

Forschungspraxis, Master's Thesis

Error Correction in DNA Storage

DNA storage is an uprising topic in the research field of storage systems. Due its natural longevity, robustness, and density properties the main application would arise in high-dense long-term storage systems. The interest has become larger and larger due the large amount of data nowadays and the relative new biological advances in DNA synthesis and sequencing processes (e.g. polymerase chain reaction). In contrary to conventional storing methods, due to the nature of DNA and the involved biological processes special error patterns such as insertion, deletion, and substitution errors occur. To tackle these errors novel methods for correction have to be investigated. Moreover, the model of the DNA storage channel needs to be investigated thoroughly, e.g. capacity statements.

Prerequisites

- Linear Algebra
- Channel Coding
- Coding Theory for Storage and Networks (optional)

Advisors

Lorenz Welter