CALL FOR PAPERS

Workshop on Blockchain Technologies for Trustworthy Decentralized AI Ecosystems (IEEE BC4TAI-2022)

August 22 - 25, 2022, Espoo, Finland

Aims and Scope

The massively growing distributed systems, pervasive communication networks, and high bandwidth technologies are key enablers of large-scale distributed artificial intelligence systems. Currently various distributed AI systems such as centralized, decentralized, networked, hierarchical, spatiotemporal, and context-aware etc. have been introduced. However, the distribution and heterogeneity of data sources and computational infrastructures, and the skill sets are key bottlenecks in the design of reliable, dependable, and trustworthy AI systems. Alternatively, Blockchain technology is gaining traction across a wide spectrum of industries and application areas. Similarly, it is impacting AI ecosystems. However, both technology paradigms differentiate in terms of deterministic and not-deterministic behaviours. For example, blockchain primarily operates in a strictly deterministic manner (thanks to consensus models, hashing and cryptographic signatures), however, AI algorithms primarily determine output based on probabilistic and inexact operations. These fundamental contradictions pose a serious challenge to integrate both technology domains. This workshop seeks theoretical, mathematical, and experimental contributions on both frontiers.

This workshop aims at congregating academic researchers and industry practitioners to share their research in showing how blockchain can transform next-generation AI ecosystems, and propose solutions to address key blockchain challenges. We are interested in both original works in unexplored and/or emerging topics in the broad area of blockchain systems, architectures, platforms, applications and algorithms, and in novel findings and/or new insights that build on existing works. We welcome papers on the integration of blockchain with AI technologies such as distributed learning, distributed data annotations, federated learning, tracking and traceability of AI assets, and operationalizing and monetizing AI technologies using smart contracts.

Topics of Interest

Our topics of interest includes but not limited to:

- AI-specific blockchain infrastructures
- Blockchain-based interoperable AI Ecosystems
- Cross-chain AI ecosystems
- Trusted oracles
- Decentralized storage and IPFS
- Decentralized AI applications
- Consortium governance and ownership models

- Privacy and security of ledgers
- Secure smart contracts
- Formal verification for smart contract code
- Smart-contracts-based AI asset tracking
- Trusted Execution Environment for blockchain and decentralized AI ecosystems
- Zero knowledge proof for privacy-preserving data sharing
- AI-specific consensus mechanisms
- Blockchain-specific scalability and performance issues in decentralized AI systems
- Identity and reputation management of AI and blockchain stakeholders
- Side chains and channels for scalability and fast data processing
- Auditability and traceability of AI workflows
- On-chain and off-chain AI applications
- Distributed storage in blockchain
- Building private blockchain-based AI systems
- Blockchain-based AI tools, simulators, and test-nets
- GDPR-compliant blockchain solutions for decentralized AI
- Decentralized financing, payments, and monetization models
- Blockchain-based trustworthy AI applications for any vertical.
- AI-specific Web3 application models
- AI assets as NFTs

Important Dates

- Paper submission: ~~April 01~~ **May 15, 2022**
- Paper acceptance notification: **June 10, 2022**
- Camera ready and registration: **June 25, 2022**
- Conference dates: **August 22-25, 2022**

Submission Instructions:

- All papers need to be submitted electronically through the EDAS website (https://edas.info/N29534) with PDF format.
- Submitted papers must not substantially overlap with papers that have been published or that are simultaneously submitted to a journal or a conference with proceedings.
- Papers must be clearly presented in English, must not exceed 6 pages in IEEE Computer Society Proceedings Format, including tables, figures, references and appendices. The limit length of accepted papers should be 6 pages with 2 extra page charges.
- Papers will be selected based on their originality, significance, relevance, and clarity of presentation assessed by at least three reviewers.
- All submitted papers will be judged through double-blind reviews, where the identities of the authors are withheld from the reviewers. As an author, you are required to preserve the anonymity of your submission, while at the same time

allowing the reader to fully grasp the context of related past work, including your own. Papers that do not conform to our double-blind submission policies will be rejected without review.

- Submission of a paper should be regarded as a commitment that, should the paper be accepted, at least one of the authors will register and attend the conference to present the work. IEEE Blockchain 2022 reserves the right to exclude a paper from distribution after the conference (e.g., removal from the digital library and indexing services), if the paper is not presented at the conference.
- All accepted papers will be published in IEEE CPS proceedings (EI Indexed) and collected by IEEE Xplore Digital Library.

Double-blind Submission

- Remove the names and affiliations of authors from the title page.
- Remove acknowledgments.
- Remove project titles or names that could be used to trace back to the authors via web search.
- Carefully refer to related work, particularly your own. Do not omit references to provide anonymity, as this leaves the reviewer incapable of grasping the context. Instead, reference your past work in the third person, just as you would any other piece of related work by another author. For example, instead of "In prior work [1], we presented a scheme that ...," sentences in the spirit of "In prior work, Clark et al. [1] presented a scheme that ..." should be used. With this method, the full citation of the referred paper can still be given, such as "[1] A. Clark ..., "Analysis of...", and it is not acceptable to say "[1] Reference deleted for double-blind review."

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