

STEM Cluster/CDMS Research Seminar

Information Security Using Blockchain Technology: Mitigating Centralization Risk and the "51% Attack"

Thursday, 19th October 2023, 1:00 pm

PS-EA.2.29 and Zoom

<https://uws.zoom.us/j/83012150254?pwd=LytYUUY2RHdSMoxZNFV5N1JCVFBTZz09>

Speaker: Tetiana Horelikova, Zaporizhzhya National University, Ukraine

Abstract: In this seminar, we will delve into the practical implementation and advantages of a randomized selection mechanism for creating checkpoints in blockchain technology. We will explore how this approach enhances network security, decentralization, and reliability by distributing responsibilities randomly among participants. The seminar will discuss implementation steps and emphasize the mechanism's potential in safeguarding the integrity and long-term viability of blockchain systems. We will also address the critical issue of the '51% attack' and its relevance in ensuring the security and reliability of blockchain systems. Furthermore, we will examine how random selection mechanisms can balance the influence of stake and status in the blockchain, making it fairer and more resistant to such attacks. We will discuss real-world applications of the randomized selection mechanism, particularly in sectors where data integrity and operational resilience are critical, such as finance and government administration. Additionally, we will explore the challenges and complexities involved in integrating this mechanism into blockchain systems, including the generation of high-quality random numbers and the need for vigilant monitoring and maintenance.

Bio: Tetiana Horelikova holds a Master's degree in Professional Education with a focus on Digital Technologies and is currently pursuing a Ph.D. in Computer Sciences at Zaporizhzhya National University (ZNU). Tetiana has over five years of teaching experience of various programming languages and subjects, including game development, robotics, and mobile application development. She has a strong background in software development. Her research interests are in the area of Information Security. Tetiana is a recipient of The Ukraine-Australia Research Fund from the Australian Academy of Sciences and the Breakthrough Prize Foundation.

Rodrigo Calheiros is inviting you to a scheduled Zoom meeting.

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