[1st Workshop on AI-empowered Semantic-based Communications for Distributed Networks: Towards a Multi-Agent Metaverse with Blockchain Integration]

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Important dates:

Paper submission: 31st May
Notification of acceptance: 1st August
Camera-ready submission: TBA
Presentation submission: TBA

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Description:

The forthcoming Metaverse will be the byproduct of a convergence of multiple technologies ranging from extended reality (XR) to artificial intelligence (AI), blockchain, and Web3, that must come together to create a second life. In Metaverse applications represented video, AI shines brightly for its powerful feature extraction and generation capabilities, providing key traction of transforming communication links from a mere pipe medium to a semantic/feature-based system. Additionally, blockchain and Web3 technologies play a crucial role in establishing the decentralized infrastructure of the Metaverse. By leveraging blockchain's distributed ledger and smart contract capabilities, the Metaverse can ensure transparency, security, and trust in its virtual economy and digital assets. Web3, with its emphasis on interoperability and user-centric control, enables seamless connectivity and interaction across different Metaverse platforms and applications, empowering users to have ownership and control over their data and digital identities. Together, AI, blockchain, and Web3 form the foundation for the transformative potential of the Metaverse, revolutionizing not only communication but also the design, operation, and governance of wireless communication systems and the overall user experience within this immersive virtual world.

Indeed, the emergence of the Metaverse and its use-cases requires a paradigm shift from current AI-empowered wireless networks towards AI-native wireless networks that embed contextual information from a Metaverse environment into minimal yet expressive representations. Moreover, signal processing, transmission protocols, and network architecture, including physical (PHY) layer processing, medium access control (MAC), and air-interface in general should be redesigned carefully, or even cross-layer interacted to build a pathway to semantic communications. The combination of AI-native wireless networks and blockchain technology can enable the seamless integration of the Metaverse and support the diverse requirements of immersive experiences, real-time communication, and secure transactions within the wireless Metaverse environment. By incorporating blockchain into the wireless Metaverse ecosystem, decentralized marketplaces can be created, allowing users to trade digital goods and services securely. This fosters a vibrant and dynamic ecosystem within the wireless Metaverse, empowering users to engage in efficient and transparent economic activities.

Overall, the integration of blockchain technology within AI-native wireless networks in the context of the Metaverse can revolutionize the way we interact, transact, and experience the virtual world. It provides the necessary trust, security, and transparency to support the seamless and secure functioning of the wireless Metaverse ecosystem.

Topics of Interest:

This workshop aims to bring together the leading researchers in the field, both from academia and industry, to exchange their views on Semantic/Feature-based Communications towards Wireless Metaverse. The topics of interest include but not limited to:

- Blockchain-Aided Secure Semantic Communication for AI-Generated Content
- Blockchain-enabled Cross-layer interaction/optimization
- Network architectures and protocols for semantic/feature-based communications
- Semantics-aware sampling and transmission policy in blockchain networks
- Blockchain-integrated joint source and channel coding

- Knowledge-driven semantic language and representation in blockchain networks
- Blockchain-based Knowledge Base Management for Semantic Communication
- Regulation of intelligent transceiver in wireless Metaverse

Paper Submission:

All papers must be submitted through Edas. You must choose the workshop track symposium when submitting your paper in order to be considered for this symposium. The paper should be up to six (6) pages in length. The conference allows up to two additional pages for a maximum length of eight (8) pages upon payment of extra page fees once the paper has been accepted.

The paper can be prepared using the template available through the Authors / Proposers tab from the GBC conference website main page at:
http://www.ieee-gbc.org/authors.php
An alternative is to use the IEEE Word or Latex tools that can be found through:
https://conferences.ieeeauthorcenter.ieee.org/write-your-paper/authoring-tools-and-templates/.
Authors of accepted papers will need to provide a final version of your paper in PDF format and upload it by the camera-ready deadline and complete the assignment of copyright and release form. For your paper to be included in the proceedings and published in IEEE Xplore, at least one author is required to register for GBC 2023 by the deadline.