

Preface

This book contains the contributions which were selected for publication at the second edition of the Distributed Ledger Technology Workshop (DLT 2019), which has been held in conjunction with ITASEC19 in Pisa, on February 12, 2019. This event follows the First edition of the workshop held in Perugia in 2018, and represents the annual meeting of the Italian DLT group.

Distributed Ledger Technology is having an ever growing popularity. Nowadays, the most popular application of DLT concerns cryptocurrencies (Bitcoin, Litecoin, Monero, etc.), but the DLT features allow them to be applied in many scenarios, both in research and business contexts. In particular, the DLT technology is suitable to be adopted in a large number of application fields, e.g. Internet of Things, cyber-physical Systems, edge computing, and supply-chain management.

The DLT workshops are meant as a forum for researchers, developers, and users to discuss issues related to Distributed Ledger Technology and its adoption in research and business scenarios. The primary goal is to foster discussion and cross-fertilisation of ideas among experts in different fields related to DLTs, and thus advance the national and international state-of-the-art. Research, applications, case studies, and experiences concerning DLT are all encouraged.

The workshop solicited two kind of contributions: *research papers* and *oral communications*. Both contributions entailed an oral presentation at the workshop, but only the former are reported in this book. In particular, the workshop accepted 6 research papers and 9 oral contributions.

We would like to express our thanks to the authors who submitted their papers to our workshop, and to the members of the Technical Program Committee for their valuable work in evaluating the submitted papers.

February, 12 2019

Paolo Mori
Stefano Bistarelli
Massimo Bartoletti

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Workshop Program

You can find below the DLT 2019 technical sessions. We point out the 6 papers contained in these proceeding in **bold** font. All the remaining oral communications are not contained therein, and they have been presented at the workshop.

Technical Session 1

- *Massimo Bartoletti, Roberto Zunino*
Verifying liquidity of Bitcoincontracts
- *Chantal Bompreszi*
Smart contracts on blockchain: some false myths
- *Lodovica Marchesi, Michele Marchesi, Roberto Tonelli*
dApp Implementation using an Agile, yet Systematic Approach
- *Francesco Buccafurri, Gianluca Lax, Lorenzo Musarella, Antonia Russo*
Ethereum Transactions and Smart Contracts among Secure Identities
- *Ettore Battaiola, Fabio Massacci, Chan Nam Ngo, Pierantonio Sterlini*
Blockchain-based Invoice Factoring: from business requirements to commitments
- *Alessio Meneghetti, Armanda Ottaviano Quintavalle, Massimiliano Sala, Alessandro Tomasi*
Two-tier blockchain timestamped notarization with incremental security

Technical Session 2

- *Matteo Bernardini, Diego Pennino, Maurizio Pizzonia*
Blockchains Meet Distributed Hash Tables: Decoupling Validation from State Storage (Extended Abstract)
- *Andrea Morichetta, Andrea Polini, Barbara Re, Francesco Tiezzi*
Choreographies Enactment Via Smart Contracts
- *Stefano Bistarelli, Gianmarco Mazzante, Matteo Micheletti, Leonardo Mostarda, Francesco Tiezzi*
Analysis of Ethereum Smart Contracts and Opcodes
- *Paolo Mori, Damiano Di Francesco Maesa, Laura Ricci*
Exploiting Blockchain Technology to Design an Attribute Based Access Control System

- *Luisa Siniscalchi, Ivan Visconti*
On Deleting Data from a Blockchain
- *Alessandra Scafuro, Luisa Siniscalchi, Ivan Visconti*
Publicly Verifiable Argument Systems Through Generic Blockchains

Technical Session 3

- *Laura Ricci, Andrea Marino, Damiano Di Francesco Maesa*
Analysing the structure of the Bitcoin users graph
- *Claudio Ferretti, Alberto Leporati, Luca Mariot, Luca Nizzardo*
Transferable Anonymous Payments via TumbleBit in Permissioned Blockchains
- *Roberto Carlini, Federico Carlini, Stefano Dalla Palma, Remo Pareschi*
Genesy: a Blockchain-based Platform for DNA Sequencing

External session

- Contracts and Smart Contracts
Giovanni Sartor

Panel

- Adozione della blockchain in azienda: aspetti tecnici e legali
Pierangelo Soldavini (moderatore), Massimo Chiriatti, Notaio Michele Manente, Nicola Santoni

Tutorial

- Blockchain for Public Administrations
Massimo Bartoletti, Andrea Vitaletti