

---

## LIST OF TABLES

2.1 Summary of the Experiment Result . . . . .	8
3.1 Multiplexer 2-to-1 Truth Table . . . . .	22
3.2 D-Flip Flop Truth Table . . . . .	24
3.3 Tools Specification . . . . .	37
4.1 Sample CRPs of Genuine PUF Dataset . . . . .	40
4.2 Sample CRPs of Attacker PUF Dataset . . . . .	41
4.3 Randomness & Hamming Distance Plot Parameters . . . . .	42
4.4 Confusion Matrix . . . . .	42
4.5 Randomness & Hamming Distance Plot Parameters - Truncated 4 bits . . .	44
4.6 Confusion Matrix, Truncated 4 bits . . . . .	44
4.7 Randomness & Hamming Distance Plot Parameters - Truncated 8 bits . . .	46
4.8 Confusion Matrix, Truncated 8 bits . . . . .	46
4.9 Randomness & Hamming Distance Plot Parameters - Truncated 12 bits . .	48
4.10 Confusion Matrix, Truncated 12 bits . . . . .	48
4.11 Randomness & Hamming Distance Plot Parameters - Truncated 16 bits . .	50
4.12 Confusion Matrix, Truncated 16 bits . . . . .	50
4.13 Randomness & Hamming Distance Plot Parameters - Uniformed 4 bits . . .	52
4.14 Confusion Matrix, Uniformed 4 bits . . . . .	52
4.15 Randomness & Hamming Distance Plot Parameters - Uniformed 8 bits . . .	54
4.16 Confusion Matrix, Uniformed 8 bits . . . . .	54
4.17 Randomness & Hamming Distance Plot Parameters - Uniformed 12 bits . .	56
4.18 Confusion Matrix, Uniformed 12 bits . . . . .	56
4.19 Randomness & Hamming Distance Plot Parameters - Uniformed 16 bits . .	58
4.20 Confusion Matrix, Uniformed 16 bits . . . . .	58
4.21 External Noisy Sources Scheme . . . . .	60
4.22 Dataset for Scheme 1 . . . . .	61
4.23 Dataset for Scheme 2 . . . . .	61
4.24 Dataset for Scheme 3 . . . . .	62
4.25 Dataset for Scheme 4 . . . . .	62
4.26 Dataset for Scheme 5 . . . . .	62
4.27 Dataset for Scheme 6 . . . . .	63
4.28 Dataset for Scheme 7 . . . . .	63
4.29 Dataset for Scheme 8 . . . . .	63
4.30 Dataset for Scheme 9 . . . . .	64
4.31 Combined Noisy Source . . . . .	66
4.32 Genuine Noisy Source #1 & Attacker Noisy Source #1 HD Plot Parameters	68

---

---

4.33	Confusion Matrix for Genuine Noisy Source #1 & Attacker Noisy Source #1	68
4.34	Genuine Noisy Source #1 & Attacker Noisy Source #2 HD Plot Parameters	69
4.35	Confusion Matrix for Genuine Noisy Source #1 & Attacker Noisy Source #2	69
4.36	Genuine Noisy Source #1 & Attacker Noisy Source #3 HD Plot Parameters	70
4.37	Confusion Matrix for Genuine Noisy Source #1 & Attacker Noisy Source #3	70
4.38	Genuine Noisy Source #1 & Attacker Noisy Source #4 HD Plot Parameters	71
4.39	Confusion Matrix for Genuine Noisy Source #1 & Attacker Noisy Source #4	71
4.40	Genuine Noisy Source #1 & Attacker Noisy Source #5 HD Plot Parameters	72
4.41	Confusion Matrix for Genuine Noisy Source #1 & Attacker Noisy Source #5	72
4.42	Genuine Noisy Source #1 & Attacker Noisy Source #6 Hamming Distance Plot Parameters . . . . .	73
4.43	Confusion Matrix for Genuine Noisy Source #1 & Attacker Noisy Source #6	73
4.44	Summary PUF Dataset Optimization Performance . . . . .	78
4.45	Combined Noisy Source Performance Summary . . . . .	80
4.46	Summary Key Recovery Rate Values . . . . .	81