**LightBox Abstract**

Advancements in machine learning (ML) applied to bioinformatics offer promising avenues for data analysis and insights into biotechnology. However, challenges in the interpretability of ML models hinder their broad adoption and effective collaboration between domain experts and ML practitioners. This research presents the development of an Interpretable Machine Learning Platform, referred to as LightBox, addressing these challenges and enhancing bioinformatics research.

LightBox establishes a channel to foster knowledge exchange between domain experts and ML practitioners by creating an accessible online platform, it cultivates a supportive environment for bioinformatics research and collaboration.

The project focuses on crafting a user-friendly web program allowing experts, including non-coders, to test and obtain machine-learning results. It develops an interpretable machine learning platform tailored for bioinformatics research, promoting the use of techniques addressing unique bioinformatics challenges. The platform is equipped with data analysis, visualization, and modeling tools, enabling users to gain insights from intricate biological data.

LightBox successfully realized its objectives, culminating in the implementation of planned features. The platform accommodates four classifiers from the machine learning algorithm built by other researchers in the group. Users can effortlessly upload Excel files, customize targets and features, select classifiers, configure parameter values, and visualize results through metrics and decision tree feature importance tables.

In summary, LightBox bridges the gap between domain experts and ML practitioners, fostering collaboration and transparency within bioinformatics research. By providing accessible tools and interpretability, LightBox enhances the potential for insights from complex biological data and contributes significantly to the advancement of bioinformatics.