



eRisk 2022: PATHOLOGICAL GAMBLING, DEPRESSION, AND EATING DISORDER CHALLENGES

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Early detection technologies can be employed in different areas, particularly those related to **health and safety**. For instance, **early alerts** could be sent when a predator starts interacting with a child for sexual purposes, or when a potential offender starts publishing antisocial threats on a blog, forum or social network. Our main goal is to foster a **new interdisciplinary research area** that would be potentially applicable to a wide variety of situations and to many different personal profiles.

CLEF eRisk 2022

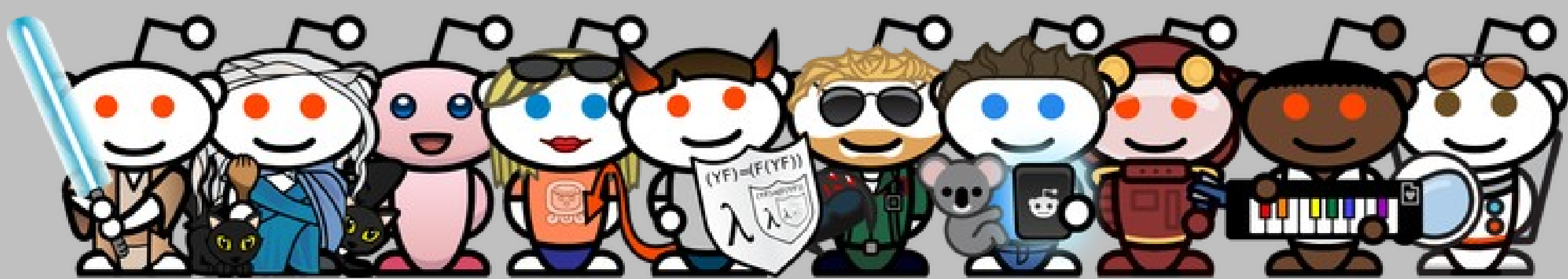
In 2022 we continued the 2021 task on **early risk** detection of **pathological gambling** (T1), and the 2018 task on **early risk** detection of **depression** (T2). These two challenges consist of **sequentially** processing pieces of evidence and detect **early traces of gambling/depression** as soon as possible. We use a REST server that gradually shows posts from the users to the participants. In this way, systems that effectively perform this task could be applied to sequentially monitor user interactions in blogs, social networks, or other types of online media. Moreover, we introduced a new third task on **severity estimation of eating disorders** (T3) where participant systems have to automatically fill a eating disorder screening questionnaire.

Datasets

Our collections are composed of chronologically sorted posts from a set of Social Media users.

- Two categories: subjects with and without **gambling addiction/depression** (with extraction method Coppersmith et al. ACL 2014).
- Every user is represented by a sequence of writings in **chronological order**.
- **Large history** of writings, often several years of text.
- Explicit mentions to diagnosis were removed.

For the **eating disorder scale** task, we provided with the **whole** user writing **history** of users (both diagnosed and not diagnosed) and the Eating Disorder Examination Questionnaire (EDE-Q).



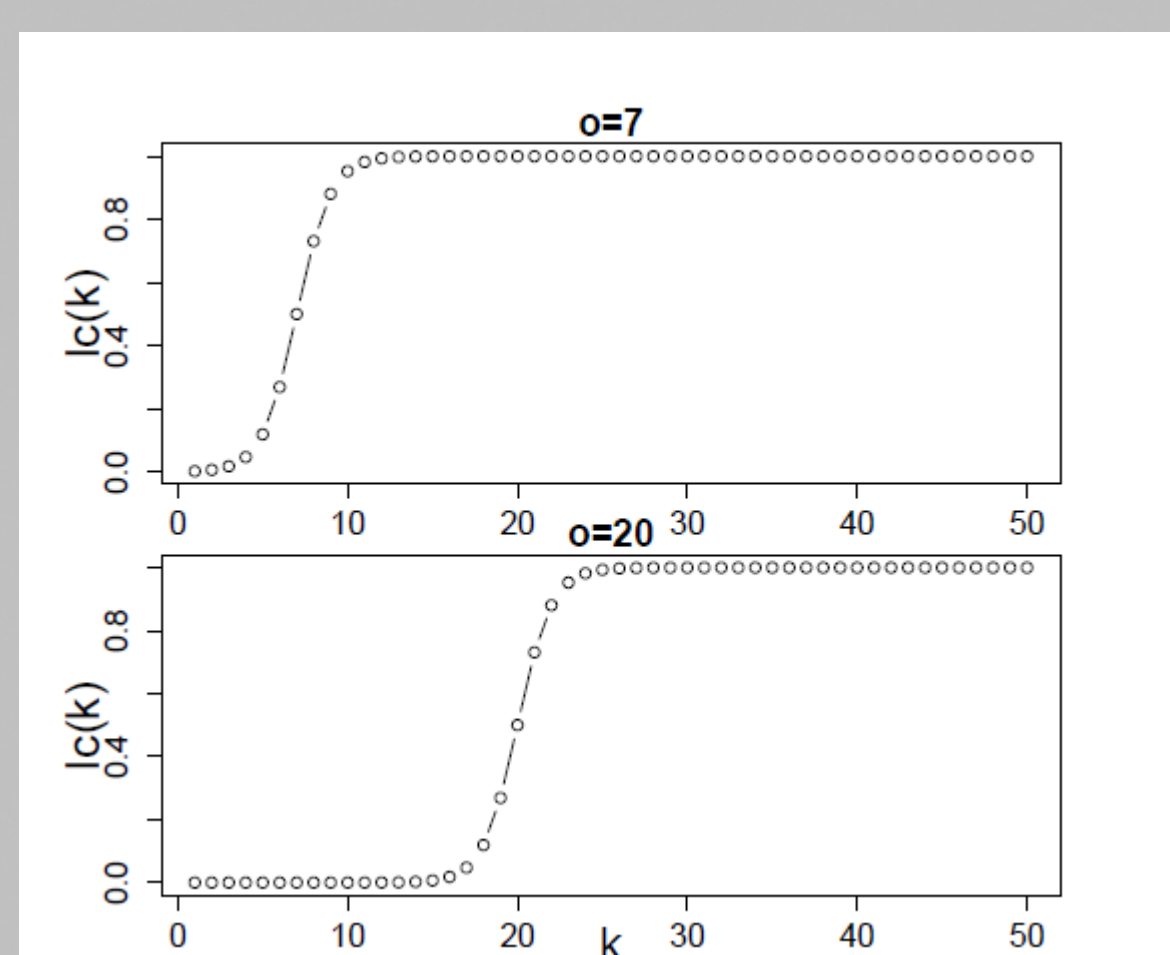
Early Alert Evaluation

The task objective is to detect **early risk** of depression/anorexia, the evaluation **metric** should not only take into account the accuracy of the decisions but also the **delay**.

- **ERDE**: Early Risk Detection Error (Losada & Crestani CLEF 2016) and its variant ERDE%:

$$ERDE_{\sigma}(d, k) = \begin{cases} C_{fp} & \text{(false positive)} \\ C_{fn} & \text{(false negative)} \\ C_{tp} * I_{\sigma}(k) & \text{(true positive)} \\ 0 & \text{(true negative)} \end{cases}$$

Penalty to late detections:



We also use ranking based metrics such as:

- MAP
- NDCG

Early Alert Tasks

T1 and T2 objective:

- Detect **early traces** of depression/anorexia for each subject, sequentially processing pieces of evidences (writing history).

At each sequence the teams have to decide for each subject:

- Possible case of **gambling addiction/depression (alert)**.
- No gambling addiction/depression.
- Estimated score of gambling addiction/depression

The sooner the alert is emitted the better.

- **T1 pathological gambling** training (eRisk 2021 collection) and test data (new data) with iterative release of user writings through a REST server.
- **T2 depression** training (eRisk 2017& 2018 collections) and test data (new data) with iterative release of user writings through a REST server.

T3: Depression-level estimation

T3 eating disorder severity estimation systems have to automatically fill the EDE-Q questionnaire based on user's writings.

ON HOW MANY OF THE PAST 28 DAYS ...		NO DAYS	1-5 DAYS	6-12 DAYS	13-15 DAYS	16-22 DAYS	23-27 DAYS	EVERY DAY
1	Have you been deliberately trying to limit the amount of food you eat to influence your shape or weight (whether or not you have succeeded)?	0	1	2	3	4	5	6
2	Have you gone for long periods of time (8 waking hours or more) without eating anything at all in order to influence your shape or weight?	0	1	2	3	4	5	6
3	Have you tried to exclude from your diet any foods that you like in order to influence your shape or weight (whether or not you have succeeded)?	0	1	2	3	4	5	6
4	Have you tried to follow definite rules regarding your eating (for example, a calorie limit) in order to influence your shape or weight (whether or not you have succeeded)?	0	1	2	3	4	5	6
5	Have you had a definite desire to have an empty stomach with the aim of influencing your shape or weight?	0	1	2	3	4	5	6

For each user, the participants, will receive a history of postings and the systems will have to fill the questionnaire (based on the evidence found in the history of postings).

Evaluation will be based on:

- **overlapping** between the questionnaire filled by the user and the questionnaire filled by the system
- **absolute difference** between the levels of eating disorder obtained from both questionnaires.