

CS551H Natural Language Generation

Assessment 2: Technology Assessment Report

Introduction

Global research and advisory firms such as [McKinsey](#) and [Gartner](#) regularly produce technology assessment reports that present an objective assessment of novel technologies such as NLG. These reports present the range of technology options, their vendors and their merits and demerits both at a broad level as well as when applied to popular use cases. Gartner introduced popular ideas such as the [hype cycle](#) and the [magic quadrant](#) to effectively present their research data in these reports. Businesses use these reports to understand the supply side of a novel technology which they then use to match with the in-house understanding they have of the demand side.

These technology reports created by research firms such as Gartner are normally paid for. Although these reports provide the big picture of a technology landscape, the depth of scientific and technological ideas described in these reports could at times be shallow.

With the recent growth in commercial demand for NLG, both buyers and sellers of NLG solutions are looking for expertise to create assessment reports of NLG technology focused mainly on a specific use case or a specific business vertical of interest. **Your task in this assignment is to write a technology assessment report that exhibits a greater depth of subject knowledge than found in the reports produced by organizations such as Gartner. Your report should describe scientific and technological ideas authentically without using jargon. These ideas should be used to then argue your case for how well a technology option fits a use case. The main purpose of your report is to inform decision makers adequately to make a definite influence on their thought process and thereby on their decision making – deciding a match between supply and demand.**

In addition to the lecture notes of this course, you are recommended to refer to [Gatt and Krahmer 2018](#) as background reading for this assignment. You are welcome to use any other relevant online resources.

Use Case Context

All governments across the globe now publish data sets under the [open data initiative](#). For example, **Aberdeen city council oversees all the open data related to Aberdeen**. The city council is very keen to offer innovative AI services to its citizens that exploit the open data and benefit the citizens in their daily lives. One possible way NLG technology could help in this context is by building NLG solutions that could automatically discover and tell stories from open data that highlight social issues. Currently dashboards are used to present open data to public. For example, [ISD Scotland did a dashboard](#) for telling the story of teenage pregnancies and their correlation with Scottish Multiple Deprivation Index. While NLG appears to be suitable in this context to add linguistic narratives to such dashboards, several questions need to be answered. What is likely to be the development, deployment and maintenance costs of NLG? What are the quality limitations? How configurable is the technology? Does NLG integrate well with dashboards? Your report should answer these questions.

NLG Technology Assessment Report

Over the years, NLG technology underwent a paradigm shift from rule based to statistical and more recently to neural models (Gatt and Krahmer 2018). In your report you will present a technologically sound argument for how the old technologies (rule based) or the new technologies (statistical/ML/DL) or a mixture of both will address the following issues in building NLG solutions to the above public sector use case context:

1. Lowering development costs – is using new technologies likely to lower the development costs? Why? State clearly what you include as part of development costs.
2. Maintaining high output-text quality – requirements for output-text quality might vary from use case to use case. For the above use case, what are the constraints on text quality and how the different technologies perform within those constraints?
3. Offering user-configurable (control) NLG solution – users may want to read the same content in multiple languages (e.g. Gaelic), they may want to read shorter or longer text. How do the new and old technologies address these configuration or control issues.
4. Integrating into adjacent technologies such as speech, data analytics and dashboards – what are integration challenges and how each of the new and old technologies address these challenges.

Your report will have six sections: one for addressing each of the above four issues + introduction + conclusion. Overall your report should have at least 1500 words in 11pt Calibri font and not more than five pages (including figures and references).

Marking Scheme

The assignment will be marked for 25 marks and will account for 25% of the coursework. Five marks for the introduction + conclusion sections where higher marks will be given for a balanced assessment of the technology for the given use case. Five marks each for each of the sections addressing the above four issues.

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