Prof. R. Wattenhofer

Empirical Analysis of Blockchain Payment Systems

Blockchains were originally designed to enable decentralized, trustless value transfer, but for much of their early history, they were seen more as speculative assets than practical tools for everyday payments. Despite numerous efforts to create blockchain payment systems, these initiatives struggled to gain traction due to various issues and challenges. Further, the focus shifted toward the rapidly growing decentralized finance (DeFi) sector, which enables financial services like lending, borrowing, and trading without intermediaries.

Now, projects like Daimo (https://daimo.com/) and Celo (https://celo.org/) are reviving the original vision, aiming to create widely used payment systems that address the challenges faced by earlier efforts. These projects focus on stability, and user-friendly interfaces, making digital currencies more practical for daily transactions. In doing so, they hope to overcome the barriers that have long hindered blockchain adoption as a true means of payment. Both projects have seen early successes, with Celo having more than 500 K daily active addresses (https://celoscan.io/chart/active-address).

In this thesis, we will empirically analyze Daimo and Celo to better understand their adoption and user base. Using payment graph data, we will examine user behavior and transaction patterns. The goal is to identify user types and assess whether the activity reflects genuine use or is driven by incentives or artificial means.

Requirements: Strong programming skills in languages such as Python. An interest in blockchains is a plus. We will have weekly meetings to discuss open questions and determine the next steps.

Interested? Please contact us for more details!

Contacts

- Saku Peltonen: speltonen@ethz.ch, ETZ G63

- Lioba Heimbach: hlioba@ethz.ch, ETZ G95