

I. IDENTIFICATION DATA

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| Thesis title: | Integration of Search Functionality into Large Language Models |
| Author's name: | Varvara Shorina |
| Type of thesis : | bachelor |
| Faculty/Institute: | Faculty of Electrical Engineering (FEE) |
| Department: | Department of Computer Science |
| Thesis reviewer: | doc. Ing. Daniel Novák, Ph.D. |
| Reviewer's department: | Analysis and Interpretation of Biomedical Data |

II. EVALUATION OF INDIVIDUAL CRITERIA

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| Assignment | challenging |
| <i>How demanding was the assigned project?</i> | |
| The assigned project is demanding, requiring deep knowledge of large language models, search engine integration, and software development. The topic is complex and relevant to the current advancements in artificial intelligence and information retrieval. | |

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| Fulfilment of assignment | fulfilled |
| <i>How well does the thesis fulfil the assigned task? Have the primary goals been achieved? Which assigned tasks have been incompletely covered, and which parts of the thesis are overextended? Justify your answer.</i> | |
| The thesis meets the assigned tasks. The student successfully analyzed current approaches, identified challenges, and implemented a working prototype for integration. All objectives were met | |

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| Activity and independence when creating final thesis | B - very good. |
| <i>Assess whether the student had a positive approach, whether the time limits were met, whether the conception was regularly consulted and whether the student was well prepared for the consultations. Assess the student's ability to work independently.</i> | |
| Regular consultations were held once a week, and feedback was incorporated. The work was managed within the set deadlines. | |

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| Technical level | C - good. |
| <i>Is the thesis technically sound? How well did the student employ expertise in his/her field of study? Does the student explain clearly what he/she has done?</i> | |
| The thesis demonstrates a solid technical foundation. The student applied advanced concepts of information retrieval and machine learning, providing a detailed explanation of both theoretical and practical aspects of the integration. The implementation is functional however the retrieval takes a considerable long time. I would also appreciate a more detailed analysis of user testing results. | |

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| Formal level and language level, scope of thesis | A - excellent. |
| <i>Are formalisms and notations used properly? Is the thesis organized in a logical way? Is the thesis sufficiently extensive? Is the thesis well-presented? Is the language clear and understandable? Is the English satisfactory?</i> | |
| The thesis is well-organized, logically structured, and written in clear, understandable English. Proper formalisms and notations were used throughout, ensuring clarity and readability. The scope of the thesis is appropriate, covering all necessary aspects. | |

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| Selection of sources, citation correctness | A - excellent. |
| <i>Does the thesis make adequate reference to earlier work on the topic? Was the selection of sources adequate? Is the student's original work clearly distinguished from earlier work in the field? Do the bibliographic citations meet the standards?</i> | |
| The selection of sources is highly relevant and includes recent, credible publications. References are correctly cited according to academic standards, and the distinction between original contributions and referenced work is clearly made. | |

Additional commentary and evaluation (optional)

Comment on the overall quality of the thesis, its novelty and its impact on the field, its strengths and weaknesses, the utility of the solution that is presented, the theoretical/formal level, the student's skillfulness, etc.

The thesis presents a sound contribution to the field of integrating LLMs with search functionalities specifically in research medical domain. The student has demonstrated ability to combine theoretical knowledge with practical implementation. The work has potential applications in various domains, and the developed prototype is a good foundation for further research and development.

III. OVERALL EVALUATION, QUESTIONS FOR THE PRESENTATION AND DEFENSE OF THE THESIS, SUGGESTED GRADE

In summary, the thesis is of good quality, demonstrating both theoretical understanding and practical implementation. The student has successfully addressed the research objectives, and the prototype provides meaningful insights into the potential of integrating search with LLMs.

Suggested questions for defense:

1. What were the main technical challenges encountered during the integration process?
2. How can the system be further optimized for real-time applications?
3. What strategies can be employed to reduce response latency in search-enhanced LLMs?

The grade that I award for the thesis is **B - very good**.

Date: **24.1.2024**

Signature: