

The **Ensemble Prediction Engine** classifies unlabelled research: yields an average F1 score of **79%** for SDG classification and an average weighted F1 score of **84.5%** for subsequent target association.

The deployed **Search Engine** enables relevant filtering functionality within annotated research articles.

South African SDG Hub

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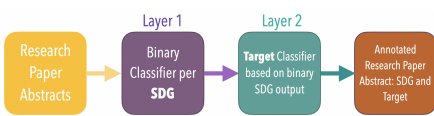
1 Background



A prediction and search platform project was launched to associate research articles to relevant SDGs and subsequent targets.

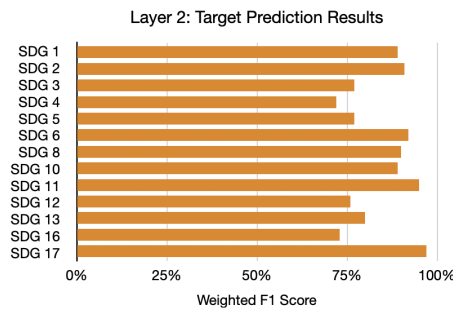
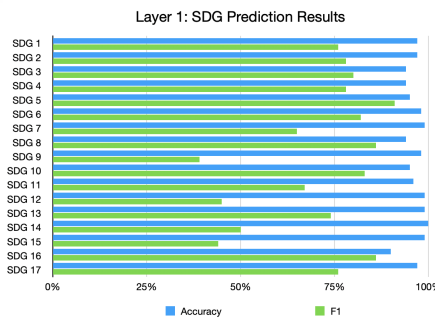
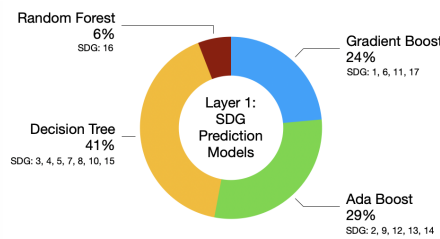
Aim is to provide tools which help measure and support development progress within South Africa.

2 Modelling



- Annotated training data was manually labelled by subject experts
- Various supervised techniques were compared to identify the best performing for individual SDG and subsequent target classification.

3 Results



Note:

- The decision tree algorithm was selected as a global optimum for target classification
- Target prediction for SDGs 7, 9, 14, and 15 deemed infeasible due to unbalanced data

Deployment Interface

- Prediction Engine - user input singular research abstract to predict SDG and targets
- Search Engine - user to filter research on SDG and target

South African SDG Prediction Engine

Insert Abstract Here
c) risk of possible adverse impacts that the Economic Partnership Agreement (EPA), which is

Please be patient, this will take some time...

SDG Predictions

SDG_Prediction = 1 : abstract is associated to the specific SDG
SDG_Prediction = 0 : abstract is associated to the specific SDG

SDG1 Predictions

abstract SDG_Prediction
0 risk possible adverse ... 0

Predict SDG 1 Target

Target_Prediction
0

2.1

2.1

2.1

South African SDG Hub Search Engine

Ensure that target is properly notated, eg. 3.2 or 5.a

What SDG would you like to search?

SDG3

Have a look at the abstracts related to SDG3

The number of associated abstracts are: 9508

abstract	target
4 Implement effective measures to ...	['3.2']
13 The State party should: (a) Ensu...	['3.8']
16 Put in place comprehensive and e...	['3.7', '5.4']
25 45. The Committee recommends th...	['3.4']
58 Right to health (art. 25) 75. Th...	['3.8']
60 2) The Committee draws the atten...	['3.3', '3.7', '4.5', '5.1', ...]
69 Ensure the effective implementat...	['3.8']
83 Continue implementing the recom...	['17.9', '3.3']
91 60. In the light of its general ...	['1.2', '3.1', '3.4', '3.7', ...]
101 Sexual exploitation and abuse 29...	['16.2', '16.3', '17.18', '3...]
106 Continue efforts to promote the ...	['3.1']

Insert Further Target filter

3.2

The number of associated abstracts are: 720

abstract	target
4 Implement effective measures to ...	['3.2']
382 w) successful establishment, in ...	['2.2', '3.1', '3.2', '3.3', ...]
487 Adopt a comprehensive approach t...	['3.1', '3.2', '6.1', '6.2']
577 Education and health 39.The Comm...	['1.4', '10.3', '11.1', '3.1', ...]
615 Further promote prenatal care an...	['3.1', '3.2']
719 n) efforts at policy and practic...	['10.3', '3.2', '3.3', '3.8', ...]
868 Health and health services 48.8th...	['1.4', '11.1', '3.1', '3.2', ...]
882 Strengthen its efforts to close ...	['9.1', '3.2']
932 c) while noting that some progr...	['2.2', '3.1', '3.2']
1122 Health 38. Recalling its previou...	['16.2', '3.1', '3.2', '3.3', ...]
1425 w) the various measures undertak...	['2.2', '3.2', '3.5', '3.c']

Project Next Steps:

- Improve holistic SDG representation
- Incorporate cross-validation training
- Expand prediction engine to accept multiple abstracts



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Capstone Project - MIT 808

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