

Multi-Input Functional Encryption and Obfuscation

A Thesis
Presented to
The Established Interdisciplinary Committee for Mathematics and Natural Sciences
Reed College

In Partial Fulfillment
of the Requirements for the Degree
Bachelor of Arts

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May 2018

Approved for the Division
(Mathematics)

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Acknowledgements

I want to thank a few people.

Abstract

This is an example of a thesis setup to use the reed thesis document class.

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Introduction

Chapter 1

Background

1.1 Encryption

In plain English, Encryption is any way to share a message so that only the intended recipient(s) of that message are able to read it. Historically this was done by means of obscurity, in the sense that correspondents assumed only they knew the specific method by which messages between them would be encrypted. The problem with Encryption by obscurity is that as soon as a method of obscurity becomes popular, it immediately becomes obsolete.

Modern Cryptography

1.2 Black Box Obfuscation

1.3 Diffie-Hellman Key Exchange

Chapter 2

Multi-Linear Maps

2.1 Definition

2.2 Intuition

2.3 Construction Outline

2.4 Candidate Groups/Quotient Rings/Fields

Chapter 3

Indistinguishability Obfuscation

3.1 Definition

3.2 Construction

3.3 Usage, Limitations, and Goals

Chapter 4

Multi-Party Input Functional Encryption

4.1 Scheme

4.2 Construction

4.3 Limitations and Goals

Chapter 5

A Brief Introduction to the 5-GenC library

5.1 The DSL

5.2 Circuits and Branching Programs

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Chapter 6

Experiments

6.1 Comparison Circuit

6.2 Runtime Evaluation

Chapter 7

Conclusion

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