Title: Enhancing Semantic Symbol Prioritization through Transport Layer Feedback

Task Description:
This master's thesis focuses on the modeling of a feedback-based approach to improve the prioritization of semantic symbols in transport layer protocols. The objective is to investigate the impact of semantic symbol loss during transmission and model a feedback mechanism that modifies the prioritization of semantic symbols. This research aims to improve communication effectiveness by effectively conveying the semantic significance of symbols from the transport layer to the application layer, given the impact of semantic errors at the receiver.

The thesis involves the following tasks:

- Review of existing literature on end-to-end semantic communication and feedback
- Development of a feedback mechanism incorporating the success of the semantic transmission and the understood meaning.
- Design and implementation of a model or testbed to test effect of semantic symbol loss on communication efficiency.
- Exploration of methods to quantify semantic importance of symbols, and identification of existing or potential metrics to quantify semantic efficacy.
- Evaluation of the proposed feedback mechanism against the defined semantic metrics
- Techniques for modifying symbol prioritization through analysis of received feedback.