InnoClass AI

EPO Spring CodeFest 2025

Demonstrator available on:

https://innoclass.alkemata.com

username: epo

code: codechallenge25

Concept

A sustainable AI platform that classifies patents according to the 17 United Nations Sustainable Development Goals (SDGs).

Instead of optimising a single model in isolation, we built an end-to-end platform that automates **data extraction, model training, deployment and monitoring**. Key features include:

- **SDG demonstrator** – a working pipeline that tas patent texts with SDG labels and exposes the results through an API and a web application.

- **Carbon-footprint monitoring** – energy sensors (CarbonCode) track hardware usage, and the system defaults to CPU inference or off-the-shelf models to minimise GPU time.

- **Reproducible pipelines** – data and model workflows are orchestrated by *Dagster*, ensuring every run is logged, versioned and easy to rerun with new data or parameters.

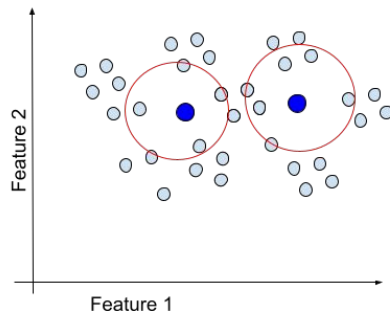# Principle: Semantic range search instead of standard classification

○ 1 point = 1 document   ● 1 point = 1 SDG label

Feature 2

Feature 1

Feature 2

Feature 1
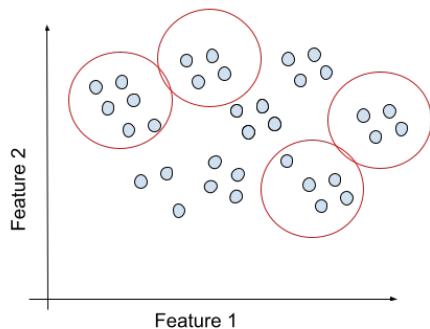
Standard classification

Semantic range search

Similar documents are grouped together but examples are required for training
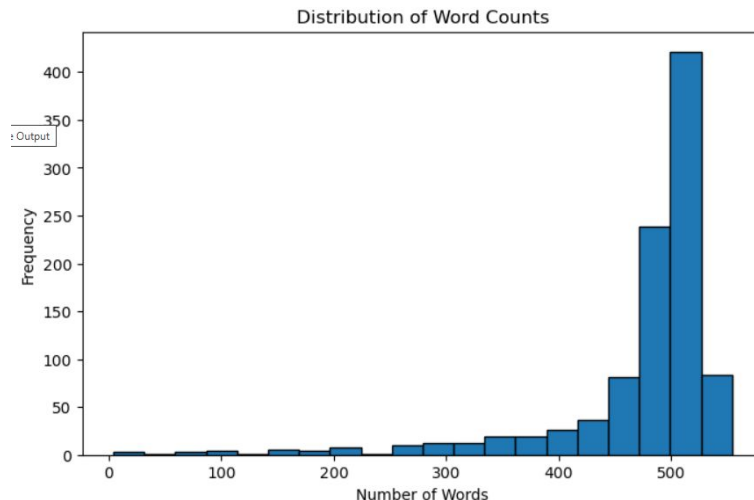
The label of the SDGs is used to find most similar documents: few-shots training easier

# Use the patents as structured documents

- Background section with classical vocabulary, short and located at the beginning of the documents.
- Extraction and classification carried out on this part

Distribution of Word Counts

As much as possible information is packed in a short paragraph used as input for the search engine.

Demonstrator:
Pipeline orchestrator to manage models and data
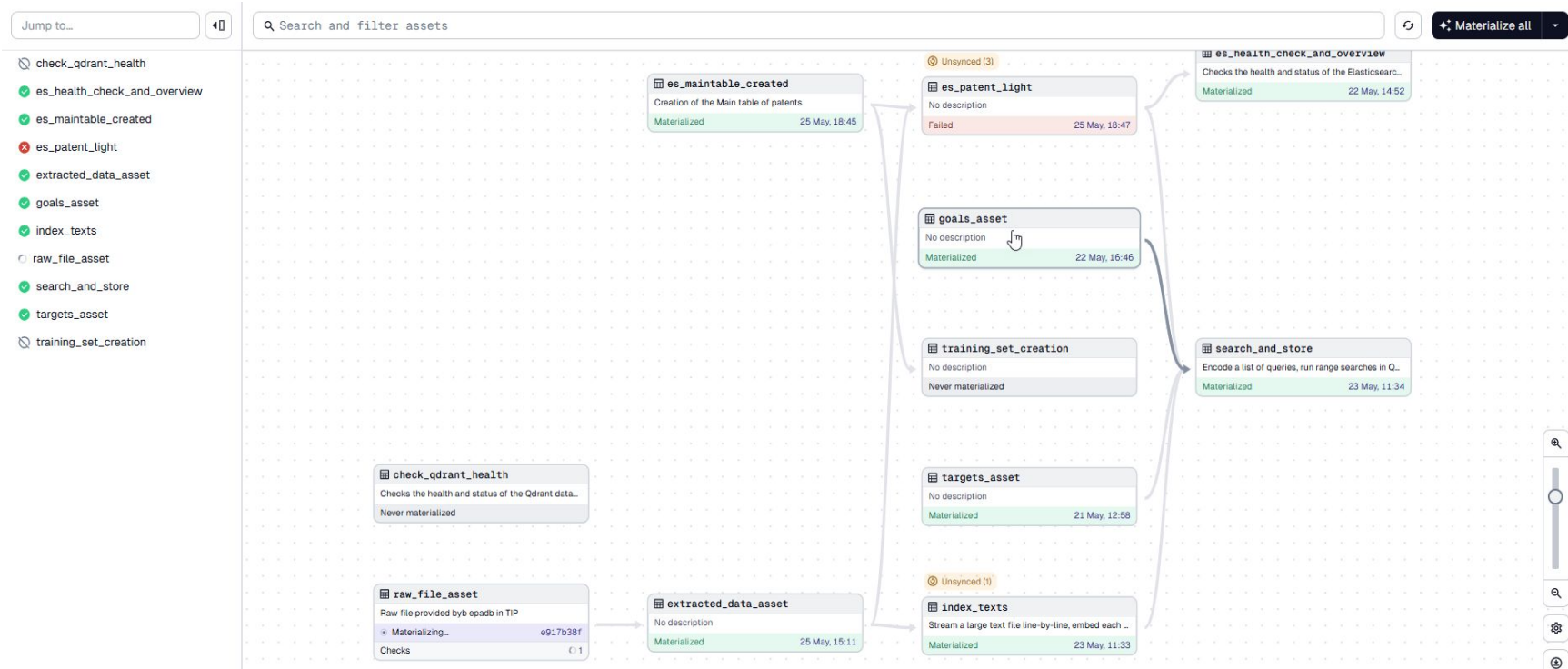
Demonstrator:
Web Application for SDG search

Total Hits: 5

Search SDGs

Select SDGs ▼

Enter Keywords (comma-separated)

SEARCH

Supported by an API server also accessible from TIP or external world

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METHOD AND SYSTEM FOR SUSTAINABLE DEVELOPMENT GOAL (SDG)
PERFORMANCE ASSESSMENT OF AN ENTERPRISE
Extracted Text: The disclosure herein generally relates to the field of performance assessment, and, more particularly,
to method and system for sustainable development goal performance assessment of an enterprise. S
SDGs: SDG1 (Score: 1.00), SDG2 (Score: 1.00), SDG3 (Score: 1.00), SDG4 (Score: 1.00), SDG5 (Score: 1.00), SDG6
(Score: 1.00), SDG7 (Score: 1.00), SDG8 (Score: 1.00), SDG9 (Score: 1.00), SDG11 (Score: 1.00), SDG13 (Score: 1.00),
SDG14 (Score: 1.00), SDG15 (Score: 1.00) | Targets: N/A
Up Votes: 0 | Down Votes: 0

↑ ↓

A COMPUTER-IMPLEMENTED MODEL FOR MEASURING AND REPORTING SOCIAL
IMPACTS OF SOCIAL ENTERPRISES
Extracted Text: The invention belongs to the field of data processing systems or methods, specially adapted for
financial, managerial, supervisory, and administrative purposes, more precisely to the field of data pro
SDGs: SDG1 (Score: 1.00), SDG2 (Score: 1.00), SDG3 (Score: 1.00), SDG4 (Score: 1.00), SDG5 (Score: 1.00), SDG6
(Score: 1.00), SDG7 (Score: 1.00), SDG8 (Score: 1.00), SDG11 (Score: 1.00), SDG12 (Score: 1.00), SDG13 (Score: 1.00),
SDG14 (Score: 1.00), SDG15 (Score: 1.00), SDG17 (Score: 1.00) | Targets: N/A
Up Votes: 0 | Down Votes: 0

↑ ↓

PERFORMANCE MEASURING SYSTEM MEASURING SUSTAINABLE DEVELOPMENT
RELEVANT PROPERTIES OF AN OBJECT, AND METHOD THEREOF
Extracted Text: Performance Measuring System Measuring Sustainable Development Relevant Properties Of An Object,
and Method Thereof Field of the Invention The present invention relates to performance measuring system
SDGs: SDG1 (Score: 1.00), SDG2 (Score: 1.00), SDG3 (Score: 1.00), SDG4 (Score: 1.00), SDG5 (Score: 1.00), SDG7
(Score: 1.00), SDG8 (Score: 1.00), SDG9 (Score: 1.00), SDG10 (Score: 1.00), SDG11 (Score: 1.00), SDG13 (Score: 1.00),
SDG17 (Score: 1.00), SDG121 (Score: 1.00) | Targets: N/A
Up Votes: 0 | Down Votes: 0

↑ ↓

Demonstrator:
Feedback tool to improve the quality of the classification

InnoClass   Menu

Filter by Validation   Filter by Reference
Not Validated ▼   Show All ▼   APPLY FILTERS & FETCH FIRST   ←   Item 1 of 185   →

CROWDFUNDING 4.0: A NOVEL INFLUENCE-BASED GLOBAL FUNDRAISING PLATFORM AND SYSTEM

TECHNICAL FIELD This disclosure relates generally to the field of crowdfunding. Specifically it relates to a decentralized computer-enabled system of crowdfunding of projects. More specifically it relates to a new generation of crowdfunding system that does not involve cash investments in any form of fiat currency or crytocurrency, but exclusively uses influence of peers to fund projects of all scales ranging from funding small scale enterprises to mobilizing Trillions of unutilized impact investing opportunities in UN's Sustainable Development Goals and other sustainable infrastructure projects such as China's multi-Trillion Belt & Road Initiative. COPYRIGHT AND TRADEMARK NOTICE A portion of the disclosure of this patent application may contain material that is subject to copyright protection. The owner has no objection to the facsimile reproduction by anyone of the patent document or the patent disclosure, as it appears in the Patent and Trademark Office patent file or records, but otherwise reserves all copyrights whatsoever. Certain marks referenced herein may be common law or registered trademarks of third parties affiliated or unaffiliated with the applicant or the assignee. Use of these marks is by way of example and should not be construed as descriptive or to limit the scope of this invention to material associated only such marks. BACKGROUND OF THE INVENTION Oxford dictionary defines crowdfunding as"the practice of funding a project or venture by raising money from a large number of people who each contribute a relatively small amount, typically via the Internet." Since the birth of modem crowdfunding platforms in 2008-2009, technology has rapidly evolved from the first generation rewards, donations, debt based crowdfunding to equity and token-based ICOs: 1. Crowdfunding 1.0: Rewards, donation, debt based crowdfunding 2. Crowdfunding 2.0: Equjiy based crowdfunding 3. Crowdfunding 3.0: Token-based Initial Coin Offerings In rewards-based crowdfunding, backers contribute small amounts of money ranging between $1 and $1,000 or sometimes more in exchange for a reward. This reward is often, but not always, the item being produced, such as a gadget, an album or a film. In donation-based crowdfimding, donors generally donate small amounts ranging between $1 and $1,000 or sometimes more. In most donation-based crowdfimding, the reward is usually the gratitude of the project creator or beneficiary. The money is raised for a charity or a cause by a non-profit initiative. In debt-crowdfunding, it's not"backers" or"donors" who give money, but lenders who may also be called as investors. It's not an exchange for a reward, but instead investors make a loan with the expectation to get paid back the principal plus interest. Crowdfunding 2.0: In equity-crowdfimding, investors give larger amounts of money in exchange for a small piece of equity in the company itself to fund or the launch or growth of a company. Crowdfunding 3.0: An initial coin offering or an initial token offering is a brand new type of crowd funding that became a craze amongst blockchain/cryptocurrency startups in 2017 raising over $6 billion, although half of them eventually

Sustainable Development Goals (SDGs)

Select	SDG
☐	SDG1: No Poverty
☐	SDG2: Zero Hunger
☐	SDG3: Good Health and Well-being
☐	SDG4: Quality Education
☐	SDG5: Gender Equality
☐	SDG6: Clean Water and Sanitation

User feedback

Finetuning of model

--- Starting Model Fine-tuning ---
Error displaying widget: model not found

[3706/3706 32:44, Epoch 1/1]

Step	Training Loss	Validation Loss	Sts-dev Pearson Cosine	Sts-dev Spearman Cosine
1000	0.087200	No log	0.820134	0.791458
2000	0.073700	No log	0.845762	0.808162
3000	0.069800	No log	0.855036	0.814432
3706	0.072200	No log	0.858982	0.817386

Model fine-tuning complete. Model saved to 'output/sbert_finetuned_sdg'.