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Security of Ubiquitous Computing Systems

Selected Topics

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Preface

From the Cryptacus Project to the Cryptacus Book

Dear reader, we thank you for your interest in this book, which we expect will help you gain an understanding of the state of the art in 2020 regarding the challenges and solutions in the security of ubiquitous computing systems.

The definition of the field itself is not without controversy, but in this book we will use the term 'ubiquitous computing' or 'IoT' to refer to generally small, embedded devices with serious constraints in terms of memory and processing power, typically with no batteries but with good connection capabilities and, frequently, a number of sensors. This definition is, of course, flexible. Electronic passports, contactless transportation cards, personal assistants such as Amazon Echo but also new connected cars and fridges can fall within this definition.

This book is targeted to advanced undergraduate students and master's and early Ph.D. students who want quick, direct, authoritative, insightful exposure to the topics covered, all generally falling under the umbrella of IoT security. Engineers and other practitioners can also benefit from the book by getting a quick introduction to a variety of practical security topics, their past and present solutions, and some new and promising ideas that may play important roles in its future.

This book would not have been possible without the support of the CRYPTACUS (Cryptanalysis in Ubiquitous Computing Systems) COST Action IC 1403, which started in 2014 and ended in December 2018. We are particularly thankful to the EU COST association, which was extremely positive for the community in Europe and associated countries such as Switzerland, Turkey, and Israel, and we are particularly grateful to the colleagues who were interested in our action.

As Chair (GA) and Vice-Chair (JH-C) we worked hard on the project, but we enjoyed the possibilities offered for collaboration and furthering exchanges between researchers in IoT security and cryptography in Europe. In particular, we are proud that the CRYPTACUS Action achieved a number of successes that can be reflected in the following figures:

- 32 short-term scientific missions
- 5 scientific meetings

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