Special Issue on “Cryptocurrencies and Blockchains for Distributed Systems”

Guest Editors

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Stefano Ferretti is an Associate Professor at the Department of Computer Science and Engineering of the University of Bologna. He received the Laurea degree (summa cum laude) and the Ph.D. in Computer Science from the University of Bologna respectively in 2001 and in 2005. His current research interests include distributed systems, computer networks, complex networks, wireless networks, mobile communications. He is in the editorial board of the Simulation Modelling Practice and Theory (SIMPAT) journal published by Elsevier.

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Gabriele D’Angelo received the Laurea degree (summa cum laude) in Computer Science in 2001, and a Ph.D. in Computer Science in 2005, both from the University of Bologna, Italy. He is an Assistant Professor at the Department of Computer Science and Engineering, University of Bologna. His research interests include parallel and distributed simulation, distributed systems, online gaming and computer security. Since 2011 he is in the editorial board of the Simulation Modelling Practice and Theory (SIMPAT) journal published by Elsevier.

Call for Papers

The Internet is evolving into a new multi-factor paradigm based around smart systems, Internet of Things, new distributed data structures (e.g. blockchains) and digital assets (e.g. cryptocurrencies). In the next years, these technologies will converge and interact, fostering novel services, business models and applications. Indeed, the blockchain can provide an automated and secure transaction infrastructure for next generation Internet of Things (IoT), mobile and smart systems while the voluntary user participation to the mining of cryptocurrencies could permit the development of new distributed services (i.e. offering an alternative to the advertisement-based revenue system used by most of the “free services” that are currently available). This special issue aims to collect contributes from researchers and practitioners, coming from academia and industry, to focus on the new challenges posed by the novel technologies and applications that are based on the blockchains infrastructure. The goal is to improve the state of the art on theory, progresses, development, deployment and on the practical usage of cryptocurrencies, blockchain

technologies, smart contracts, etc. We are interested both in innovative works in an unexplored and/or emerging topic in the broad area of distributed systems (e.g., mobile systems, devices and applications, vehicular and robotic systems, IoT), and in novel findings and/or new insights that build on existing works.

The specific areas of interest include, but are not limited to:

- All kind of blockchain based distributed systems
- Distributed (smart) systems relying on cryptocurrencies and smart contracts
- Blockchain and the Internet of Things (IoT)
- Blockchain and mobile systems
- Vehicular services based on cryptocurrencies and blockchain
- Use of blockchain to support mobile smart services and applications
- Blockchain in crowdsourcing and crowdsensing
- Blockchain in 5G
- Blockchain in edge and cloud computing
- Use of blockchain in Smart Cities
- Blockchain schemes for decentralization
- Blockchain-inspired or alternative byzantine fault tolerance
- Performance optimization of blockchain and decentralized schemes
- Use of blockchain in healthcare applications
- Blockchains' energy consumption issues
- Security related issues in cryptocurrencies and blockchain
- Use of blockchain in distributed simulation
- Use of cryptocurrencies in public volunteer computing
- Cryptocurrencies and blockchain usage in online gaming architectures and digital virtual environments
- Multi-Agent Systems for modelling the usage of cryptocurrencies
- Decentralized processing, computing, and storage infrastructure
- Testing mechanisms to increase interoperability, robustness, stability, and confidence in blockchain systems

Important Dates:

Manuscript submission deadline: **September 30, 2018**
Manuscript reviews to authors: **November 30, 2018**
Manuscript revision due: **January 31, 2019**
Final notification of acceptance: **March 31, 2019**
Final manuscript submission deadline: **April 30, 2019**

Instructions for the Cryptocurrencies and Blockchains for Distributed Systems special issue

This special issue calls for submissions on the thematic areas of cryptocurrencies and blockchain based systems and applications. This call is **open for all contributions**, but also invites **selected papers** from the **CryBlock2018 workshop**, held in conjunction with the ACM MobiSys 2018 conference.

Guest Editors

- Gabriele D'Angelo, University of Bologna, Italy
- Stefano Ferretti, University of Bologna, Italy