

Thesis  
B.Sc.

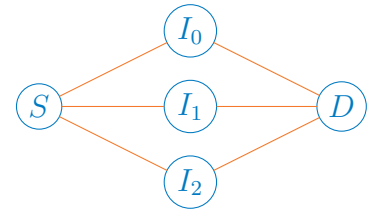
Thesis  
M.Sc.

IDP

## Filling the Gaps — One Packet at a Time

### Motivation

Reliability of transmission is one of the key aspects of networking. In networks where packet loss may occur, mechanisms that restore this reliability are essential. Different such mechanisms were developed, among them: network coding. Its core idea: represent the information a node (sender or intermediate) needs to transmit as arbitrary combination of packets. This abstraction of network coding allows, e.g., to transmit information along different, and independent, paths. Thus, combined with increased redundancy, working against negativ impacts of packet loss.



Use of multiple paths can increase transmission reliability

Tetrys [0] is a network coding protocol and currently an experimental internet draft. It features, among others, the ability to change its parameters depending on the underlying network's properties. Goal of this thesis is to implement and evaluate a Tetrys client according to the specification of the internet draft.

### Your Task

- Familiarize yourself with relevant aspects of network coding
- Study the Tetrys internet draft and related work
- Implement a Tetrys client
- Model the client's expected performance via pre-defined criteria
- Evaluate the implementation's performance in the chair's test-bed [1]

[0] Tetrys, an On-the-Fly Network Coding Protocol

[1] The pos Framework: A Methodology and Toolchain for Reproducible Network Experiments

Applicants should have previous hands-on experience with the topics involved.

### Contact

Henning Stubbe [stubbe@net.in.tum.de](mailto:stubbe@net.in.tum.de)

Kilian Holzinger [holzinger@net.in.tum.de](mailto:holzinger@net.in.tum.de)

