Assistant Professorship of Coding for Communications and Data Storage
TUM Department of Electrical and Computer Engineering
Technical University of Munich

TUM

Master's Thesis, Bachelor's Thesis

Synchronization error correcting codes

Synchronization errors occur when the transmitter and receiver of a communication system are not perfectly synchronized and result in insertions or deletions of symbols from the transmited word. These errors are fundamentally different from the well-researched substitution errors and conventional error correcting codes cannot be applied on these kinds of errors. Although synchronization errors can significantly impact the performance of conventional codes, still little is known about these errors and basic questions like the capacity of the binary deletion channel remain unknown. Current research, and the topic of this thesis, is directed towards finding the minimum redundancy of such codes and developing constructions that can correct insertion and deletion errors.

Prerequisites

You should have good knowledge in linear Algebra and interest in coding theory.

Advisors

Andreas Lenz