

# SwimRAG

An AI-powered chatbot for swimming injury literature

PRESENTER:

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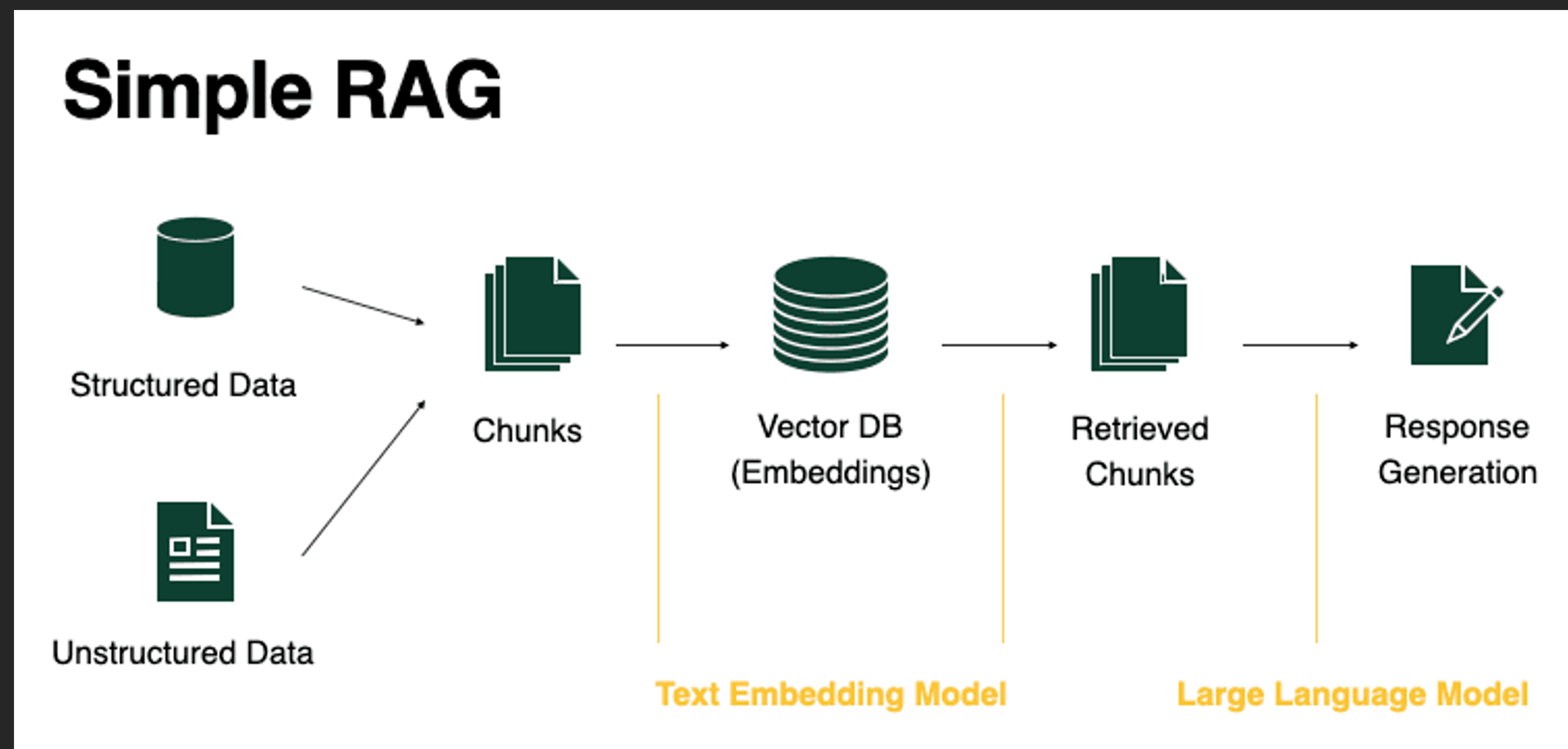
**EDIT Team 5**

## BACKGROUND: Who cares?

- Swimming's intensity has made swimmers susceptible to injury
- Finding the right sources and information in a wide field can be challenging

## METHODS

- We used a Large Language Model (LLM) using Retrieved Augmented Generation to improve accuracy of returned information
- Make a large and credible database by curating 200 scholarly articles detailing swimming injuries



## SwimRAG: AI-Powered Chatbot for Swimming Injury Literature

Ask me questions about swimming injuries

What would you like to know?

What are some potential causes of shoulder injury in swimmers

Common causes of shoulder injuries in swimmers include:

1. **Overtraining:** Excessive training can lead to muscle fatigue, reduced rotator cuff efficiency, and ineffective scapula positioning during strokes.
2. **Incorrect Biomechanics:** Errors in swimming technique and biomechanics can cause microtrauma to shoulder structures, increasing the risk of overuse injuries.
3. **Repetitive Movements:** The large number of repetitive strokes in swimming can contribute to overuse injuries in the shoulder.
4. **Inadequate Warm-Up:** Not warming up properly before swimming can increase the risk of shoulder injuries.
5. **Training Intensity:** High-intensity training without proper recovery can strain the shoulder

Your message

## Figure descriptions

1. In Fig. 1, the architecture for a simple RAG method is shown. First you have the chunks turning into the vectors in which the computer can read, so next you would embed the vectors for testing. After that, the final response is integrated with the response from the LLM and made into the output.
2. Fig 2 depicts the final result of my research: the app and its prompt window. With the API key you are able to ask it any questions in the field of swimming injury or swimming sports medicine

## Conclusion:

- Affirmed LLM w/ RAG uses in large-scale data analysis
  - Using this app, researchers can now quickly find comprehensive answers to swimming injury questions
- Mentors: Dr. Joshua Levy, Sean McOsker, Catherine Joen