Associate Professorship of Coding and Cryptography
TUM Department of Electrical and Computer Engineering
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TUM

Forschungspraxis

Private and Approximate Distributed Matrix Multiplication

The rapid growth of data being recorded and processes per day necessitates to outsource large computations to external workers. In neural network training and inference processes, matrix multiplication is a core computation. That is why a large body of research is concerned with designing schemes for distributed matrix multiplication that allows for tolerating straggling workers (i.e., slow or even unresponsive workers). While reconcstructing the exact result can be costly, approximate schemes can improve on the efficiency while only sacrificing little in terms of accuracy. In this project, the student should study existing approximate matrix multiplication schemes and improve on the achievable rate while maintaining low error rates.

Prerequisites

- Coding Theory (e.g., Channel Coding)
- Information Theory

Advisors

Maximilian Egger