

Zeppelin University

CHAIR OF EMPIRICAL FINANCE AND ECONOMETRICS

BLOCK MILLIONAIRES

**Predicting millionaires using artificial neural networks based on
large-scale Ethereum transaction histories**

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Abstract

In 2021, Ethereum has reached a transaction volume of over 1.3 billion transactions (Etherscan, 2021b), resulting in a vast database about human economic behavior. In utilizing computational methods of social network and investor behavior analysis, the given paper is the first scientific work to demonstrate the possibility of predicting the millionaire status of an externally-owned Ethereum account based on these publicly available transaction records. With a source database of 599 Ethereum addresses, approx. 78,7 million transactions have been extracted, structured, and processed as input features in a systematic model selection process. The paper thereby reports key methodological insights about training and comparing cross-validated deep and shallow neural networks that yield up to 82 percent testset accuracy in said classification task.

Besides emphasizing the relevance of the proposed method for practical applications, the paper also identifies technical and ethical caveats that should find consideration in future work.