

Preface

This volume presents the papers selected for inclusion in the seventh edition of the Distributed Ledger Technology Workshop (DLT 2025), held in Pizzo, Italy, from May 12 to 14, 2025. The event continues the tradition of previous editions organized in Perugia (2018), Pisa (2019), Ancona (2020), Rome (2022), Bologna (2023), and Turin (2024), which together constitute one of the two annual meetings of the Italian DLT group.

The DLT workshops provide a forum for researchers, developers, and users to discuss topics related to Distributed Ledger Technology and its application in research and business contexts. Their main aim is to encourage dialogue and the exchange of ideas among experts from various fields connected to DLT, thereby contributing to the advancement of the state of the art at both national and international levels. Contributions addressing research, applications, case studies, and experiences with DLT are all welcomed.

The DLT 2025 workshop accepted two types of contributions: research papers (regular, short, and PhD student) and oral communications, all presented during the event. In total, 53 submissions were received. Each research paper was evaluated through a peer-review process involving at least three experts in the field, resulting in 22 papers being selected for publication in this volume.

We would like to thank all the authors who submitted their work to the workshop, as well as to the members of the Technical Program Committee and their subreviewers for their valuable efforts in reviewing the submissions.

October 10th, 2025

Stefano Bistarelli
Carmelo Felicetti
Claudio Schifanella

Organization

Program co-chairs

- Stefano Bistarelli – Università degli Studi Perugia
- Carmelo Felicetti – Università degli Studi della Calabria
- Claudio Schifanella – Università degli Studi di Torino

Workshop co-chairs

- Antonella Guzzo – University of Calabria, Italy
- Domenico Saccà – University of Calabria, Italy

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- Antonella Guzzo – Università degli Studi della Calabria
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- Andrea Visconti – Università degli Studi di Milano
- Ivan Visconti – Università degli Studi di Roma “La Sapienza”
- Andrea Vitaletti – Università degli Studi di Roma “La Sapienza”
- Roberto Zunino – Università degli Studi di Trento

Program

Day 1 – Thursday 12 June

08:15 Registration

08:45 Welcome

09:00 Session 1

Alessio Breglia, Andrea De Salve, Paolo Mori and Laura Ricci
Improving Driving Behavior: a Blockchain-based Gamification System

Juraj Mariani and Ivan Homoliak (oral communication)
SoK: A Survey of Mixing Techniques and Mixers for Cryptocurrencies

Carmelo Felicetti, Mikael Bramstedt and Domenico Saccà (oral communication)
Blockchain-Powered Hardware Identity Binding: A Secure, Quantum-Ready Framework for Access Control

Stefano Bistarelli, Chiara Luchini and Francesco Santini
Analyzing Terms of Use Adoption in SSI Digital Wallets: A Review of Current Implementations

Irene Domenicale, Flavia Fredda, Emanuele Spadaro and Claudio Schifanella
Participation by Design: Designing Incentives for Collaborative Economies in Local Communities

Nawaz Abdullah Malla, Alessandro Marcelletti, Andrea Morichetta and Francesco Tiezzi
An Algorand-based Approach for Flexible Execution of BPMN Choreographies

10:50 Coffee break

11:20 Session 2

Stefano Bistarelli, Ivan Mercanti and Adele Veschetti
Exploring Fairness in Ethereum PoS: The Impact of Protocol Design and MEV

Juraj Mariani and Ivan Homoliak (oral communication)
Proof-of-Social-Capital: Privacy-Preserving Consensus Protocol Replacing Stake for Social Capital

Ramon da Gama Cordeiro and Marcela Tuler de Oliveira
Data Access and Usage Control for Data Spaces

Massimo Bartoletti, Riccardo Marchesin and Roberto Zunino (oral communication)
Scalable UTXO Smart Contracts via Fine-Grained Distributed State

Margherita Renieri and Letterio Galletta (oral communication)
A Formal Model of DeFi Intent-based Protocols

13:00 Lunch

14:30 Session 3

Goshgar Can Ismayilov and Can Ozturan

Privacy-Preserving Multi-Objective Optimization using Bellman-Ford Algorithm via Zero-Knowledge Proofs

Francesco Salzano, Lodovica Marchesi, Cosmo Kevin Antenucci, Simone Scalabrino, Roberto Tonelli, Rocco Oliveto and Remo Pareschi (oral communication)
Bridging Academia and Practice in Smart Contract Security

Francesco Bruschi, Marco Esposito, Andrea Rizzini and Ivan Visconti
Deflating Mass-Surveillance Attempts in the Post-Snowden Era: Publicly-Traceable Conditional Decryptions

Aurelio Loris Canino, Lucia Della Spina and Gianluca Lax (oral communication)
Using a Public Blockchain for Sharing Malware Signatures

Alessandro Bigiotti, Leonardo Mostarda, Alfredo Navarra, Andrea Pinna and Roberto Tonelli (oral communication)
ZeroBridge: Make Permissioned Blockchains Interoperable

Antonino Iaria, Mirko Zichichi and Stefano Ferretti (oral communication)
Towards Next Generation Domain Services: A Committee based Privacy Scheme leveraging Move on IOTA

16:10 Coffee break

16:40 Session 4

Gianpietro Castiglione, Giampaolo Bella, Daniele Francesco Santamaria and Sergio Esposito
Private and Verifiable Storage of User Vehicles' Privacy Settings through Decentralisation

Stefano De Angelis, Ivan Visconti, Andrea Vitaletti and Marco Zecchini (oral communication)
Efficient Query Verification for Blockchain Superlight Clients Using SNARKs

Simone Giuffrida, Shahid Salim, Azmat Ullah, Matteo Vaccargiu, Giovanni De Gasperis and Roberto Tonelli (oral communication)
A Move Sui library for secure, certified and trusted supply chain ownership management

Stefano Bistarelli, Ivan Mercanti, Paolo Mori and Carlo Taticchi
*Introducing Event-Driven Properties Management in *-chain*

Stefano De Angelis, Hendrik Waldner and Stefano De Angelis (oral communication)
Data Availability Sampling with Multiple Verifiers Under the Honest Majority Assumption

Ermanno Francesco Sannini, Andrea Di Sorbo and Corrado Aaron Visaggio
Smart contracts and issue reporting: a preliminary analysis

20:30 Social dinner

Day 2 – Friday 13 June

09:00 Session 5

Matteo Vaccargiu, Endri Xhina and Roberto Tonelli

Block-Timer: A Layer-Optimized Approach for BPMN Process Execution with Time Constraints on Blockchain

Alberto Leporati

Certified Solutions on Blockchain to Computationally Difficult Optimization Problems

Domenico Tortola, Mauro Orrù, Paolo Mori and Laura Ricci (oral communication)

A Cross-chain Erasmus Management System

Francesco Donini, Alessandro Marcelletti, Andrea Morichetta and Andrea Polini

Non-Fungible Mutable Tokens for Flexible Choreography Roles and Ownership

Simone Valentini, Sowelu Avanzo, Elvinia Riccobene, Alex Norta and Claudio Schifanella (oral communication)

Developing a Model-Driven Toolchain for the Formal Verification of DAOs

Luca Pennella, Pietro Saggese, Fabio Pinelli and Letterio Galletta (oral communication)

Systematizing DeFi Derivatives Protocols: A Comparative Analysis and Conceptual Framework for Web3

10:45 Coffee break

11:15 Session 6

Andrea Pinna, Gavina Baralla, Giacomo Ibba and Roberto Tonelli

On the Use of LLMs for Upgrading Legacy Smart Contracts: An Initial Study

Vincenzo Di Perna, Michele Foderaro, Francesco Fabris and Marco Bernardo

An Entropy-Based Approach to Evaluating the Economic Efficiency of Cryptocurrencies

Matteo Vaccargiu, Sabrina Aufiero, Silvia Bartolucci, Romyana Neykova, Roberto Tonelli and Giuseppe Destefanis (oral communication)

Mining a Decade of Event Impacts on Contributor Dynamics in Ethereum: A Longitudinal Study

Hasret Ozan Sevim (oral communication)

Deciphering DeFi: Econometric Analysis With Multi-Blockchain Approach

Emanuele Antonio Napoli, Ivan Spada, Noemi Romani, Valentina Gatteschi and Claudio Schifanella

Smart Contract Visualization: Solutions and Challenges

13:00 Lunch

14:00 Session 7

Giacomo Zonneveld, Giulia Rafaiani and Marco Baldi (oral communication)

A Forgery Attack against a Blockchain-based Digital Credential System

George Giamouridis, Boojoong Kang and Leonardo Aniello

Decentralized DNS Resolution Based on Distributed Ledger Technology

Lorenzo Benetollo, Semia Guesmi, Carla Piazza, Dalila Ressi, Sabina Rossi and Alvisè Spanò
Modeling Reentrancy in Smart Contracts through Noninterference

Tommaso Caiazzì, Stefano Iannucci, Valerio Marini, Diego Pennino, Maurizio Pizzonia and Riccardo Torlone (oral communication)
A Novel Architecture for Cyber-Resilient Self-Protecting Systems Based on Blockchain

Monica Palmirani, Ludovico Papalia, Chantal Bompreszi, Mirko Zichichi, Arianna Arruzzoli and Stefano Ferretti
Multi-level Architecture for Separation of Powers in Legislative Process

15:30 Coffee break

15:45 Panel

Stefano Bistarelli, Francesco Buccafurri, Andrea Ferrazzi, Francesco Zicari, Domenico Saccà
Blockchain: Industrial Applications and Perspectives

17:00 Special session

Manlio Gaudio, Sergio Greco, Luigi Palopoli, Mimmo Talia, Francesco Buccafurri, Francesco Scarcello, Stefano Bistarelli
Event in honor of Prof. Domenico Saccà

Day 3 – Saturday 14 June

09:00 Session 8

Azmat Ullah and Giuseppe Antonio Pierro
Comparative Evaluation of Blockchain Technologies for IoT Energy Monitoring in Residential Settings

Azmat Ullah, Maria Ilaria Lunesu, Lodovica Marchesi and Roberto Tonelli (oral communication)
A Blockchain-Enabled IoT Monitoring System

Alessia Pisu, Livio Pompianu, Daniele Riboni and Salvatore Carta (oral communication)
Blockchain-Based IoT Data Certification

Carmelo Felicetti, Mikael Bramstedt and Naeem Mansha (oral communication)
IoT Post Quantum Unclonable SRAM/PUF NFT Invoice payment and Settlement, Governance Key Restoration

Francesco Blefari, Angelo Furfaro and Francesco Aurelio Pironti (oral communication)
DLT-based Data Mules for C2C communication in Smart Shires

Aurora Guaresì, Chiara Braghin and Stelvio Cimato
AvaDrive: A Blockchain Based Framework for Efficient Vehicle-to-Grid Management

10:40 Coffee break

11:10 Meeting DLT Group

12:40 Closing