

Task 22 - Capstone Project (NLP): Compulsory Task 2

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Innovative Technology using NLP: Grammarly

Grammarly's mission is to improve lives by improving communication, the company has developed a wide range of software tools and solutions to help its users' content in their communications. From the name of the company, we can know that it helps users to improve their grammar while writing. However, it provides a way lot more solutions such as spelling and punctuation checking, plagiarism checking, the tonality of your sentence as well as cleaning up long complex sentences. Last but not least, Grammarly recently launched their generative AI - GrammarlyGO into the market which acts as an AI co-creator.

According to the Grammarly research scientists Dimitris Alikaniotis and Vipul Raheja, Grammarly's grammatical error correction (GEC) is an AI-powered system, and previously they used large quantities of annotated data to train their machine learning models. Later on, they identified a new method to improve the AI-powered system by using a "Transformer" model that applies statistical patterns that were extracted from linguistic knowledge. This results in a higher level of accuracy.

As explained by Kostiantyn from Grammarly, GEC was generally treated as a translation problem in the NLP research community taking an input sentence and translating it to a grammatically error-free output sentence. This is done by combining a neural machine translation (NMT) with Transformer-based sequence-to-sequence (seq2seq) models. There are problems associated with it (e.g. time taken for translation) and therefore the Grammarly research team introduced a new approach which is called Sequence-tagging intend to solve these problems. This is done by "tagging the sequences of words with custom transformations describing corrections to be made". This sounds to me like a more direct and immediate correction approach along the sentence, which is easier to train the model to execute grammar correction in a timely manner.

Last but not least, the GrammarlyGO generative AI is a fully loaded writing assistant. On top of the usual GEC and spelling checking, it works as a "co-creator" on your writing as highlighted specifically on the Grammarly website. It can help you draft your content, rewrite your existing text, add "voice" tonality, and provide you with ideas on your start writing documents. All these functions are derived using OpenAI's GTP-3 API and large language models on top of all Grammarly-owned algorithms.

The NLP team experts from Grammarly mentioned that their team will continue to improve the existing models. Based on their developed infrastructure and knowledge, they are to explore assisting across more stages of the communication process in the future.

Sources:

- [Grammarly: Free Writing AI Assistance](#)
- [Product Features | Grammarly](#)
- [Grammarly's NLP Team Builds the Future of Communication | Grammarly Engineering Blog](#)
- [Under the Hood at Grammarly: Leveraging Transformer Language Models for Grammatical Error Correction](#)
- [Grammatical Error Correction: Tag, Not Rewrite](#)
- [Grammarly's Generative AI Feature Will Soon Be Able To Write, Interpret And Edit Text \(forbes.com\)](#)
- [Grammarly introduces generative AI tool GrammarlyGO](#)