



# Developing a legal chatbot for renters in shared housing



Ilyas Nurmohamed - Utrecht, the Netherlands, Hogeschool Utrecht

## ABSTRACT

This research aims to develop a chatbot using LLMs and RAG techniques to assist students in non-independent housing with tenancy law issues [1] [2]. It provides legally accurate answers to common disputes, bridging the gap in legal aid access. The study evaluates the chatbot's effectiveness and acceptance within the target group.

## RESEARCH QUESTION

How can a trustworthy chatbot be trained to provide legally accurate and accessible answers to tenancy law questions from renters in shared housing, and to what extent do students accept this chatbot as a legal tool?

## RESEARCH METHODOLOGY

This research follows an iterative approach, developing and testing a chatbot with students who have tenancy-related questions. The chatbot, trained using LLMs fine-tuned with RAG techniques, will access legal sources like Rent Tribunal rulings and Legal Aid information [11]. After prototyping, effectiveness and acceptance will be evaluated through user trials, focusing on user experience, response clarity, and trust.

## INTRODUCTION

In today's society, there is a growing gap between the demand for and the supply of legal aid, especially for vulnerable groups such as students living in non-independent housing [9]. This group frequently encounters legal issues, such as rent disputes or housing defects, but often lacks the means to access traditional legal assistance [10]. This research focuses on developing a chatbot that offers legal support using LLMs and RAG technology [1] [2]. The chatbot aims to provide quick and simple answers to legal questions, specifically focusing on tenancy law for students. This solution will lower the barriers to legal assistance and help students better understand their rights and how to resolve their issues [3]. There is a lack of accessible and affordable legal aid for students, who often cannot access legal assistance due to time, cost, and knowledge limitations.

## Juridisch loket

22% Increase in calls to legal aid helpline in 2023

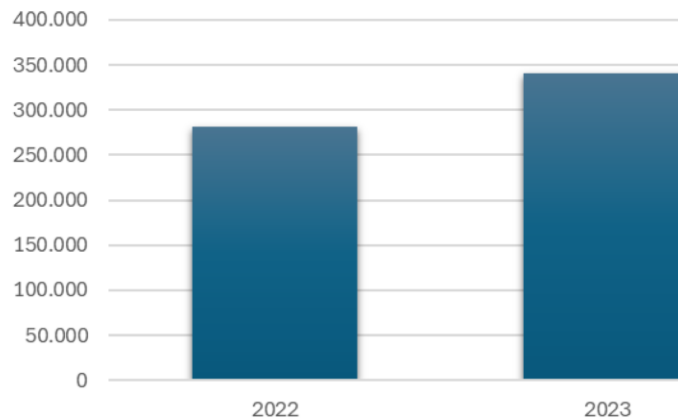


Fig 2 Source: <https://www.juridischloket.nl/professionals/nieuws/telefonie/>



Fig 3 Shared Housing

## Retrieval-Augmented Generation (RAG)



Fig 1 RAG pipeline

## PRELIMINARY CONSIDERATIONS

This research advances legal technology by demonstrating how AI-driven chatbots can improve access to legal aid for students in non-independent housing. The findings could inform future AI-based legal tools in areas like consumer rights and employment law while guiding policymakers on AI integration in legal aid [5]. Additionally, this study highlights AI's potential to empower individuals with limited legal knowledge, paving the way for further research on ethical considerations and the role of AI in democratizing legal access [8].

## LITERATURE REVIEW

The literature highlights how technology can contribute to making legal knowledge more accessible, which is essential for supporting vulnerable groups such as students [4]. These studies explore the accessibility and accuracy of legal chatbots for the public, highlighting the challenges and opportunities these technologies present [6]. Other research discusses the development and application of a chatbot as a digital assistant for legal awareness, and how it can help increase legal knowledge and provide support in legal matters [7]. However, many of these systems do not specifically focus on tenancy law for students or on using LLMs and RAG techniques to enhance chatbot training. This research builds on existing technologies by specifically applying them to tenancy law issues, addressing a gap in the literature.

## CONCLUSIONS

This research presents an innovative solution to an important problem: the gap between the demand for and the supply of legal assistance for students. By developing a chatbot that offers legally accurate and accessible answers to tenancy-related questions, the legal barrier for students can be significantly reduced. The research has the potential to improve students' experiences and offer insights into the future application of technology in the legal sector.

References [1] Google Cloud. (n.d.). Retrieval-augmented generation. Google Cloud. Retrieved January 29, 2025, from <https://cloud.google.com/use-cases/retrieval-augmented-generation>. [2] Amazon Web Services. (n.d.). What is a large language model? Amazon Web Services. Retrieved January 29, 2025, from <https://aws.amazon.com/what-is/large-language-model/>. [3] Zubair, M. (2023). Digital inclusion and the role of technology in enhancing legal literacy. ResearchGate. [https://www.researchgate.net/publication/388272532\\_Digital\\_Inclusion\\_and\\_the\\_Role\\_of\\_Technology\\_in\\_Enhancing\\_Legal\\_Literacy](https://www.researchgate.net/publication/388272532_Digital_Inclusion_and_the_Role_of_Technology_in_Enhancing_Legal_Literacy). [4] Brammer, A., & Harris, P. (2023). Ethics in artificial intelligence: A legal perspective. SSRN. [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4387616](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4387616). [5] Hill, C. (2023). Considerations for artificial intelligence and employment law. The National Law Review. <https://nallawreview.com/article/considerations-artificial-intelligence-and-employment-law>. [6] Singh, A., & Kumar, P. (2024). Artificial intelligence and its applications in various industries. International Journal of Finance and Management Research, 3(1). <https://www.ijfmr.com/papers/2024/3/20887.pdf>. [7] Gupta, R. (2023). Impact of artificial intelligence on business innovation. Journal of Emerging Technologies and Innovative Research, 10(4). <https://www.jetir.org/papers/JETIRGG06079.pdf>. [8] Li, Y., & Zhang, X. (2024). Deep learning algorithms in AI-driven solutions. MDPI. <https://www.mdpi.com/2076-3417/14/18/8236>. [9] Van der Velde, P. (2023). Meer uitstroom dan instroom: Een tekort aan sociaal advocaten dreigt. Mr. Online. [https://www.mr-online.nl/meer-uitstroom-dan-instroom-een-tekort-aan-sociaal-advocaten-dreigt/?utm\\_source=chatgpt.com](https://www.mr-online.nl/meer-uitstroom-dan-instroom-een-tekort-aan-sociaal-advocaten-dreigt/?utm_source=chatgpt.com). [10] Rijksoverheid. (2024). TK bijlage 1: Rapport Staatscommissie Rechtsstaat - De gebroken belofte van de rechtsstaat. Rijksoverheid. <https://www.rijksoverheid.nl/documenten/rapporten/2024/06/28/tk-bijlage-1-rapport-staatscommissie-rechtsstaat-de-gebroken-belofte-van-de-rechtsstaat>. [11] Juridisch Loket. (n.d.). Juridisch loket. Juridische Database. Retrieved January 29, 2025, from <https://juridischdatabase.nl/juridisch-loket/>

Acknowledgements. The HCAIM (the Human-Centred AI Master's Programme) Project is Co-Financed by the Connecting Europe Facility the European Union Under Grant NeCEF-TC-2020-1 Digital Skills 2020-EU-IA-0068. This Poster Was Created As Part of the Blended IP Event Organized Under Erasmus + Programme of the European Union.