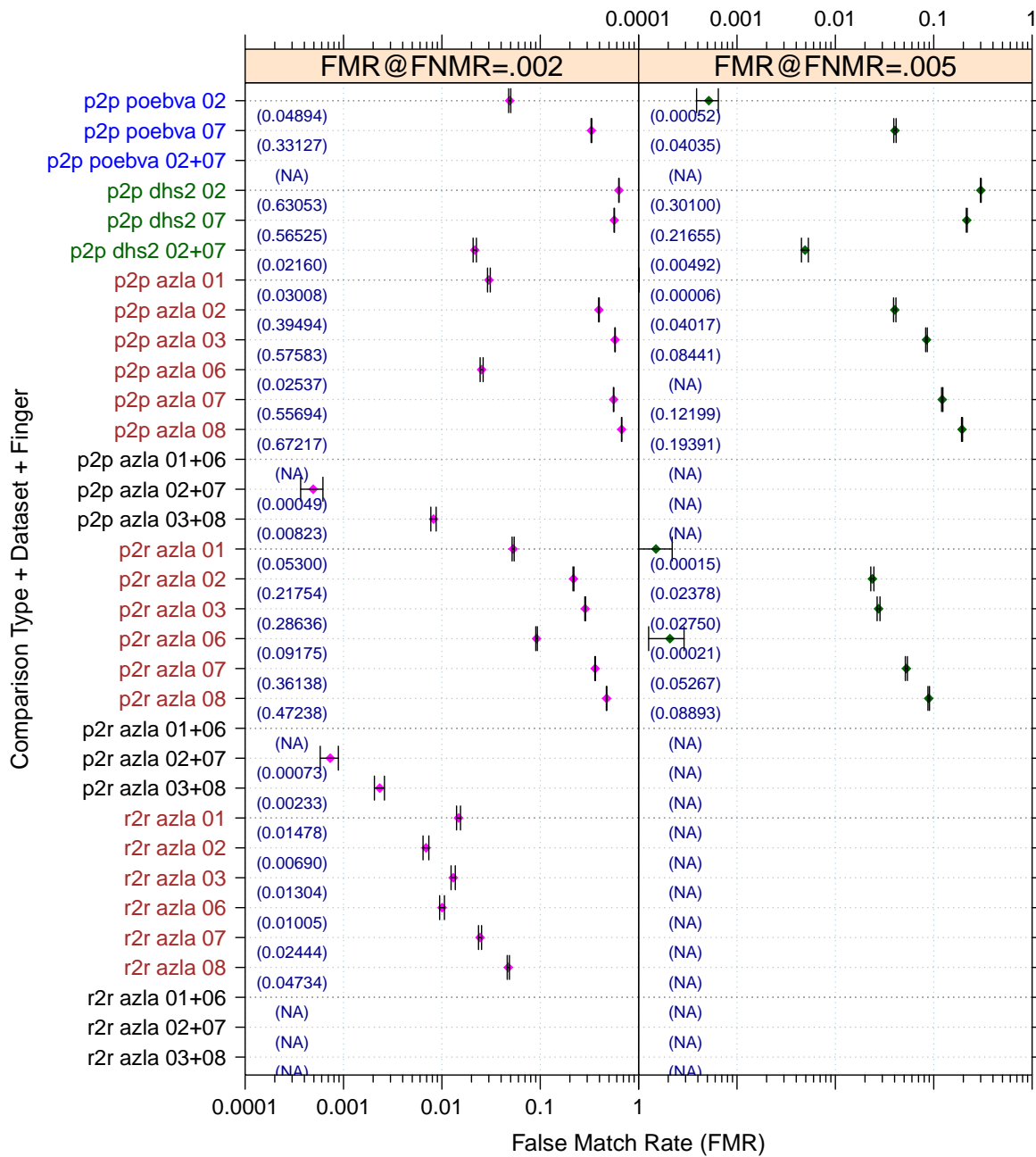


Figure 6: Full Evaluation – FMR@FNMR = (0.002, 0.005) and 95% Confidence Intervals

Note: “n/a” indicates that the value could not be reliably measured with the available sample size.

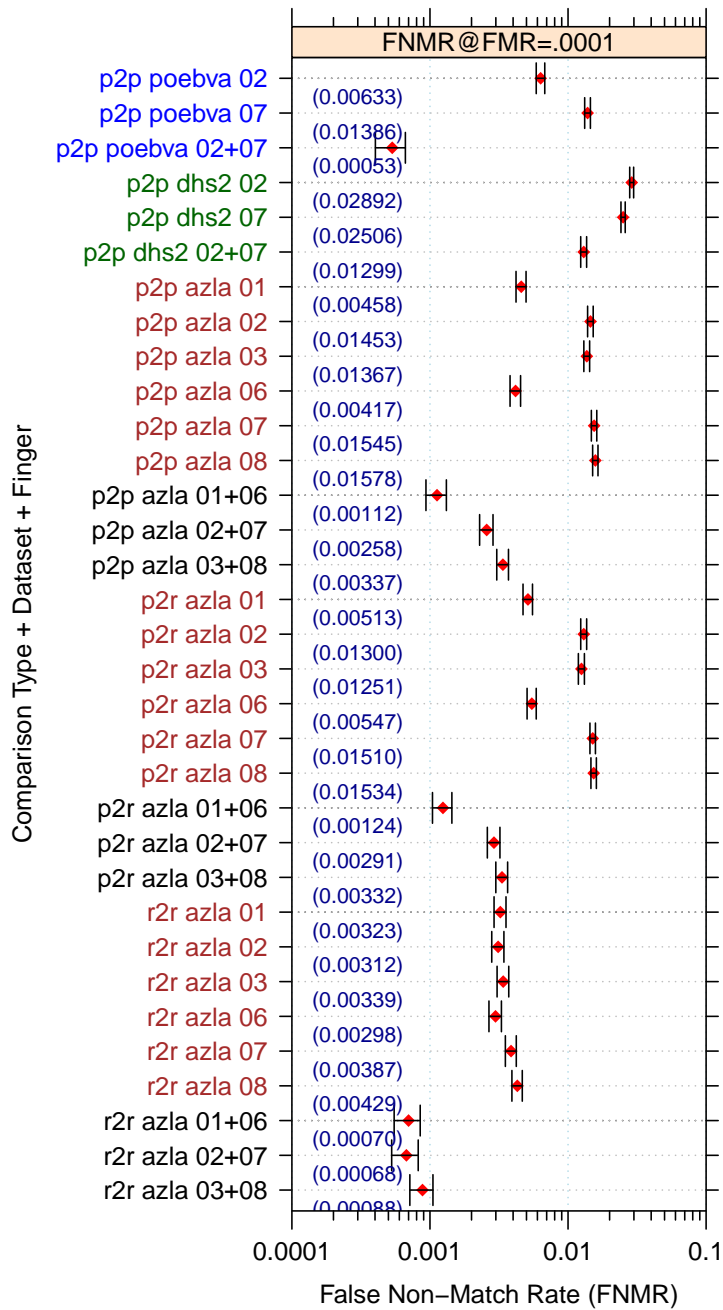


Figure 7: Full Evaluation – FNMR@FMR = 0.0001 and 95% Confidence Intervals

Note: “n/a” indicates that the value could not be reliably measured with the available sample size.

| | | EER | FTE Rate |
|-------------------------|-------------------|------------|-----------------|
| Plain to Plain | <i>R Thumb</i> | 0.0029 | 0.0003 |
| | <i>R Index</i> | 0.0074 | 0.0011 |
| | <i>R Middle</i> | 0.0078 | 0.0005 |
| | <i>L Thumb</i> | 0.0028 | 0.0001 |
| | <i>L Index</i> | 0.0089 | 0.0008 |
| | <i>L Middle</i> | 0.0101 | 0.0004 |
| | <i>R/L Thumb</i> | 0.0008 | 0.0002 |
| | <i>R/L Index</i> | 0.0017 | 0.0010 |
| | <i>R/L Middle</i> | 0.0024 | 0.0004 |
| Plain to Rolled | <i>R Thumb</i> | 0.0033 | 0.0001 |
| | <i>R Index</i> | 0.0069 | 0.0003 |
| | <i>R Middle</i> | 0.0067 | 0.0001 |
| | <i>L Thumb</i> | 0.0034 | 0.0001 |
| | <i>L Index</i> | 0.0082 | 0.0003 |
| | <i>L Middle</i> | 0.0087 | 0.0002 |
| | <i>R/L Thumb</i> | 0.0010 | 0.0001 |
| | <i>R/L Index</i> | 0.0017 | 0.0003 |
| | <i>R/L Middle</i> | 0.0021 | 0.0002 |
| Rolled to Rolled | <i>R Thumb</i> | 0.0024 | 0.0001 |
| | <i>R Index</i> | 0.0023 | 0.0000 |
| | <i>R Middle</i> | 0.0025 | 0.0000 |
| | <i>L Thumb</i> | 0.0023 | 0.0001 |
| | <i>L Index</i> | 0.0029 | 0.0000 |
| | <i>L Middle</i> | 0.0029 | 0.0001 |
| | <i>R/L Thumb</i> | 0.0006 | 0.0001 |
| | <i>R/L Index</i> | 0.0006 | 0.0000 |
| | <i>R/L Middle</i> | 0.0008 | 0.0001 |

Table 4: EER and FTE — Dataset AZLA

| | | EER | FTE Rate |
|------------------|--------|------------|-----------------|
| <i>R Index</i> | 0.0138 | 0.0005 | |
| <i>L Index</i> | 0.0129 | 0.0003 | |
| <i>R/L Index</i> | 0.0050 | 0.0004 | |

Table 5: EER and FTE — Dataset DHS2

| | | EER | FTE Rate |
|------------------|--------|------------|-----------------|
| <i>R Index</i> | 0.0036 | 0.0005 | |
| <i>L Index</i> | 0.0074 | 0.0005 | |
| <i>R/L Index</i> | 0.0004 | 0.0005 | |

Table 6: EER and FTE — Dataset POEBVA

| | | FNMR@FMR = 0.0001 | FMR@FNMR = 0.002 | FMR@FNMR = 0.005 |
|-------------------------|-------------------|--------------------------|-------------------------|-------------------------|
| Plain to Plain | <i>R Thumb</i> | 0.0046 ±0.00038 | 0.0301 ±0.00097 | n/a |
| | <i>R Index</i> | 0.0145 ±0.00068 | 0.3949 ±0.00277 | 0.0402 ±0.00111 |
| | <i>R Middle</i> | 0.0137 ±0.00066 | 0.5758 ±0.00280 | 0.0844 ±0.00157 |
| | <i>L Thumb</i> | 0.0042 ±0.00036 | 0.0254 ±0.00089 | n/a |
| | <i>L Index</i> | 0.0155 ±0.00070 | 0.5569 ±0.00281 | 0.1220 ±0.00185 |
| | <i>L Middle</i> | 0.0158 ±0.00071 | 0.6722 ±0.00266 | 0.1939 ±0.00224 |
| | <i>R/L Thumb</i> | 0.0011 ±0.00019 | n/a | n/a |
| | <i>R/L Index</i> | 0.0026 ±0.00029 | 0.0005 ±0.00013 | n/a |
| | <i>R/L Middle</i> | 0.0034 ±0.00033 | 0.0082 ±0.00051 | n/a |
| Plain to Rolled | <i>R Thumb</i> | 0.0051 ±0.00040 | 0.0530 ±0.00127 | 0.0001 ±0.00007 |
| | <i>R Index</i> | 0.0130 ±0.00064 | 0.2175 ±0.00233 | 0.0238 ±0.00086 |
| | <i>R Middle</i> | 0.0125 ±0.00063 | 0.2864 ±0.00256 | 0.0275 ±0.00093 |
| | <i>L Thumb</i> | 0.0055 ±0.00042 | 0.0917 ±0.00163 | 0.0002 ±0.00008 |
| | <i>L Index</i> | 0.0151 ±0.00069 | 0.3614 ±0.00272 | 0.0527 ±0.00126 |
| | <i>L Middle</i> | 0.0153 ±0.00069 | 0.4724 ±0.00282 | 0.0889 ±0.00161 |
| | <i>R/L Thumb</i> | 0.0012 ±0.00020 | n/a | n/a |
| | <i>R/L Index</i> | 0.0029 ±0.00030 | 0.0007 ±0.00015 | n/a |
| | <i>R/L Middle</i> | 0.0033 ±0.00033 | 0.0023 ±0.00027 | n/a |
| Rolled to Rolled | <i>R Thumb</i> | 0.0032 ±0.00032 | 0.0148 ±0.00068 | n/a |
| | <i>R Index</i> | 0.0031 ±0.00032 | 0.0069 ±0.00047 | n/a |
| | <i>R Middle</i> | 0.0034 ±0.00033 | 0.0130 ±0.00064 | n/a |
| | <i>L Thumb</i> | 0.0030 ±0.00031 | 0.0100 ±0.00056 | n/a |
| | <i>L Index</i> | 0.0039 ±0.00035 | 0.0244 ±0.00087 | n/a |
| | <i>L Middle</i> | 0.0043 ±0.00037 | 0.0473 ±0.00120 | n/a |
| | <i>R/L Thumb</i> | 0.0007 ±0.00015 | n/a | n/a |
| | <i>R/L Index</i> | 0.0007 ±0.00015 | n/a | n/a |
| | <i>R/L Middle</i> | 0.0009 ±0.00017 | n/a | n/a |

Table 7: Details for FNMR@FMR = 0.0001 and FMR@FNMR = (0.002, 0.005) — Dataset AZLA

Note: “n/a” indicates that the value could not be reliably measured with the available sample size.

| | FNMR@FMR = 0.0001 | FMR@FNMR = 0.002 | FMR@FNMR = 0.005 |
|------------------|--------------------------|-------------------------|-------------------------|
| <i>R Index</i> | 0.0289 ±0.00095 | 0.6305 ±0.00273 | 0.3010 ±0.00260 |
| <i>L Index</i> | 0.0251 ±0.00088 | 0.5653 ±0.00281 | 0.2165 ±0.00233 |
| <i>R/L Index</i> | 0.0130 ±0.00064 | 0.0216 ±0.00082 | 0.0049 ±0.00040 |

Table 8: Details for FNMR@FMR = 0.0001 and FMR@FNMR = (0.002, 0.005) — Dataset DHS2

| | FNMR@FMR = 0.0001 | FMR@FNMR = 0.002 | FMR@FNMR = 0.005 |
|------------------|--------------------------|-------------------------|-------------------------|
| <i>R Index</i> | 0.0063 ±0.00045 | 0.0489 ±0.00122 | 0.0005 ±0.00013 |
| <i>L Index</i> | 0.0139 ±0.00066 | 0.3313 ±0.00266 | 0.0403 ±0.00111 |
| <i>R/L Index</i> | 0.0005 ±0.00013 | n/a | n/a |

Table 9: Details for FNMR@FMR = 0.0001 and FMR@FNMR = (0.002, 0.005) — Dataset POEBVA

Note: “n/a” indicates that the value could not be reliably measured with the available sample size.

3 Original PFT Dataset

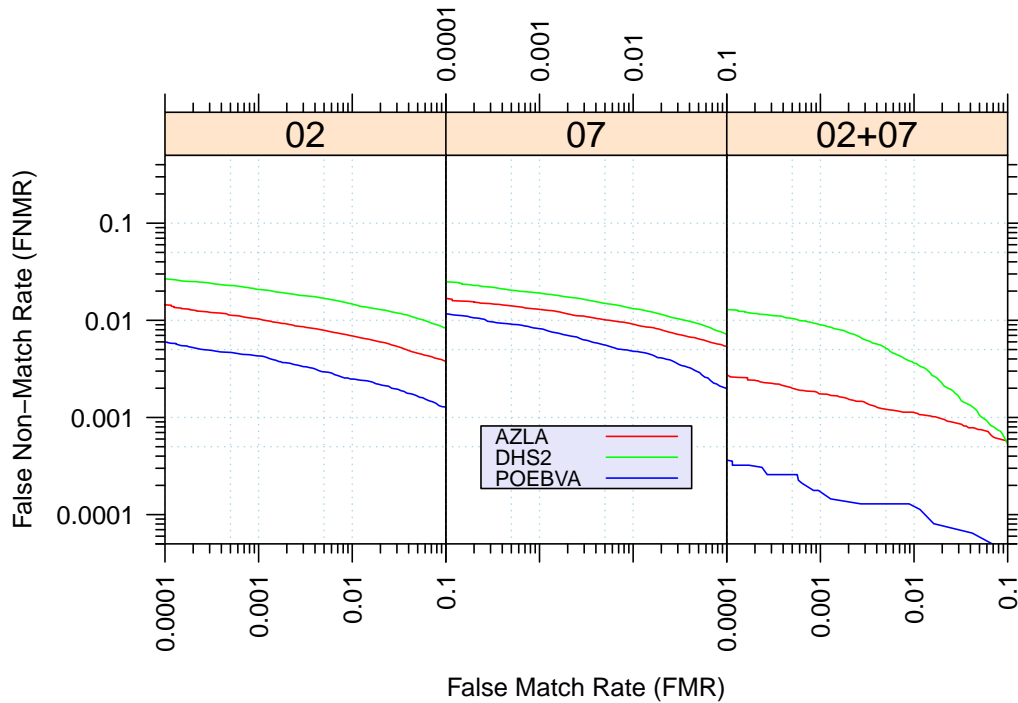


Figure 8: Original PFT Dataset – DET

| | | EER | FNMR@FMR = 0.0001 | FMR@FNMR = 0.005 |
|---------------|------------------|--------|-------------------|------------------|
| AZLA | <i>R Index</i> | 0.0073 | 0.0144 | 0.0372 |
| | <i>L Index</i> | 0.0092 | 0.0167 | 0.1264 |
| | <i>R/L Index</i> | 0.0016 | 0.0027 | n/a |
| DHS2 | <i>R Index</i> | 0.0137 | 0.0267 | 0.2911 |
| | <i>L Index</i> | 0.0127 | 0.0251 | 0.2232 |
| | <i>R/L Index</i> | 0.0050 | 0.0129 | 0.0053 |
| POEBVA | <i>R Index</i> | 0.0033 | 0.0060 | 0.0003 |
| | <i>L Index</i> | 0.0054 | 0.0116 | 0.0075 |
| | <i>R/L Index</i> | 0.0003 | 0.0004 | n/a |

Table 10: Details for EER, FNMR@FMR = 0.0001, and FMR@FNMR = 0.005 — Original PFT Dataset

Note: “n/a” indicates that the value could not be reliably measured with the available sample size.