Prediction of site and type of inflammation for patients with uveitis based on blood values and laboratory tests.

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*Abstract*—

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# Introduction

## Uveitis

Uveitis is a term which describes an inflammation of the uvea. Uveitis can be divided into anterior, posterior, intermediate or panuveitis (more than one segment affected). an anterior uveitis involves for example the iris. Uveitis can lead to the loss of eyesight among other things [1].

## Project Description

The aim of the project was to identify important features for the diagnosis of uveitis. For this purpose, a dataset with information on more than 1000 patients, collected by Dr. H. Nida Sen from the National Eye Institute, Washington DC, was made available. After an initial exploratory data analysis, a preprocessing pipeline was developed, which can be used together with machine learning algorithms from sklearn, a python machine learning library. Various algorithms were employed to classify the dataset. The results, especially the feature importance’s, were recorded and documented.

## Data description

We received a total of 1075 samples from patients affected by certain types of ocular inflammatory disease. Mostly subtypes of uveitis such as pars planitis but also other diseases that have inflammation in the eye as a symptom or consequence, e.g. white dot syndrome or sarcoidosis. We count 426 male patients and 649 female patients. The difference between male and female patients can be explained as women are disproportionately affected by ocular inflammation [2]. Each sample is described by a total of 64 attributes. The attributes can be divided into laboratory tests (blood values), meta-information about the patient (such as gender or race), and features describing the diagnosis. For the purpose of the analysis, the binary feature "uveitis" was introduced which determines whether the patient has a form of uveitis based on the specific diagnosis.

# Exploatory data analysis

# Preprocessing

# Modelling

## Location

## Category

## Specific Diagnosis

## 

# Results

##### Discussion

##### Conclusion

##### Acknowledgment

##### References