iDPP@CLEF 2022

Intelligent Disease Progression Prediction at CLEF

Brainteaser

@brainteaser2020

brainteaser-project

www.brainteaser.health

Motivation: What is ALS?

Amyotrophic Lateral Sclerosis (ALS) is a chronic disease, characterized by progressive or alternate impairment of neurological functions (motor, sensory, visual, cognitive). Patients have to manage alternated periods in hospital with care at home, experiencing a constant uncertainty regarding the timing of the disease acute phases and facing a considerable psychological and economic burden that also involves their caregivers. Clinicians, on the other hand, need tools able to support them in all the phases of the patient treatment, suggest personalized therapeutic decisions, indicate urgently needed interventions.

Goal

The goal of iDPP@CLEF is to design and develop an evaluation infrastructure for AI algorithms able to:

- **better describe disease mechanisms;**
- **stratify patients according to their phenotype assessed all over the disease evolution;**
- **predict disease progression in a probabilistic, time dependent fashion.**

Tasks

iDPP@CLEF 2022 organizes the following activities:

Pilot Task 1 - Ranking Risk of Impairment:
it focuses on ranking of patients based on the risk of impairment, e.g. NIV, PEG, or death. More in detail, we use the ALSFRS-R scale to monitor speech, swallowing, handwriting, dressing/hygiene, walking and respiratory ability in time and will ask participants to rank patients based on time to event risk of experiencing impairment in each specific domain.

Pilot Task 2 - Predicting Time of Impairment:
it refines Task 1 asking participants to predict when specific impairments will occur (i.e. in the correct time-window). In this regard, we assess model calibration in terms of the ability of the proposed algorithms to estimate a probability of an event close to the true probability within a specified time-window.

Position Paper Task 3 - Explainability of AI algorithms:
We evaluate proposals of different visualization frameworks able to show the multivariate nature of the data and the model predictions in an explainable, possibly interactive, way.

Datasets

The iDPP@CLEF 2022 challenge will share three valuable datasets for both training and testing algorithms to predict the progression of ALS and/or to showcase approaches for the explainability of such algorithms. These datasets come from two clinical institutions, one in Lisbon (Portugal), and the other in Turin (Italy) and contain data about real patients, fully anonymized.

Dataset A: is intended for the prediction of NIV – Non-invasive ventilation (or the competing event Death) and consists of 1,804 patients and 6,002 visits (ALSFRS-R questionnaires, Spirometry, etc.).

Dataset B: is intended for the prediction of PEG – Percutaneous Endoscopic Gastrostomy (or the competing event Death) and consists of 2,145 patients and 7,180 visits (ALSFRS-R questionnaires, Spirometry, etc.).

Dataset C: is intended for the prediction of Death and consists of 2,250 patients and 7,536 visits (ALSFRS-R questionnaires, Spirometry, etc.).

All the datasets are split into a training and test set according to a (approximately) 80%-20% ratio.

Important Dates

Registration closes: **April 22, 2022**

Runs submission deadline: May 6, 2022

Evaluation results out: **May 20, 2022**

Participant & position paper submission deadline: May 27, 2022

Notification of acceptance for participant and position papers: **June 13, 2022**

Camera-ready participant papers submission: **July 1, 2022**

iDPP@CLEF 2022 Workshop: **September 5-8, 2022** during the CLEF Conference

Organizers

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More Information

Website: **www.brainteaser.health/open-evaluation-challenges/idpp-2022/**
Registration: **www.clef2022-labs-registration.dei.unipd.it/**
Participation guidelines: **www.brainteaser.dei.unipd.it/challenges/idpp2022/**

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