# Melanoma Classifier User Manual


## Authors
Carlos Garcia
Sergio Vizcaino
Adriana Danko


# Introduction
The Melanoma Classifier is designed to predict melanoma skin lesions with an accuracy and recall rate of 82%. This tool uses advanced machine learning techniques to assist in the early detection and analysis of melanoma, contributing significantly to healthcare and dermatology fields.

## Getting Started

### Clone the Repository
To get the code on your local machine, use the following git command:

```
git clone https://github.com/carlosdanielgt/MelanomaClassifier
```

### Prerequisites
Before you begin, ensure you have the following installed:
- Python 3.8

### Installation
To install the necessary libraries, run the following command:

```
pip install -r requirements.txt
```

## Running the Code

### CNN Classifier
Description: The CNN Classifier utilizes a more complex Convolutional Neural Network architecture. It's specifically tuned for higher accuracy in image-based classification tasks.

Execution:
```
python CNNClassifier.py
```

### MLP Classifier
Description: The Multilayer Perceptron (MLP) Classifier uses a simple yet effective neural network architecture to classify images.

Execution:
```
python MLPClassifier.py
```

**1D 10-Fold CNN**
Description: This script executes a 1-dimensional Convolutional Neural Network (CNN) using a 10-fold cross-validation approach to ensure the robustness and reliability of the model.

Execution:
```
python 1D_10fold_CNN.py
```

## Support
For any technical issues or questions about the Melanoma Classifier, please reach out to the development team through the GitHub repository's Issues section.

## License
This project is licensed under the MIT License. For more details, see the LICENSE file in the GitHub repository.

## Acknowledgments
Special thanks to all contributors and supporters of the Melanoma Classifier project. Your efforts and insights are greatly appreciated in advancing the field of medical diagnostics.