Universität Bayreuth
Professuren Wirtschaftsinformatik
Prof. Dr. Eymann,
Prof. Dr. Röglinger,
Prof. Dr. Strüker

Ansprechpartner
Vincent Schlatt

Telefon
+49 921 55 – 4730

E-Mail
vincent.schlatt@fim-rc.de

Bachelorarbeit / Masterarbeit

Analyzing the Security of Blockchain Systems

Blockchain systems have become increasingly relevant in business and society. While the technology originally gained traction as the backbone of the digital currency Bitcoin, a multitude of applications in other areas exist by now. As a result, blockchain systems hold an increasing amount of value, both monetary and in the form of business process information. The rising value stored in blockchain systems creates increasingly attractive targets for attackers. Recent years reported several prominent cybercrimes on respective systems. Furthermore, blockchain-based systems have become increasingly complex. To design secure systems based on blockchain and identify meaningful countermeasures against attacks, a comprehensive overview of attacks on such systems and the risk associated with these attacks is necessary.

The aim of this thesis is to structure the cybersecurity risk of blockchain systems along existing attacks. The student can build upon existing research in the field and extend it through either analyzing real-world incidents of cybersecurity incidents in the realm of blockchain or by taking a more theoretical approach. The exact focus will be discussed with the supervisor in an initial meeting. This thesis should be written in English.

Empfohlene Einstiegsliteratur:

- Li, X., Jiang, P., Chen, T., Luo, X., & Wen, Q. (2020). A survey on the security of blockchain systems. *Future Generation Computer Systems*, 107, 841-853.
- Chen, H., Pendleton, M., Njilla, L., & Xu, S. (2020). A survey on ethereum systems security: Vulnerabilities, attacks, and defenses. *ACM Computing Surveys (CSUR)*, 53(3), 1-43.
- Atzei, N., Bartoletti, M., & Cimoli, T. (2017). A survey of attacks on ethereum smart contracts. In *International conference on principles of security and trust* (pp. 164-186). Springer, Berlin, Heidelberg.

Betreuer: Vincent Schlatt, M.Sc.