



# **Can I trust my machine? Modern and future challenges of trusting computing**

Submitted by

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# *Abstract*

ISTD

Doctor of Philosophy

**Can I trust my machine? Modern and future challenges of trusting computing**

by Flavio TOFFALINI

The Thesis Abstract is written here (and usually kept to just this page). The page is kept centered vertically so can expand into the blank space above the title too...

# **Publications**

Journal Papers, Conference Presentations, etc...

# Acknowledgements

The acknowledgments and the people to thank go here, don't forget to include your project advisor...

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*For/Dedicated to/To my...*

# Chapter 1

## Introduction

This is the introduction

## **Chapter 2**

# **Trusting Computing Technologies**

This is the background of Trusting Technologies, mainly SGX and TrustZone (?).

## Chapter 3

# Static Code Protection in Untrusted Environments

Here, I answer to the following question: **is a program loaded in memory as intended?**

The answer to this question is addressed in two papers:

- Careful-Packing: A practical and scalable anti-tampering software protection enforced by trusted computing (CODASPY 2019).
- HolA: Holistic and Autonomous Attestation for IoT Networks (under review).

## Chapter 4

# Advanced Threats for Trusting Computing

The solutions in 3 ensures that a piece of code is correctly loaded in memory. In this situation, **what could advanced threats be?**

The answer to this question is addressed in the paper:

- SnakeGX: a sneaky attack against SGX Enclaves (ACNS 2021).

## Chapter 5

# At the Edge of New Defenses and Analysis for Trusting Computing

The attack described in 4 requires a study of new defenses and analyses. In particular, we would answer to the following question: **can we have evidence a program is running as intended?**

The answer to this question is addressed in three papers:

- ScaRR: Scalable Runtime Remote Attestation for Complex Systems (RAID 2019).
- SgxMonitor: A Novel Runtime Remote Attestation Schema for SGX Enclaves (under review).
- Following the evidence beyond the wall: memory forensics in SGX environment (under review).

## Chapter 6

# Conclusion

These are the conclusions.



## **Appendix A**

### **Appendix Title Here**

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# Bibliography

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