

Problem Statement

- English↔Dzongkha is a low-resource language pair with very limited parallel corpora.
- Dzongkha script lacks word boundaries, making segmentation a major challenge.
- Syntactic differences (SOV vs. SVO) complicate direct translation with standard models.
- Existing Dzongkha translation systems are:
 - ◆ Mostly unidirectional (Dzongkha → English),
 - ◆ Linguistically shallow (no POS/morphological adaptation),
 - ◆ Not designed for real-time use.
- Transformer models perform well but need adaptation for low-resource, domain-specific translation.
- There is no current system that is:
 - ◆ Bidirectional
 - ◆ Linguistically adapted
 - ◆ Real-time capable
 - ◆ Tailored to Dzongkha's linguistic structure.