

# Web Portal for Visualization of (neuro)Biological Discoveries

Degree programme : BSc in Computer Science | Specialisation : Data Engineering  
Thesis advisor : Dr. Souhir Ben Souissi  
Expert : Pierre-Yves Voirol (Abacus Research SA)

In neuro-biology, specialists require a considerable amount of time, effort, and expertise to accurately understand and report on specialized literature. The volume of information can be difficult to digest, even for highly knowledgeable individuals.

## Motivation

A visual portal that draws information directly from primary sources and original publications is a timely and advantageous concept that will expedite scientific advancement in laboratories across the globe and make the exchange and transfer of ideas to the public more accessible.

## Objective

The objective of this project is to develop an online platform for the collection and visual representation of (neuro)biological discoveries through user-generated input. It will feature comprehensive, visually-pleasing illustrations of cutting-edge and classical biological discoveries, enabling efficient exploration and analysis of intricate concepts.

## Procedure

The client's requirements are broken down into manageable features, which are then implemented step by step. Additionally, customer feedback is gathered on a weekly basis, providing continuous input on the progress made and guiding future actions.

## Application

The web portal, consisting of a webservice (API) and web application, was developed using pixijs, Angular, Django, and Neo4j. The web application consists of three distinct parts:

- The exploration part enables users to navigate

through the discovery map, as on figure 1.

- The scientific part requires users to create an account and start a session, allowing them to add discoveries to the map.
- The manager part provides comprehensive platform management, offering flexibility in customizing the discovery map according to specific preferences.

## Interdependence of objects

A significant challenge encountered in this project was the intricate interdependency among entities, particularly related to discoveries. To overcome this obstacle, we created a tailored management tool for the client and meticulously managed the entities within the webservice.

## Usability Assessment

Collecting user feedback is a great way to validate the user interface, planning future enhancements, or implementing new features.

In our application, we received valuable feedback from 15 users through a combination of open-ended and closed-ended questions across three different forms, testing three different aspects of the application. This feedback validates the manager section as on figure 2 and identifying pain points that require improvement in the form to add discovery. By addressing these areas of concern, we can enhance the overall user experience.

## Results

The successful implementation of the web portal resulted in achieving the desired outcome. The client's requirements have been fully met. This portal goes beyond the minimum viable product criteria by providing an extensive set of features.



Marina Pantazis

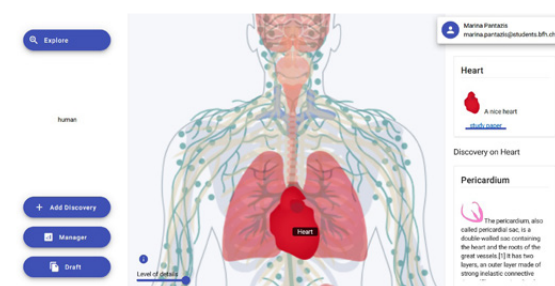


figure 1: User interface

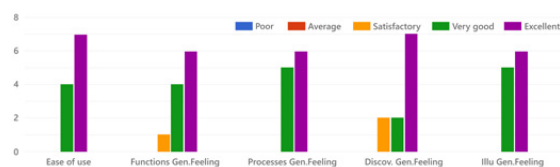


figure 2: User feedbacks on manager tool