## Fuzzy Hashing

Lea Grieder (328216) Leila Sidjanski (328216)

February 2024



## Contents

1	Introduction	2
	1.1 Presentation of the Project	2
	1.2 Objectives and Scope	2
	1.3 Structure of the Report	2
2	Theoretical Framework	2
	2.1 Introduction to Biometric Authentication	2
	2.2 Concept and Application of Fuzzy Hashing	
	2.3 Detailed Analysis of Pre and Post-Hash Algorithms	
3	Experimental Verifications	2
	3.1 Methodology for Assessing Theoretical Values (p, delta, mu)	2
	3.2 Analyzing FPR and FNR (Disussion of Results)	2
4	Optimization Strategies	2
	4.1 Data Compression Techniques for m=1, d=4	2
	4.2 Efficiency Improvement in Hashing Process	2
5	[1:N] Matching and System Evaluation	2
	5.1 Implementation of [1:N] Matching	2
	5.2 System Performance Evaluation	
6	Conclusion	2
	6.1 Future Directions and Enhancement	2

## 1 Introduction

- 1.1 Presentation of the Project
- 1.2 Objectives and Scope
- 1.3 Structure of the Report
- 2 Theoretical Framework
- 2.1 Introduction to Biometric Authentication
- 2.2 Concept and Application of Fuzzy Hashing
- 2.3 Detailed Analysis of Pre and Post-Hash Algorithms
- 3 Experimental Verifications
- 3.1 Methodology for Assessing Theoretical Values (p, delta, mu)
- 3.2 Analyzing FPR and FNR (Disussion of Results)
- 4 Optimization Strategies
- 4.1 Data Compression Techniques for m=1, d=4
- 4.2 Efficiency Improvement in Hashing Process
- 5 [1:N] Matching and System Evaluation
- 5.1 Implementation of [1:N] Matching
- 5.2 System Performance Evaluation
- 6 Conclusion
- 6.1 Future Directions and Enhancement