



Automatic generation of Slovenian traffic news for RTV Slovenija

Matej Brodnik, Žan Mencigar, Primož Mihelak

Abstract

With the recent developments of artificial intelligence and large language models (LLMs), many simple tasks can be streamlined and automatized. We will attempt to implement a robust solution that will enable automatic generation of traffic news in Slovene, given key traffic related events as input. We will employ prompt engineering and fine-tune the algorithm using Slovene LLMs to generate short traffic news automatically.

Keywords

GaMS, Traffic news, LLM, Fine Tuning

Advisors: Slavko Žitnik

Introduction

Traffic news is an important part of RTV Slovenija's radio program, where presenters read out traffic updates every 30 minutes. Currently, students manually check the promet.si portal, select relevant traffic events, and write short reports based on internal guidelines. This process takes time and could be made more efficient.

The goal of this project is to automate the generation of Slovene traffic news using GaMS 1B[1], a large language model (LLM) specifically trained for Slovene using 1 billion parameters and trained on corpora of primarily Slovene, but also Croatian, Serbian and Bosnian documents consisting of 28 billion tokens. The idea is to first explore how well we can solve the task using prompt engineering, and then improve the system by fine-tuning an LLM with provided data. This includes an Excel file from promet.si containing timestamped traffic information split into different thematic segments and existing RTV Slo bulletins from rtvslo.si containing human-written traffic news. There are also instructions and example formulations for writing the news.

We will evaluate the model using criteria such as how well it identifies important events, uses correct road names, follows text-length limits, and respects the style of RTV Slovenija's reports, while also measuring performance improvements between different methods, such as prompt engineering and fine-tuning. The goal is to create a system that can automatically generate traffic news similar to what is currently done manually.

Related work

Since the emergence of LLMs, many similar projects have been conceived. Yuan et al. [2] describes the use of their LLM named HEAL, which was purpose-built for medical conversations and was measured on automated scribing.

A related approach to automated report generation described by Guan et al. [3], is the SRAG (Summary Report Auto-Generation) framework which uses large language models to transform query data into high-quality summary reports through hierarchical corpus retrieval across general fields.

Similarly, Su et al. [4] introduce a model named TableGPT2, which is pre-trained and fine-tuned. Its extensive training enables it to excel in table-centric tasks while maintaining strong general language and coding abilities.

Zhao et al. [5] investigate the table-to-text generation capabilities of different large language models in different real-world information seeking scenarios.

Lastly, Tian et al. [6] propose ReSpark, which is a method based on LLMs to generate new reports using previous similar-topic data reports as references.

Methods

Results

Discussion

Acknowledgments

References

- [1] Domen Vreš, Martin Božič, Aljaž Potočnik, Tomaž Martinčič, and Marko Robnik Šikonja. Generative model for less-resourced language with 1 billion parameters. *Zenodo*, 2024.
- [2] Dong Yuan, Eti Rastogi, Gautam Naik, Sree Prasanna Rajagopal, Sagar Goyal, Fen Zhao, Bharath Chintagunta, and Jeffrey Ward. A continued pretrained llm approach for automatic medical note generation. In *Proceedings of the 2024 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies (Volume 2: Short Papers)*, pages 565–571, 2024.
- [3] Xinxin Guan, Zekai Ye, Bin Cao, and Jing Fan. Summary report auto-generation based on hierarchical corpus using large language model. *SSRN*, 2023. Available at SSRN: <https://ssrn.com/abstract=5095836> or <http://dx.doi.org/10.2139/ssrn.5095836>.
- [4] Aofeng Su, Aowen Wang, Chao Ye, Chen Zhou, Ga Zhang, Gang Chen, Guangcheng Zhu, Haobo Wang, Haokai Xu, Hao Chen, et al. Tablegpt2: A large multimodal model with tabular data integration. *arXiv preprint arXiv:2411.02059*, 2024.
- [5] Yilun Zhao, Haowei Zhang, Shengyun Si, Linyong Nan, Xiangru Tang, and Arman Cohan. Investigating table-to-text generation capabilities of llms in real-world information seeking scenarios. *arXiv preprint arXiv:2305.14987*, 2023.
- [6] Yuan Tian, Chuhan Zhang, Xiaotong Wang, Sitong Pan, Weiwei Cui, Haidong Zhang, Dazhen Deng, and Yingcai Wu. Respark: Leveraging previous data reports as references to generate new reports with llms. *arXiv preprint arXiv:2502.02329*, 2025.