

# SPLETNA APLIKACIJA HOMEDOCTOR EKVIVALENT SPLOŠNEMU ZDRAVNIKU

Žiga Kolar<sup>1</sup>, Iva Eftimska<sup>2</sup>, Primož Kocuvan<sup>1</sup>, Matjaž Gams<sup>1</sup>

<sup>1</sup> Institut "Jožef Stefan", Jamova cesta 39 Ljubljana

<sup>2</sup> Podiplomska šola Jožefa Stefana, Jamova cesta 39 Ljubljana

ziga.kolar@ijs.si, iva.eftimska@ijs.si, primoz.kocuvan@ijs.si, matjaz.gams@ijs.si

Slovenski zdravstveni sistem se že vrsto let sooča z resnimi izzivi, ki negativno vplivajo na njegovo učinkovitost in dostopnost. Med ključne težave sodijo preobremenjenost zdravstvenega osebja, kronično pomanjkanje specialistov, odhajanje zdravnikov v tujino ter neustrezno plačilo specializantov, kar odvrča mlade zdravnike od izbire tega poklica. Posledično se pogloblja kriza v primarnem zdravstvenem varstvu, zaradi katere v Sloveniji približno 140.000 ljudi nima dostopa do osebnega zdravnika. Kot odziv na te systemske pomanjkljivosti smo razvili spletnega domačega zdravnika, digitalno rešitev, ki uporabnikom omogoča dostop do medicinskih informacij 24 ur na dan, vse dni v tednu. Sistem temelji na naprednih velikih jezikovnih modelih (LLM), ki smo jih prilagodili z vključitvijo medicinskega znanja iz spletne platforme Insieme ter priročnikov družinske medicine, ki jih je pripravilo Združenje zdravnikov družinske medicine Slovenije (ZDL). Razvoj sistema je potekal večstopenjsko. Vsako novo različico aplikacije smo testirali in izboljševali na podlagi povratnih informacij zdravstvenih strokovnjakov ter končnih uporabnikov. Ta iterativni pristop nam je omogočil, da smo ustvarili zanesljivo in strokovno podprto orodje, ki lahko prispeva k izboljšanju dostopnosti zdravstvenih informacij ter razbremenitvi zdravstvenega sistema v Sloveniji. V sklopu razvoja smo oblikovali preprost in intuitiven grafični uporabniški vmesnik, ki omogoča enostavno uporabo širokemu krogu uporabnikov, ne glede na njihovo tehnološko pismenost. Cilj je bil zagotoviti čim bolj dostopen in uporabniku prijazen sistem, ki omogoča hitro in učinkovito pridobivanje medicinskih informacij.

**Ključne besede:** spletna aplikacija; veliki jezikovni model; domači zdravnik; slovensko zdravstvo;

## WEB APPLICATION HOMEDOCTOR EQUIVALENT TO PERSONAL PHYSICIAN

The Slovenian healthcare system has been facing significant challenges for many years, negatively impacting its efficiency and accessibility. Some of the most pressing issues include the overburdening of healthcare professionals, a chronic shortage of specialists, the migration of doctors abroad, and inadequate salaries for medical residents, which discourage young professionals from pursuing a career in medicine. As a result, the crisis in primary healthcare is deepening, leaving approximately 140,000 people in Slovenia without access to a personal physician.

In response to these systemic shortcomings, we have developed an online home doctor, a digital solution that provides users with 24/7 access to medical information. The system is built on advanced large language models (LLMs), which we have enhanced by integrating medical knowledge from the Insieme online platform and family medicine manuals compiled by the Association of Family Medicine Doctors of Slovenia (ZDL). The development of the system followed a multi-phase approach. Each new version of the application was tested and improved based on feedback from healthcare professionals and end users. This iterative process allowed us to create a reliable, professionally supported tool that contributes to better accessibility of medical information while helping to reduce the strain on the Slovenian healthcare system. As part of the development process, we designed a simple and intuitive graphical user interface, ensuring ease of use for a broad range of users, regardless of their level of technological literacy. The goal was to create a highly accessible and user-friendly system that enables fast and efficient retrieval of medical information.

**Keywords:** web application; large language model; home doctor; slovenian healthcare