

Nursing Case Example Generator

Graduate



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Introduction: The integration of natural language processing (NLP) techniques in healthcare has the potential to significantly impact the education of nursing students. This project aims to harness the power of NLP in the creation and analysis of nursing case examples, with a particular focus on their educational value. The research objectives are to develop an innovative algorithm, implement a software system and evaluate its effectiveness in automating the generation of case examples for educational purposes. In order to improve the usability and accessibility of the system, a web-based graphical user interface (GUI) is developed.

Approach / Technology: The algorithm incorporates a combination of a graph-based model and a selected NLP API to enhance the generation of comprehensive case examples. The graph model plays a crucial role in capturing the inter-section relations within the case examples. It is implemented as a Markov random field (MRF) with a star shaped structure. Additionally prompts exchange keywords between sections to supply the NLP API with additional information, which improves consistency.

The purpose of the NLP model is to ensure coherent and cohesive text within each section. We used OpenAI's NLP API of the GPT-3 model. Furthermore, the algorithm estimates typical nursing diagnoses based on relevant patient information. The algorithm categorizes the extracted information using the NANDA-Taxonomy classification.

Conclusion: As a result, we developed two models capable of generating case examples and nursing diagnoses. The advanced model was continuously improved based on the evaluation of healthcare professionals. Furthermore we provided a web GUI with comprehensive editing tools.

The integration of this project into healthcare education could have the potential to significantly reduce the time commitment of nursing professionals.

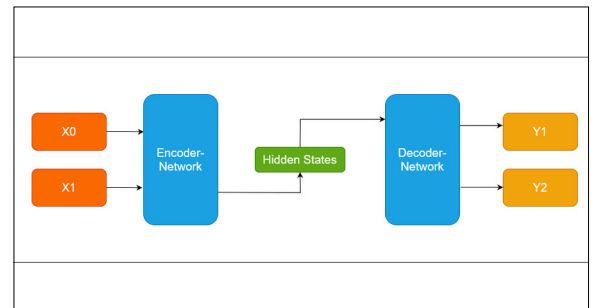
Mathematical model of interrelations between sections

Own presentation



Encoder-decoder architecture of transformers used for natural language processing

Own presentation



Website for the generation of the case examples

Own presentation

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Subject Area

Artificial Intelligence

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