

Forschungspraxis, Master's Thesis

# Tree Splitting with K-Multi Packet Reception

Access algorithms are a critical part of 5G networks. Currently, algorithm without direct feedback is used as access algorithms and these show unstable behavior. The main access algorithm with feedback, that is "Tree algorithms" are a prominent candidate to support reliable machine type communication in 5G.

Another hot topic is the multi packet reception with orthogonalization techniques in code, power or frequency that is then decoded with successive interference cancellation techniques. This is simplified as K multipacket reception to investigate the capability for access algorithms.

In this thesis we plan to analytically investigate the behavior tree algorithms with K packet reception. The thesis will require:

- Good stochastic analysis knowledge
- Good coding in any language for simulation purposes
- Good understanding of the wireless communication
- Motivation to investigate mathematical analysis of system models.

The thesis will be co-supervised by Assoc. Prof. Cedomir Stefanovic from Aalborg University.

## Advisors

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