Regular Paper

A Blockchain-Based Privacy-Preserving Auditable Data Structure Framework
Domenico Tortola (University of Pisa, Italy); Andrea Canciani (Geckosoft, Italy); Claudio Felicioli and Fabio Severino (Traent, Italy)

A Novel Timechain-Level Approach to the Modeling of the Bitcoin Lightning Network
Davide Patti (University of Catania, Italy); Salvatore Monteleone (Niccolò Cusano University, Italy); Enrico Russo, Vincenzo Catania and Maurizio Palesi (University of Catania, Italy)

An AI Multi-Model Approach to DeFi Project Trust Scoring and Security
Reza M. Parizi and Viraaji Mothukuri (Kennesaw State University, USA); James L Massa (Decentralized Science Lab, USA); Abbas Yazdinejad (University of Guelph, Canada & Postdoctoral Research Fellow. Cyber Science Lab (CSL), Canada Cyber Foundry, University of Guelph, Canada)

Attacks in Distributed Routing Protocols in PCNs
Neeraj Sharma and Kalpesh Kapoor (Indian Institute of Technology Guwahati, India)

Benchmarking Blockchain Bridge Aggregators
Shankar Subramanian (University of Massachusetts, Amherst, USA); André Augusto (INESC-ID, Instituto Superior Técnico, Universidade de Lisboa, Portugal); Rafael Belchior (Instituto Superior Técnico & INESC-ID & Blockdaemon Ltd., Portugal); André Vasconcelos (INESC-ID, Instituto Superior Técnico, Universidade de Lisboa, Portugal); Miguel Correia (INESC-ID & Instituto Superior Técnico, Portugal)

Blind Vote: Economical and Secret Blockchain-Based Voting
Amir Kafshdar Goharshady and Zhaorun Lin (Hong Kong University of Science and Technology, Hong Kong)

Blockchain-Based Federated Learning Utilizing Zero-Knowledge Proofs for Verifiable Training and Aggregation
Elmira Ebrahimi (Hamburg University of Technology, Germany); Michael Sober (TU Hamburg, Germany); Anh-Tu Hoang (Hamburg University of Technology, Germany); Can Umut Ileri (IOTA Foundation, The Netherlands); William Sanders (IOTA Foundation, Norway); Stefan Schulte (Hamburg University of Technology, Germany)

Decentralized Ledger Technology for EPCIS 2.0: Utilizing NFTs for Enhanced Product Traceability
Fausto Neri da Silva Vanin (Universidade Do Vale Do Rio Dos Sinos (Unisinos), Brazil); Yalew K Tolcha (KAIST, Korea (South)); Rodrigo Righi (Unisinos, Brazil); Cristiano A Costa (Universidade Do Vale Do Rio Dos Sinos, Brazil); Daeyoung Kim (KAIST, Korea (South))

DPPS: A Decentralised Publish-Process-Subscribe Middleware With Verifiable Computations
Amir Jabbari (Queensland University of Technology & QUT, Australia); Gowri Ramachandran (Queensland University of Technology, Australia); Sidra Malik (CSIRO, Australia); Raja Jurdak (Queensland University of Technology & CSIRO, Australia)

Embedded Elapsed Time in Trusted Execution Environments for Lightweight Blockchain
Quentin Jayet (CEA LETI, France); Christine Hennebert (CEA-LETI, France); Yann Kieffer (University Grenoble Alpes, Grenoble INP, France); Vincent Beroulle (University of Grenoble Alpes, France)

FELLMVP: An Ensemble LLM Framework for Classifying Smart Contract Vulnerabilities
Yu Luo (University of Missouri - Kansas City, USA); Frank Xu (The University of Baltimore, USA); Karl Andersson (Luleå University of Technology, Sweden); Mohammad Shahadat Hossain (University of Chittagong, Bangladesh); Dianxiang Xu (University of Missouri Kansas City, USA)

From CoWs to Multi-Chain AMMs: A Strategic Optimization Model for Enhancing Solvers
Zeshun Shi (Delft University of Technology, The Netherlands); Sydney Sweck (Composable Foundation, Switzerland); Omar Zaki (Composable Foundation, The Netherlands)

GOvNet: A Blockchain Overlay Network for Governments and Privacy-Oriented Applications
Luigi Lunardon (nChain, Switzerland); Alessio Pagani (nChain, United Kingdom (Great Britain) & IMI University of Bath, United Kingdom (Great Britain))

GrAC: Graph-Based Anonymous Credentials From Identity Graphs on Blockchain
Wenyi Tang and Shankha Shubhra Mukherjee (University of Notre Dame, USA); Seongho Park (Hanyang University, Korea (South)); Changhao Chenli (University of Notre Dame, USA); Hyonok Oh (Hanyang University, Korea (South)); Jihye Kim (Kookmin University, Korea (South)); Taeho Jung (University of Notre Dame, USA)

Hash Time Lock with Dynamic Premium Based on Credit in Cross-Chain Transaction
Kai Wang and Dongbin Wang (Beijing University of Posts and Telecommunications, China)

Leveraging Timestamps to Create Secure and Feeless Evidence Management
Iifan Tyou and Shigenori Ohashi (NTT, Japan); Justin Yu (UBC, Canada); Takayuki Miura (NTT, Japan); Takuro Hosoi and Kanta Matsuura (University of Tokyo, Japan)

Maximizing Blockchain Performance: Mitigating Conflicting Transactions Through Parallelism and Dependency Management
Faisal Haque Bappy and Tariqul Islam (Syracuse University, USA); Tarannum Shaila Zaman (SUNY Polytechnic Institute, USA); Md Sajidul Islam Sajid (Towson University, USA); Mir Mehedi Ahsan Pritom (Tennessee Tech University, USA)

On the Impact of the Lightning Network on Bitcoin Transaction Fees and Network Value
Saulo dos Santos (University of Manitoba, Canada); Japjeet Singh and Bakhshish Singh Dhillon (Sats Capital LTDA, Brazil); Shahin Kamali (York University, Canada); Ruppa K. Thulasiram (University of Manitoba, Canada); Cuneyt Akcora (University of Central Florida, USA)

Options and Futures Imperil Bitcoin's Security
Soroush Farokhnia and Amir Kafshdar Goharshady (Hong Kong University of Science and Technology, Hong Kong)

OTEx: Ownership Transfer and Execution Protocol for Blockchain Interoperability
Shantanu Shyamsunder Dangat and Suparna Kar (Indian Institute of Technology Hyderabad, India); Bhavesh Toshniwal (Indian Institute of Technology, Hyderabad, India); Kotaro Kataoka (Indian Institute of Technology Hyderabad, India); Yawen Huang (DENSO Corporation, Japan); Hiroki Abe (DENSO, Japan); XIN XU (DENSO Corporation, Japan)

Peer-To-Peer Energy Trading With Privacy and Fair Exchange
Dongkun Hou (Monash University, Australia); Jie Zhang (Xi'an Jiaotong-Liverpool University, China); Shujie Cui and Joseph Liu (Monash University, Australia)

Private Dispute Resolution on Ethereum
Andrea Gangemi (Politecnico di Torino, Italy); Aida Maria Manzano Kharman (Imperial College London, United Kingdom (Great Britain))

Proof of Privacy-Preserving Machine Learning: A Blockchain Consensus Mechanism With Secure Deep Learning Process
Huilin He, Jiachen Shen, Zhenfu Cao, Xiaolei Dong and Haiqin Wu (East China Normal University, China)

Proof of Success Rate: A Past Behaviour-Based Consensus Protocol
Damilare Peter Oyinloye and Jingyue Li (Norwegian University of Science and Technology, Norway)

Quantifying Fairness Granularity as a Fair Ordering Policy Towards MEV Mitigation for Rollups
Zeinab Alipanahloo and Kaiwen Zhang (École de Technologie Supérieure, Canada); Emmanuel Awosika (Independent Researcher, USA)

Ransomware Criminal Smart Contract
Aka Sai Lalith Kumar (Microsoft & Shiv Nadar University, India); Sweta Mishra (Shiv Nadar University, India)

Smart Contract-Based Decentralized Mining Pools for Proof-Of-Work Blockchains
Athanasia Maria Papathanasiou (Athens University of Economics and Business, Greece); Chalima Dimitra Nassar Kyriakidou (Athens University of Economics and Business (AUEB), Greece); Iakovos Pittaras (Athens University of Economics and Business, Greece); George C. Polyzos (Chinese University of Hong Kong, Shenzhen, China & Athens University of Economics and Business, Greece)

State-Based Invariant Property Generation of Solidity Smart Contracts Using Abstract Interpretation
Raju Halder (IIT Patna, India)

Systematic Study of Compilers and Vulnerability Scanners Using the Example of Integer Bugs
Monika di Angelo and Rafael Mohr (TU Wien, Austria); Gernot Salzer (Technische Universität Wien, Austria)

Token Fungibility Duality: Technical and Graphical Analysis on 404 Standards
Hou-Wan Long (The Chinese University of Hong Kong, Hong Kong); Yain-Whar Si (University of Macau, Macao)

Unveiling Dynamics and Patterns: A Comprehensive Analysis of Spreading Patterns and Similarities in Low-Labelled Ransomware Families
Francesco Zola, Mikel Gorricho, Jon Ander Medina, Lander Segurola Gil and Raul Orduna Urrutia (Vicomtech, Spain)

WBRP: Consensus Algorithm Based on Weak Proof of Work
Jiarui Li and Dongbin Wang (Beijing University of Posts and Telecommunications, China)

zkSSI: A Zero-Knowledge-Based Self-Sovereign Identity Framework
Anh-Tu Hoang (Hamburg University of Technology, Germany); Can Umut Ileri (IOTA Foundation, The Netherlands); William Sanders (IOTA Foundation, Norway); Stefan Schulte (Hamburg University of Technology, Germany)

Short Paper

A Dynamic Sharding Scheme for Blockchain Based on Graph Partitioning
Huan Li and Dongbin Wang (Beijing University of Posts and Telecommunications, China)

Bilateral Secure and Decentralized Crowdsourcing Task Matching Atop Consortium Blockchain
Liang Li and Haiqin Wu (East China Normal University, China); Boris Düdder (University of Copenhagen, Denmark); Jiachen Shen and Zhenfu Cao (East China Normal University, China)

Blockchain-Based Zero Knowledge Proof Platform With Secure Common Reference String
Moonhyeon Chung (Pohang University of Science and Technology, Korea (South))

BlockDEV: Blockchain-Based Decentralized Charging Service Provider Selection for Electric

Vehicles
Muhammad Muneem Shabir (Ecole de Technologie Supérieure, Canada); Syed Muhammad Danish (École de Technologie Supérieure ÉTS, Canada); Kaiwen Zhang (École de Technologie Supérieure, Canada)

ControlPay: An Adaptive Payment Controller for Blockchain Economies
Oguzhan Akcin, Robert P. Streit and Benjamin Oommen (University of Texas at Austin, USA); Sriram Vishwanath (University of Texas Austin, USA & MITRE, USA); Sandeep Chinchali (The University of Texas at Austin, USA)

CountChain: A Decentralized Oracle Network for Counting Systems
Behkish Nassirzadeh (University of Waterloo, Canada); Stefanos Leonardos (Kings College London, United Kingdom (Great Britain)); Albert Heinle (CoGuard, Canada); Anwar Hasan (University of Waterloo, Canada); Vijay Ganesh (Georgia Institute of Technology, USA)

Effective Ethereum Staking in Cryptocurrency Exchanges
Yuto Takei (Mercari, Inc. & Tokyo Institute of Technology, Japan); Kazuyuki Shudo (Kyoto University, Japan)

Mitigating Centralization in Access Control System With Blockchain and Distributed Storage
Banghong Qin (Beihang University, China); Jianwei Liu (BeiHang University, China); Xinxin Xing (Beihang University, China); Weizhi Meng (Technical University of Denmark, Denmark); Yizhong Liu (Beihang University, China & University of Copenhagen, Denmark)

PAVA: Privacy-Preserving Attribute-Based Verifiable Authentication in Healthcare Using Smart Contracts
Mostafa Chegenizadeh and Claudio J. Tessone (University of Zurich, Switzerland)

Prevoke: Privacy-Preserving Configurable Method for Revoking Verifiable Credentials
Praveensankar Manimaran and Thiago Garrett (University of Oslo, Norway); Arlindo F da Conceicao (Federal University of São Paulo, Brazil); Mayank Raikwar and Roman Vitenberg (University of Oslo, Norway)

PRFX: A Privacy-Preserving Prefix Summation Protocol on Blockchain With Zero-Knowledge Proof
Goshgar Ismayilov (Bogazici University, Turkey); Can Ozturan (Bogazici Unv., Turkey)

Proof-Of-Collaborative-Learning: A Multi-Winner Federated Learning Consensus Algorithm
Amirreza Sokhankhosh and Sara Rouhani (University of Manitoba, Canada)

Theoretical Analysis on Block Time Distributions in Byzantine Fault−Tolerant Consensus Blockchains
Akihiro Fujihara (Chiba Institute of Technology, Japan)

Analysis of Input/Output Count and Transaction Size in Bitcoin
Mohammad Hossein Tabatabaei, Thiago Garrett and Roman Vitenberg (University of Oslo, Norway)

Understanding the Blockchain Interoperability Graph Based on Cryptocurrency Price Correlation
Ori Mazor and Ori Rottenstreich (Technion, Israel)

Worst-Case Analysis of the Soundness of Efficient Verifiable Delay Function
Souvik Sur and Dipanwita Roy Chowdhury (Indian Institute of Technology Kharagpur, India)

BSS Workshop Paper

A New Consensus Mechanism for Blockchained Federated Learning Systems Using Optimistic Rollups
Joao Paulo de Brito Goncalves (Federal Institute of Espirito Santo (Ifes), Brazil); Rodolfo da Silva Villaca (Federal University of Espirito Santo (Ufes), Brazil)

A Responsibility Pillar: Exploring and Assessing Decentralized Intelligence
Qin Wang (CSIRO & UNSW, Australia); Guangsheng Yu (CSIRO, Australia); Tingting Bi (The University of Western Australia, Australia); Herath Mudiyanselage Nelanga Dilum Bandara (Commonwealth Scientific and Industrial Research Organisation & University Of New South Wales, Australia); Shiping Chen (CSIRO Data61 & UNSW, Australia)

Cross-Chain Notification and Awareness Management
Ferda Özdemir Sönmez (Imperial College of London, United Kingdom (Great Britain)); William J Knottenbelt (Imperial College, United Kingdom (Great Britain))

Leveraging Blockchain and RFID/NFC Technology for Secure and Traceable Logistics for Documents With Digital Twin
Terry C. Y. Ng (R Square Innovation Technology Limited, Hong Kong); Dennis Y. W. Liu (Monash University, Australia & The Hong Kong Polytechnic University, Hong Kong); Alven C. Y. Leung (The Hong Kong Polytechnic University, Hong Kong)

LLMSmartSec: Smart Contract Security Auditing With LLM and Annotated Control Flow Graph
Viraaji Mothukuri; Reza M. Parizi; James L Massa

SCAFT: A Scalable Crowd-Assisted Fair Trading Protocol
Changhao Chenli, Wenyi Tang, Shankha Shubhra Mukherjee and Taeho Jung (University of Notre Dame, USA)

U-spaceChain: A Decentralized Approach to Unmanned Traffic Management Services Provision
Balita Rakotonarivo (Ecole Nationale de l'Aviation Civile, France); Murat Bronz (ENAC, France)

FBS Workshop Paper

A Blockchain-Enabled and Transparent Evaluation of ML Models in the Decentralised Marketplace
Hamid Yazdaninejad (City University of London, United Kingdom (Great Britain)); Muttukrishnan Rajarajan (City University London, United Kingdom (Great Britain)); Michal Krol (City, University of London, United Kingdom (Great Britain))

Comparative Analysis of Permissioned Blockchains: Cosmos, Hyperledger Fabric, Quorum, and XRPL
Pedro H. Barcha Correia (Universidade de São Paulo, Brazil); Marcos A. Simplicio Jr. (University of São Paulo, Brazil); Charles Christian Miers (Santa Catarina State University, Brazil); Mauricio Pillon (Universidade do Estado de Santa Catarina & UDESC, Brazil); Marco Antonio Marques and Luciano Ermilivitch (Universidade de São Paulo, Brazil)

Correlation Analysis of Reward Rate in a DPoS Blockchain
Hidemasa Tanaka (Rakuten, Japan); Shiori Hironaka and Kazuyuki Shudo (Kyoto University, Japan)

Enhancing Blockchain Storage Efficiency in Mobile IoT through Multidimensional Structures and Collective Signing
Alex Pissinou Makki (Frost Institute of Data Science and Computing, University of Miami); Hussein Zangoti (Florida International University, USA & Jazan University, Saudi Arabia); Wazir Zada Khan (University of Wah, Pakistan); Niki Pissinou (Florida International University, USA)

Exploring User Perceptions of Crypto Signals: An Empirical Study From Social Media Posts

Shawal Khalid, Huayu Liang and Chris Brown (Virginia Tech, USA)

Pixiu: Optimal Block Production Revenues on Cardano
Togzhan Barakbayeva (Hong Kong University of Science and Technology (HKUST), Hong Kong); Soroush Farokhnia and Amir Kafshdar Goharshady (Hong Kong University of Science and Technology, Hong Kong); Markus Gufler (Cardano Foundation, Switzerland); Sergei Novozhilov (The Hong Kong University of Science and Technology, Hong Kong)

Scatter Protocol: An Incentivized and Trustless Protocol for Decentralized Federated Learning
Samrat Sahoo and Sudheer Chava (Georgia Institute of Technology, USA)

SD-BLS: Privacy Preserving Selective Disclosure and Unlinkable Revocation of Verifiable Credentials
Andrea D'Intino (Forkbomb BV, The Netherlands); Denis Roio (Dyne, The Netherlands); Rebecca Selvaggini (UniTN, Italy)

Versioned Analysis of Software Quality Indicators and Self-Admitted Technical Debt in Ethereum Smart Contracts With Ethstractor
Khalid Hassan, Saeed Moradi, Sara Rouhani and Shaiful Chowdhury (University of Manitoba, Canada)

IBTA Workshop Paper

A Performance Study of Block Proposing Mechanism in Ethereum 2.0
Zijie Liu, Qinglin Zhao and Shuhan Qi (Macau University of Science and Technology, Macao); Li Feng (Macau University of Science and Technology, China); Xiaofen Wang (University of Electronic Science and Technology of China, China); Yi Sun (Chinese Academy of Sciences, China)

Data Blocks Scheduling Scheme for Regional Distributed Storage Networks
Tongtong Cheng (CAICT, China)

Research and Application Framework for Trusted Circulation of Food Industry Data Based on Blockchain and Federated Learning
Ren Yan (Beijing Technology and Business University, China)

Research on Distributed Node Resource Optimization Mechanism for Multi-Agent Systems Combined With Blockchain Technology
Bing Bai (China Institute of Communications, China); Zihang Yin (China Academy of Information and Communications Technology, China); Yang Liu (the China Academy of Information and Communications Technology, China); Tongtong Cheng (CAICT, China)

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A Comparison of Impermant Loss for Various CFMMs
Hyoung Joong Kim (Korea University, Korea (South))

A State-Function-Driven Consensus Protocol for Blockchain Networks
Dan Lu (ME Research LLC, USA)

Blockchain-Enabled Accountability in Data Supply Chain: A Data Bill of Materials Approach
Yue Liu (Data61, CSIRO, Australia); Dawen Zhang (Data61, CSIRO & The University of New South Wales, Australia); Boming Xia (Data61, CSIRO & University of New South Wales, Australia); Julia Anticev and Tunde Adebayo (Information Management & Technology, CSIRO, Australia); Zhenchang Xing (Data61, CSIRO, Australia); Moses Machao (Information Management & Technology, CSIRO, Australia)

Detect and Isolate an Adversary in Fakey and Griefing-R Attack on Lightning Network

Prerna Arote (Indian Institute of Science, Bangalore, India); Joy Kuri (Indian Institute of Science, India)

Slicing PBFT Consensus Algorithm Based on VRF
Pengyu Chen (Guizhou University, China); Yuling Chen (Gui Zhou University, China); Chaoyue Tan, Yuxiang Yang, Li Bo and Jiachen Huang (Guizhou University, China)

Taming Smart Contracts With Blockchain Transaction Primitives: A Possibility?
Sogolsadat Mansouri, Habib Mohammed, Nodirbek Korchiev and Kemafor Anyanwu (North Carolina State University, USA)

Towards Credential-Based Device Registration in DApps for DePINs With ZKPs
Jonathan Heiss (TU Berlin, Germany); Fernando J Castillo (Technische Universität Berlin, Germany); Xinxin Fan (IoTeX, USA)

ZKP Enabled Identity and Reputation Verification in P2P Marketplaces
Jan Kalbantner, Konstantinos Markantonakis and Darren Hurley-Smith (Royal Holloway, University of London, United Kingdom (Great Britain)); Carlton Shepherd (Newcastle University, United Kingdom (Great Britain))

TRUSTCHAIN Workshop Paper

A Blockchain Identity Privacy Management Framework for a Healthcare Application
Sofia Sakka (University of Ioannina, Greece)

A Systematisation of Knowledge: Connecting European Digital Identities with Web3
Ben Biedermann (University of Malta & ACURRAENT UG, Malta); Matthew Scerri (WIDE Consortium, Malta); Victoria Kozlova (ACURRAENT UG (haftungsbeschränkt), Germany); Joshua Ellul (University of Malta, Malta)

Automated Gateways: A Smart Contract-Powered Solution for Interoperability Across Blockchains
Koosha Esmaeilzadeh Khorasani and Sara Rouhani (University of Manitoba, Canada); Vahid Pourheidari (Futurix Technologies, Canada); Rui Pan (Grain Discovery, Canada)

Defining Unified Signature API for Mobile Apps to Integrate With Secure Signature Creation Devices (SSCDs)
Ammar Bukhari and Jarmo Miettinen (Methics Oy, Finland); Muttukrishnan Rajarajan (City University London, United Kingdom (Great Britain))

Designing Inclusive Technology Solutions for Global Communities
Manuel Knott (Canada); Sarra-Maryam Fezzani (Author, Canada)

Enhancing Security and Scalability in Electronic Voting Through Privacy-Preserving Cryptography and Efficient Data Structures
George Misiakoulis, Harris Niavis, Stephane Kundig and Konstantinos Loupos (Konnecta Systems IKE, Greece)

SURE: A New Privacy and Utility Assessment Library for Synthetic Data
Dario Brunelli, Shalini Kurapati and Luca Gilli (Clearbox AI, Italy)

The On-Chain and Off-Chain Mechanisms of DAO-To-DAO Voting
Thomas Lloyd, Daire OBroin and Martin Harrigan (South East Technological University, Ireland)

Towards a Blockchain-Enabled Trustworthy Market Framework
Thanasis G. Papaioannou (National and Kapodistrian University of Athens (NKUA), Greece & Athens University of Economics and Business, Greece); Vaios Ritas (University of Athens, Greece); Dimitris Mantzonis (NKUA, Greece)

Trust and Resilience in Federated Learning Through Smart Contracts Enabled Decentralized Systems

Stefano Ferretti (University of Urbino, Italy); Lorenzo Cassano (University of Bologna, Italy); Siraj Munirand (University of Urbino Carlo Bo, Italy); Jacopo D'Abramo (University of Bologna, Italy)

User-Empowered Federated Learning in Automotive

Marcello Maugeri and Mirko Ignazio Paolo Morana (University of Catania, Italy); Sergio Esposito and Giampaolo Bella (Università degli Studi di Catania, Italy)