UNIVERSIDADE DA CORUÑA

Exploiting Pooling Methods for Building Datasets for Novel Tasks

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Overview

- **Test collections**, within the Crandfield paradigm, are the most widely used tools to evaluate new IR systems.
- They consist of a set of **documents**, **topics** and **relevance judgments** indicating which documents are relevant to those topics.
- The **quality** of the datasets is important, as they are used to compare the effectiveness of different retrieval models.
- **Objective:** build a platform to easily and cheaply build high-quality test collections to use in new appearing tasks.

Background

- Building test collections is **time and resource consuming** because it requires the work of human assessors.
- **Pooling strategies** can alleviate this cost, as they allow building larger test collections without the need of evaluate every document in the collection.
- In pooled collections only a **subset of the entire document set** –the pool– is assessed for relevance for every information need.
- It has been demonstrated that these strategies make the most of the assessor's work time.

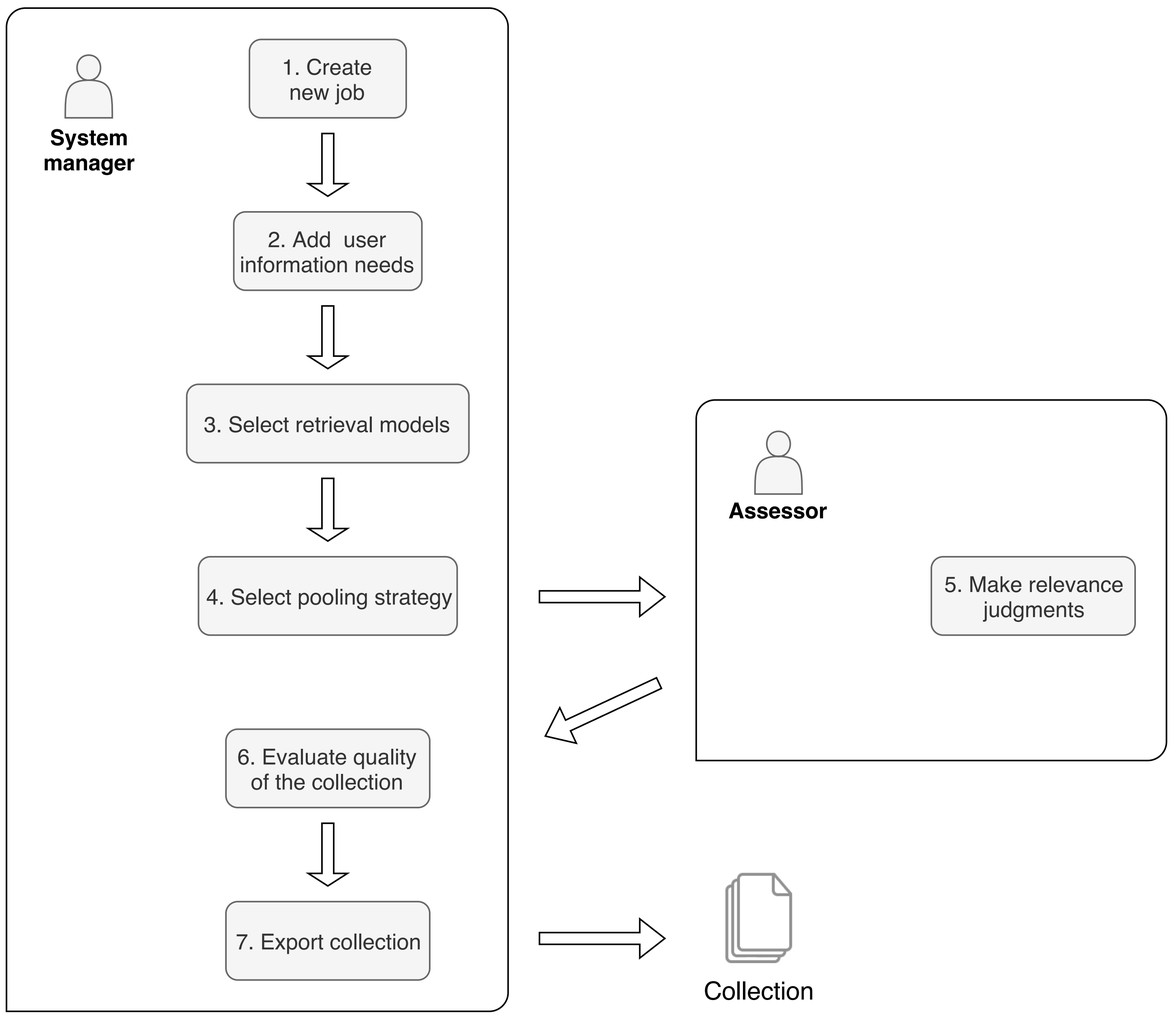
Proposal

- Platform with two roles: system manager and assessor.
- Instead of participant runs, use different **query variants and retrieval strategies**.
- Implement **state-of-the-art pooling methods** to make the most of the assessor's time.
- **Flexibility** in terms of adding new pooling strategies and new retrieval methods.
- Focus on the **evaluation** of the obtained collections.

Motivation

- Address the problem of building test collections at an affordable cost.
- Obtain relevance judgments without the need to use participant systems.
- Having judgments prior to competition.

Workflow



Pooling methods

Classic unbiased full pool assessment strategy:

- **DocID**. Documents in the pool are sorted by their identifier.

Algorithms that impose an order of evaluation intending to reduce the assessment effort:

- **MTF**. The systems are prioritized and the top document of the top prioritized system is assessed.
- **Multi-armed bandits**. A multi-armed bandit approach where each machine is represented by a run and playing a machine means examining the document supplied by it.
- **Hedge**. An on-line learning algorithm that was adapted for metasearch and pooling.

Conclusions and Future Work

- Obtaining human judgments is time and resource consuming.
- We designed a **flexible** platform in terms of adding new retrieval methods and pooling strategies.
- We want to investigate the quality of datasets built using the results of participant systems versus the collections built following this approach.

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