



RAG DOLL

AI RISK ASSESSMENT SYSTEM

TEAM MEMBERS:

Samanda Kortoçi

Mohamed Reda Arsalane

Michael Bidollahkhani

Mohammed Hamed Pakizehdel

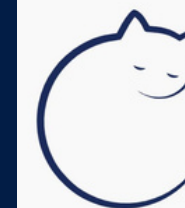
Katja Breitenfelder

Nhu An Trinh

Supervisor: Prof. Zsolk Balogh

UNIVERSITY OF GOETTINGEN
FACULTY OF LAW - LIPIT PROGRAM
FACULTY OF MATHEMATICS AND
COMPUTER SCIENCE

INTRODUCTION



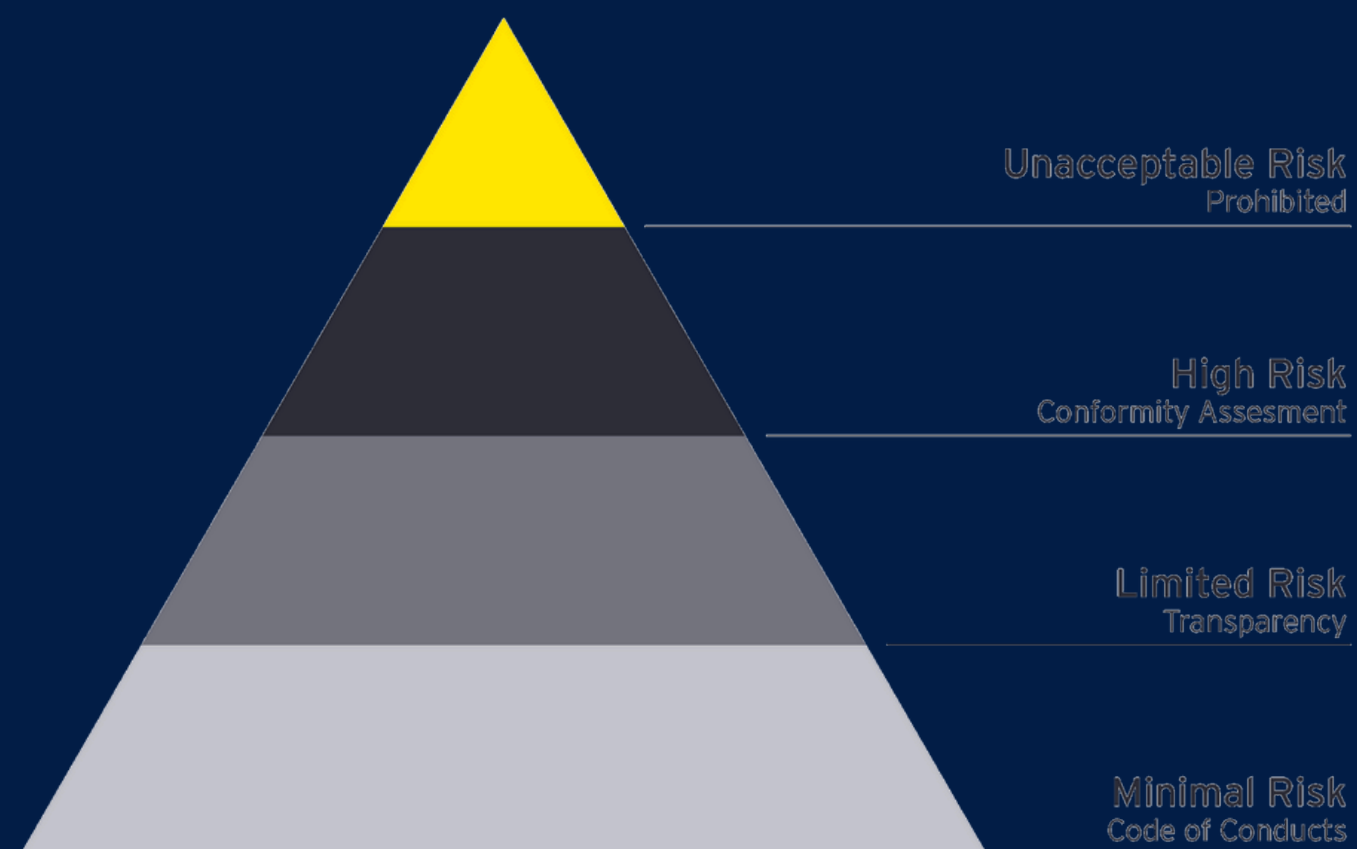
RAG DOLL

Rapid acceleration in AI development across various sectors
Sudden growth marking the current digital era

Risk categories according to the EU AI Act

REGULATORY URGENCY:

- Increased necessity for structured oversight
- Ensuring AI technologies are safe, ethical, and legally compliant
- High legal costs, risk of non-compliance, and administrative fines
- Risk and compliance framework:
- Focus on AI system (products, services)
- Equally applying: GDPR, ESRP and sectoral law standards
- Introduces assessment of Fundamental Rights



■ Art. 5 ■ Art. 6 & ss ■ Art. 52 ■ Art. 69

RESEARCH QUESTIONS

1

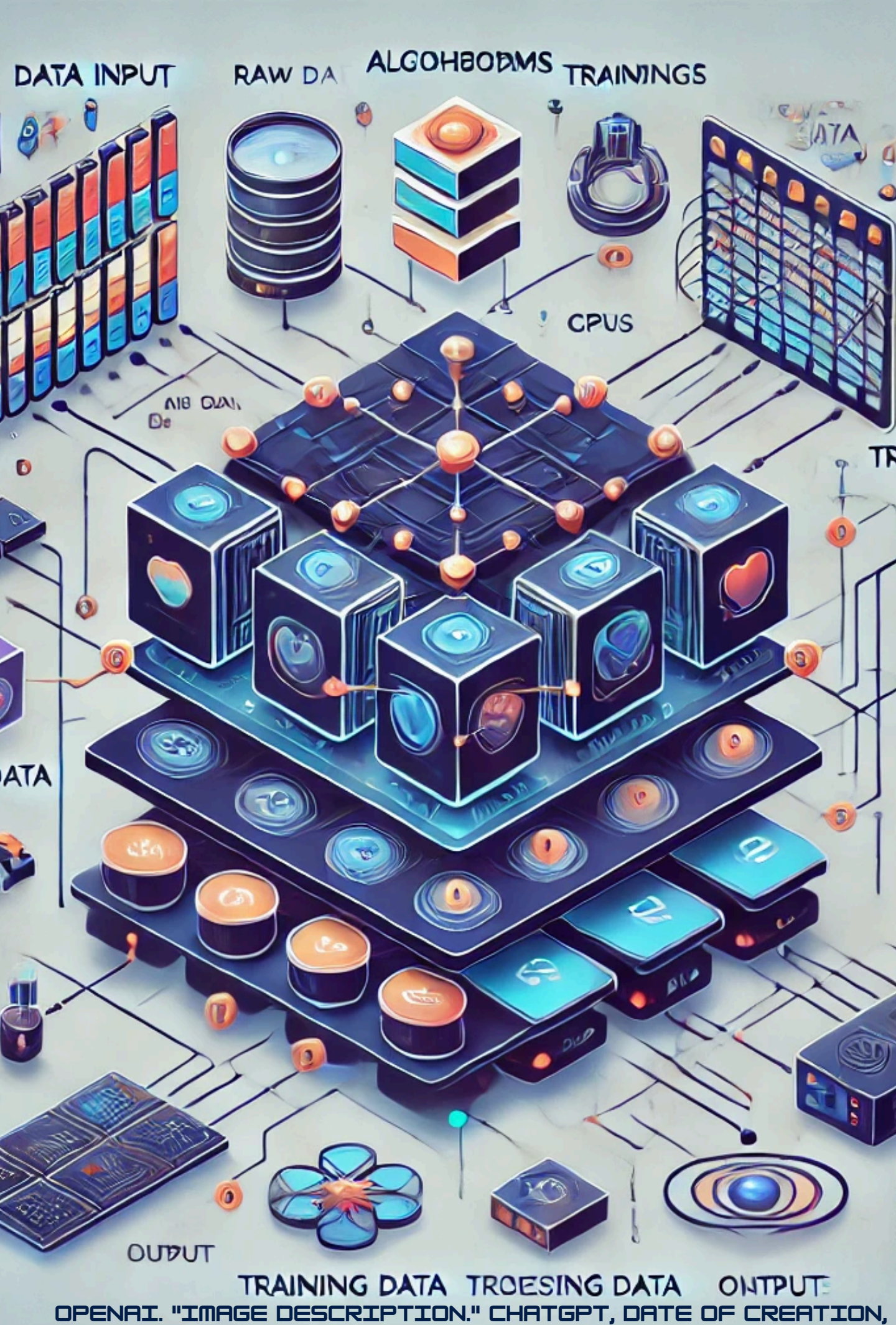
How can AI risk assessments and compliance checks be automated to support public and private sector stakeholders under the European AI Act ?

2

Which technologies can be (re-)used for developing such a system?

3

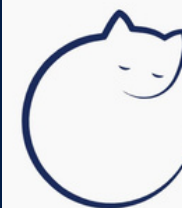
Which legal obligations apply according to the European AI Act for AI systems of diverse sectors?



RAGDOLL SYSTEM

DEVELOPING THE PROTOTYPE SYSTEM, HOW SHOULD IT BE?

- It should be modular and flexible
- allowing public and private stakeholders to assess risks
- check compliance of AI systems of diverse sectors according to the EU AI Act
- using state-of-the-art technologies



RAG DOLL OVERVIEW

WHAT IS IT?

An advanced compliance checker for AI systems, Automates risk assessments, categorizes risks, and generates actionable reports

DATA INPUT

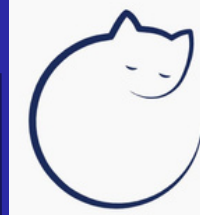
Taxonomy Map & Questionnaire

The questionnaire gathers user input on the AI system, and the taxonomy map classifies the AI system according to risk categories

DATA OUTPUT

Report & Recommendations

The system generates tailored compliance reports and recommendations.



RAG DOLL'S

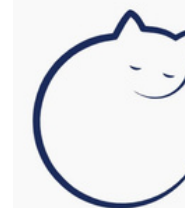
LEGAL SPHERE

QUESTIONNAIRE

- Guides users unfamiliar with the European AI Act
- Ensures compliance by aligning questions with European AI Act requirements
- Provides actionable insights and clarifies user obligations step-by-step.

TAXONOMY

- Analyzes relationships between legal and technical terms in the European AI Act Organizes terminology for clarity and consistency
- Supports compliance and interpretation of AI regulations



RAG DOLL DATA FLOW

Questionnaire or Documentation Report
Including a comprehensive description of
the AI-as-service system and its
specifications.

Including but not limited to:

- System profile and description,
- Intended uses and features,
- Stakeholders and impacts,
- Adverse impacts,
- Data requirements and management,
- Fairness and safety,
- Transparency and accountability,
- Potential harms and mitigations,
- Evaluation and continuous improvement.

Excel Table containing columns of data for:

- Article (Article number),
- Subdomain (Related keywords or topics),
- Item (Article's Description).

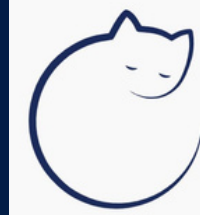
INPUT I



OUTPUT



Alignment with specific articles and
identification of inconsistent terminology.



SYSTEM BENEFIT USERS?



*TECHNOLOGIES -> ENHANCE REVENUE & IMPROVE EFFICIENCY

Large Language Models (LLMs), powered by Generative AI, multiple Information Extraction (IE) tasks efficiently without extensive development costs

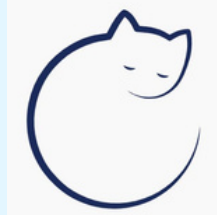
*Time Benefits

RAG mechanisms analyze, retrieve, and synthesize big data for rapid legal compliance insights, cutting tasks from months to moments

*Cost Reduction

Fewer billable hours by using the RAGdoll in diverse industries of the private sector (e.g. legal, health, finance), supporting SMEs. Reducing transaction cost by free-trial periods
Explore, test, and tailor the code of conduct.

*OpenAI. Users Using the AI System AI Image Generator.
2025.



FUNCTIONS -> EMPOWER USERS

TARGETING GOLD USERS: CUSTOMIZABLE COMPLIANCE

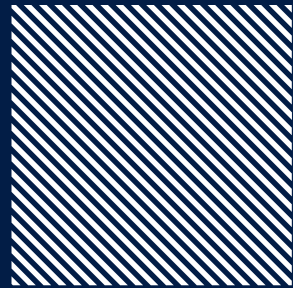
- Improved Compliance Verification
- Assess risks by detecting and highlighting mismatches.
- Enhanced Query Responses
- Scalable Knowledge Integration

Gold Users: large companies eager to implement cutting-edge AI products.

Free Trial Offering: Enable exploration, testing, and customization during a trial period.

Customizable Compliance: Tailor code of conduct to align with internal policies and regulatory standards

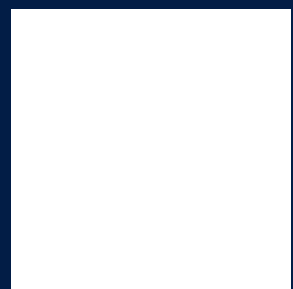
TECH STACK



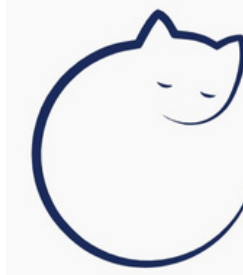
- ETL Module: Handles diverse file formats using robust preprocessing libraries



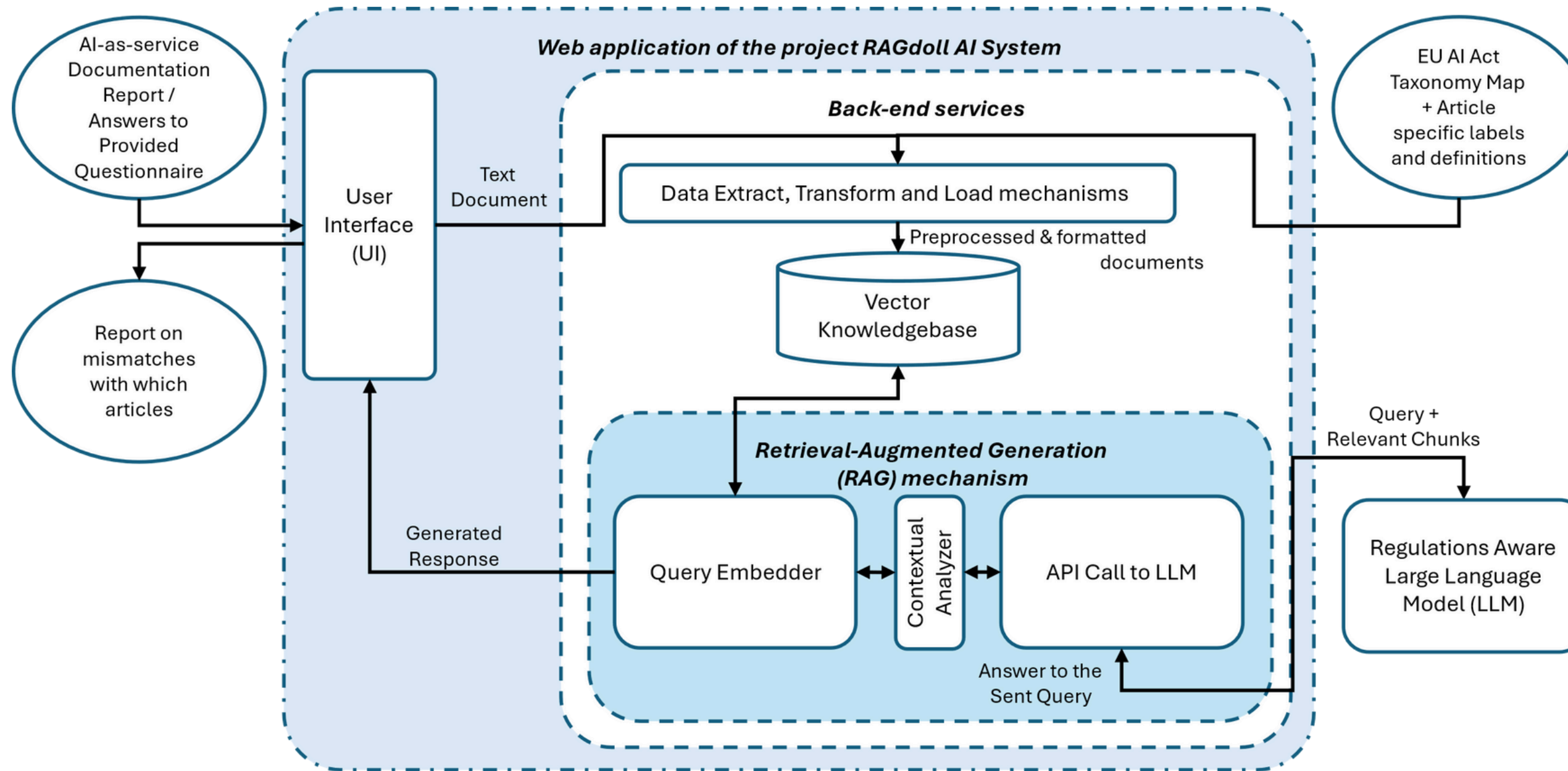
- Contextual Analyzer: Employs TF-IDF vectorization and cosine similarity for relevance retrieval

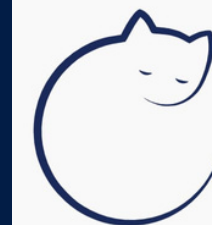


- RAG Mechanism: Combines embedding-based retrieval with context-aware response generation



SYSTEM ARCHITECTURE



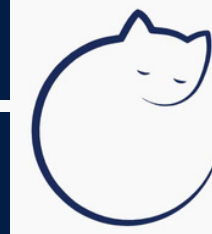


TECHNICAL COMPLEXITY

BACKEND SERVICES:

- Data ETL (Extract, Transform, Load)
- Vector Knowledge Base for embeddings
- Legal Repository for regulatory knowledge
- RAG Mechanism for query processing and response generation
- Testing Metrics: Latency, and legal user satisfaction





FRIENDLY - UI (7)



EU AI ACT COMPLIANCE CHECKER AND RISK ASSESMENT

The **RAG DOLL** project is a tool designed to help users evaluate AI systems for compliance with the EU AI Act. This application simplifies the identification and categorization of AI risks, ranging from minimal to unacceptable. By leveraging cutting edge NLP and Machine Learning techniques, the system provides users with a structured **Risk Assessment, Compliance Verification**, and tailored **Recommendations**.

Users can assess their compliance by completing a customized questionnaire designed to align with the requirements of the EU AI Act.

[START ASSESMENT](#)



FRIENDLY - UI (2)



RAG DOLL

System Information

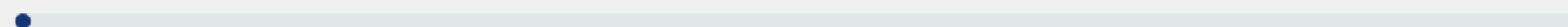
Were any data-cleaning steps applied before using the datasets?

e.g. Eliminate Duplicate or Irrelevant Data Correct Structural Errors Filter Outliers Address Missing Data Validate and Quality-Check

Answer:

Yes, we applied data-cleaning steps, including deduplication, error correction, outlier filtering

Press Enter to apply



Previous

Next

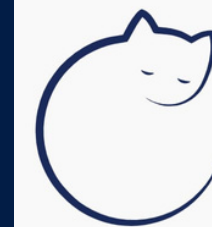
Submit

Information

Data and Data Governance Requires that datasets used for training validation and testing be relevant representative free of errors and complete.

Glossary

Data-Cleaning: Where relevant, the data requirements include datasheets describing the training methodologies, techniques, and training data sets used, including a general description of these data sets, information about their provenance, scope, and main characteristics; how the data was obtained and selected; and labeling procedures (e.g., for supervised learning).



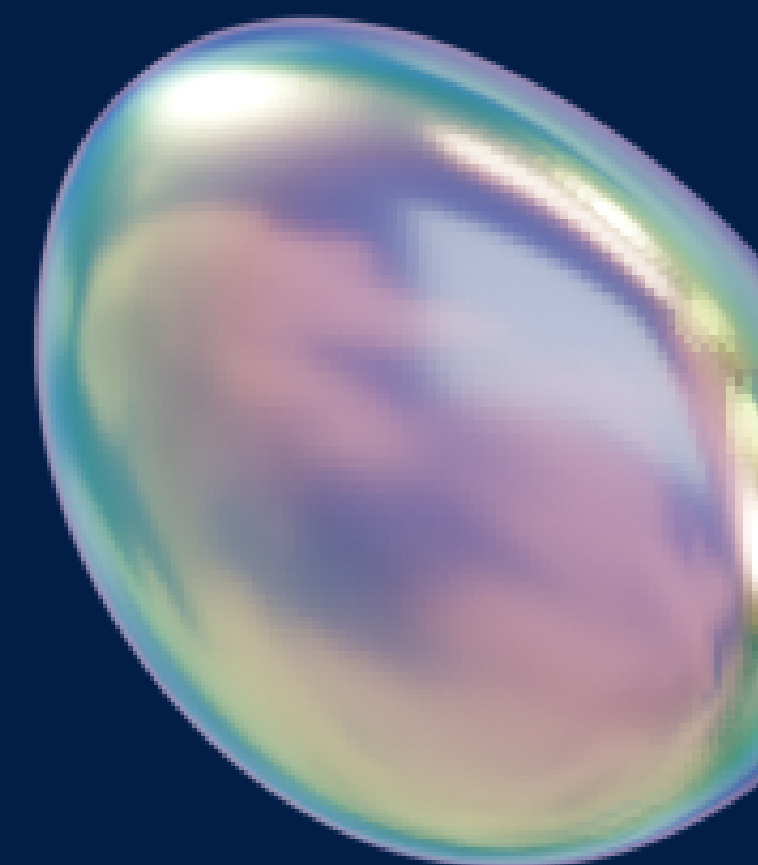
CONCLUSIONS

Project Deliverables

- GitHub repository, comprising open-source code, documentation, data input (questionnaire) and data output examples
- Upscaling Legal Compliance
- System prototype facilitating scalable knowledge integration for new regulations and standards

Future Challenges

- Updating the system to integrate new EU/national regulations and standards
- Ensuring compliance of innovative AI solutions remains an open challenge for discussion



[HTTPS://RAGDOLL.SYNCHANGE.COM](https://ragdoll.synchange.com)



RAG DOLL

THANK YOU!



RAGdoll



SCAN ME