

FLORIDA INTERNATIONAL UNIVERSITY



MATERIAL ATLAS FOR COASTAL CONSTRUCTION

Students: Chris Daniel Lantigua , Cesar Barrios, Giovanni Ruiz, Sejal Nathu-Hari,
Product Owner: *Lyla Wu*

Instructor/Faculty: *Dr. Masoud Sadjadi, PhD*, Florida International University

Abstract:

Building off the groundwork laid by previous efforts, our team is addressing the persistent challenge of limited collaboration between material scientists and engineers/architects through the development of a comprehensive knowledge-sharing platform.

While previous iterations have made strides to bridge this gap, there remains a critical need for enhancements in key areas such as data extraction, security, and user interface design.

By leveraging advancements in artificial intelligence, our team aims to bridge the gap between material science and allied disciplines, fostering a culture of collaboration and knowledge sharing.

Current System:

- **Early Development Stage:** Project initially delivered with a foundation for future enhancements.
- **Focus Areas:** Expanding the database, refining the user interface, and enhancing overall system capabilities.
- **Application Field:** Aimed at supporting research and practical applications in coastal construction.
- **First Generation System:** Established to innovate and set the direction for research in coastal construction materials.

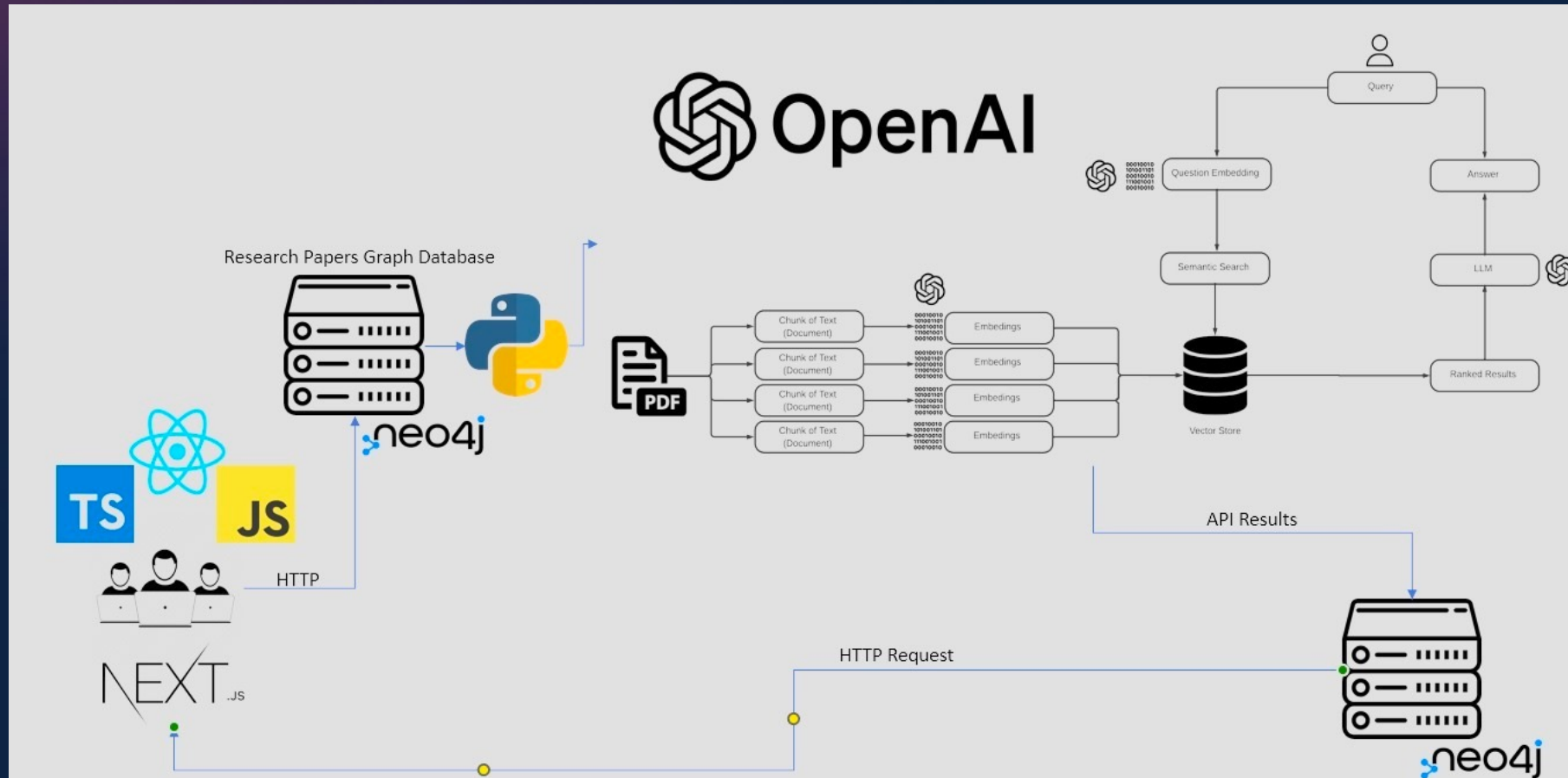
Requirements:

- **Data Extraction and Analysis:** Employ AI models to efficiently parse and extract material properties and specifications from scholarly articles and material science research papers.
- **User Authentication and Security:** Develop secure registration and login functionalities to protect user data and maintain platform integrity.
- **User Interface Design:** Build on current UI for the Material Atlas website, ensuring ease of navigation and accessibility for all users.

Use Cases:

- Serve various stakeholders in coastal construction
- Assists researchers needing access to consolidated material data
- Support professionals requiring reliable information for planning and execution
- Benefits educational institutions by providing students with real-world construction material data

System Design



Summary:

Building upon the initial framework of the "Material Atlas for Coastal Construction," our team at the Knight Foundation School of Computing and Information Sciences, Florida International University, has taken significant strides in enhancing the collaboration between material scientists and engineers. Our current iteration focuses on the advancement of a comprehensive knowledge-sharing platform. We have placed particular emphasis on data extraction and analysis, harnessing artificial intelligence to extract material data from research papers effectively. Through these enhancements, we aim to bridge the gap between material science and practical application, cultivating a culture of knowledge sharing that is pivotal for the sustainable development of coastal communities.