Accurate AI Assistance in Contract Law Using Retrieval-Augmented Generation to Advance Legal Technology

1. Objectives

- To develop a semantic legal chatbot enhanced by retrieval-augmented generation (RAG) techniques, designed to interpret and interact with contract law data through an intuitive, multilingual interface.
- To provide expert and accurate legal assistance akin to a professional lawyer, especially in the domain of property law.
- To reduce hallucinations common in large language models by grounding responses exclusively on reliable, updated legal documents.
- To enable the drafting of legally compliant contracts and facilitate legal understanding for users worldwide, with adaptability for different jurisdictions by updating legal databases.

2. Key Contributions

- Integrated RAG with large language models to create a legal AI assistant that delivers contextually relevant, evidence-backed responses to user queries.
- The system supports English and French language queries, broadening accessibility.
- Demonstrated effective mitigation of hallucinations by grounding answers only in vetted legal texts.
- Introduced a practical virtual AI lawyer capable of assisting in contract law and property law through a conversational interface.

- Highlighted the capability of the RAG-based chatbot to be adapted for multiple countries by swapping out the underlying legal knowledge base.

3. System Architecture and Methodology

- The chatbot combines a retrieval system that searches a curated database of official contract law documents with a generative language model that synthesizes these documents into coherent answers.
- A vector-based embedding search engine retrieves relevant legal passages in response to user queries.
- The generative model integrates retrieved information into responses with citations to the source documents to enhance trust and transparency.
- Employs natural language understanding to process queries and generate multi-lingual, precise legal explanations.

4. Evaluation and Results

- Tested for accuracy in generating compliant and contextually appropriate legal responses across diverse contract law scenarios.
- Shown to reduce misinformation and improve user trust by referencing verified legal content.
- Demonstrated ability to handle multi-lingual inputs and deliver relevant, jurisdiction-specific answers.

5. Practical Use Cases

- Assisting legal professionals and laypersons in understanding property and contract law principles.
- Automating parts of contract drafting, review, and legal consultation.
- Enhancing accessibility of legal knowledge by providing legal advice in multiple languages without requiring expert presence.

6. Relevance for Academic Compliance Project

- Demonstrates an effective approach to combining RAG with LLMs for explainable, traceable AI-driven legal assistance, a foundational capability for academic policy compliance automation.
- Highlights techniques for mitigating hallucinations and building trust through evidence-backed answers.
- Shows how a modular legal knowledge base can enable domain adaptation and multilingual support, valuable for incorporating evolving and region-specific academic regulations.
- Offers a practical system design blueprint for interactive, user-facing AI compliance tools.