

Special Issue

An Information-Theoretic Approach to Side-Channel Analysis

Message from the Guest Editors

Side-channel attacks compromise systems' security. They are mostly undetectable due to their stealthy behavior. Their risk is thus extremely high, and it is paramount to understand them well. However, an important issue is how to rate them, even assuming the worst case of the most powerful attacker. For all these reasons, formally capturing side-channel analyses is a necessary prerequisite.

Information theory seems to be the most suitable framework for this task, because it is general and it is capable of tolerating abstractions. It also encompasses several relevant security metrics, such as leakage measurement, attack success rate, and guessing entropy. In this Special Issue, we invite submissions of original works pursuing such effort.

We welcome contributions on the following topics.

- Theoretical frameworks for side-channel analysis;
- New mathematical descriptions of side-channels;
- Information-theoretic measures for information leakage;
- Tight bounds on the efficiency of attacks and countermeasures;
- Quantitative methods to detect or measure information leakage;
- Practical analysis results on use-cases;
- Novel paradigms for modeling side-channel analyses.

Guest Editors

Dr. Wei Cheng

Prof. Dr. Sylvain Guilley

Prof. Dr. Patrick Solé

Prof. Dr. Olivier Rioul

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Entropy
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
entropy@mdpi.com

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Message from the Editor-in-Chief

The concept of entropy is traditionally a quantity in physics that has to do with temperature. However, it is now clear that entropy is deeply related to information theory and the process of inference. As such, entropic techniques have found broad application in the sciences.

Entropy is an online open access journal providing an advanced forum for the development and/or application of entropic and information-theoretic studies in a wide variety of applications. *Entropy* is inviting innovative and insightful contributions. Please consider *Entropy* as an exceptional home for your manuscript.

Editor-in-Chief

Prof. Dr. Kevin H. Knuth

Department of Physics, University at Albany, 1400 Washington Avenue,
Albany, NY 12222, USA

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