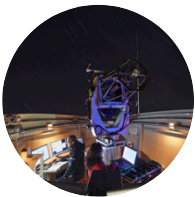# Master Thesis on Efficient Block Propagation in Cryptocurrency Networks

Information Transmission Group

Satellite Networks Department
Institute of Communications and Navigation
DLR (German Aerospace Center)

The Institute of Communications and Navigation, located in Oberpfaffenhofen (close to Munich), works on the conception and analysis of communication and navigation systems involving satellites or designed for applications in aeronautics, transport and security. The activities range from fundamental research to technology demonstrations. Our aim is to push the boundaries of the feasible, and to be first in demonstrating new concepts.

Cryptocurrencies like Bitcoin and Ethereum use a decentralized ledger called Blockchain to track transactions. Whenever a new block is added to the Blockchain, the change is spread through the network using a gossip-like protocol. This process is known as block propagation.

To increase scalability, the efficiency of block propagation is crucial. This thesis aims to explore the information theoretic limits of block propagation, derive realistic models based on real data, and investigate innovative and efficient techniques for block propagation.

Required qualifications are
- basic knowledge of information theory
- programming experience in Matlab, C, or python.
- Interest in cryptocurrencies.

Interested applicants may contact Dr. Francisco Lázaro via email at francisco.lazaroblasco@dlr.de.