Contribution ID: **171** Type: **Paper presentation**

Securely Sharing Electronic Health Records over Blockchain

Thursday 18 September 2025 12:10 (15 minutes)

Blockchain technology has gained significant traction in recent years. These decentralised databases offer security, immutability, and scalability across various applications. These properties are ideal for building decentralised applications, which are solutions that combine off-chain components (traditional web services, frontend, and backend) with on-chain components (smart contracts). This paper proposes a novel usage of this technology in the context of securing computation and storage of EHRs (electronic health records) and giving back to patients ownership over their medical data, thus ensuring that their information remains private and they can choose whether to give access or transfer that respective information to any institution of their choice. By utilising recently released technologies, such as zero-knowledge and homomorphic encryption (at the time of writing this paper), we have achieved promising results. This success with encryption technologies instils confidence that, in the not-so-distant future, the relationship between healthcare institutions (hospitals, research institutions) and patients will soon undergo a significant shift. Over time, this solution, or its improved variants, may form the basis for other applications that require selective access to private data to perform private computations.

Author: PARIS, Cristian-Tănase (University Politehnica of Bucharest)

Co-authors: CARABAS, Costin (University POLITEHNICA of Bucharest); Prof. ȚĂPUȘ, Nicolae (UNSTPB)

Presenter: PARIS, Cristian-Tănase (University Politehnica of Bucharest)

Session Classification: Cloud Computing and Network Virtualisation

Track Classification: Technologies for Future Internet