BA/MA/SA:

**Bitcoin Network Creation Game**

Bitcoin is a decentralized dynamic peer-to-peer network. Honest Bitcoin peers can initiate a connection to up to eight other peers and accept a total of 125 incoming connects. Compliance with the honest protocol is not enforced in Bitcoin. A peer’s deviations from this protocol can lead to gaining disproportionate rewards, if this peer is able to spread messages through the network faster. Resulting from the increased connectedness the peer can obtain by accepting more connections. Hence, the peer-to-peer network topology is important for the Bitcoins fairness and operation.

In this thesis, you will study network creation games and delve into game theoretic meanings such as Nash equilibrium, price of anarchy, dominant strategy. Furthermore, you will examine various graph theoretic properties and focus on understanding network topology structures.

**Requirements:** Knowledge of game theory would be an advantage.

**Interested? Please contact us for more details!**

**Contacts**

- Zeta Avarikioti: zetavar@ethz.ch, ETZ G95
- Yuyi Wang: yuwang@ethz.ch, ETZ G94