

Make a tangible positive impact on how the government will develop & implement policies that will accelerate sustainable development.

Using AI to predict Sustainable Development Goals(SDG) Goals and Targets

Retshidisitswe Lehata, Carel Nchachi

1 Intro

- There are 17 SDGs, which have 169 overall targets.
- SDGs are used to accelerate sustainable development within the country, by assisting the creation and implementation of policies.

2 Methods

- Data collected by the SAS-DGHUB (2017 - 2020).
- The abstracts were used as inputs for the SDG Goals and Targets classification models.
- **Feature Selection:** TF-IDF Vectorization.
- **Classification:** Logistic Regression, NN, CNN, SVM.
- **Validation:** Cross-Validation and external data sample.

3 Results

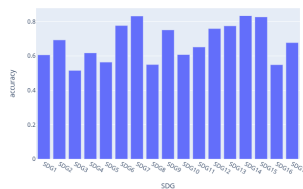
SDG Goals Model Accuracy

- Logistic Regression - 95%
- SVM - 97.08%
- CNN - 87.66%

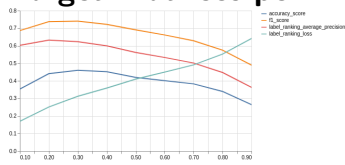
SDG Targets Model Accuracy

- Logistic Regression - 46%, (0.25 threshold)
- NN - 48.9%, (0.5 threshold)
- CNN - 55%, (0.9 threshold)

Model Accuracy per Goal



Target Matrices per Threshold



Extra figures

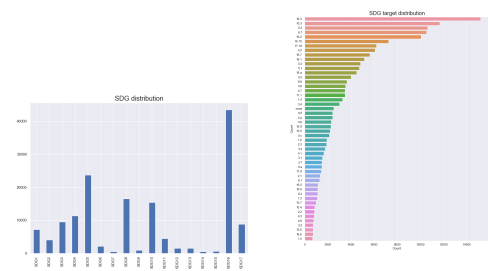
SDG Goals Models

- Logistic regression model- The only parameter set was $C = 1e9$.
- Linear SVM with a $C = 1$
- Convolutional Neural Network - Layers: Input, Embedding, Dropout, Conv1D, Max-Pooling1D, LSTM, Dense

SDG Targets Models

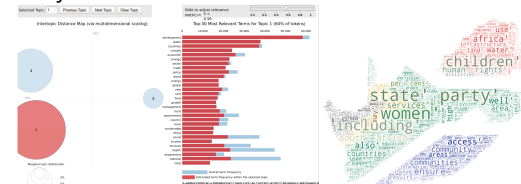
- Logistic regression model - The only parameter set was the saga solver.
- Neural Network - Layer: Input, Embedding, Dense
- Convolutional Neural Network - Layers: Input, Embedding, Dropout, Conv1D, Global-MaxPooling1D, Dense

Data Distribution of SDG Goals & Targets



- Overall skewed data distribution.
- Uneven classes for model classification.
- Slight overlap in SDG Goals and Targets.

Analysis of the Abstracts



Department of Computer Science

Faculty of Engineering,
Built Environment and
Information Technology

Fakulteit Ingenieurswese, Bou-omgewing en
Inligtingtegnologie / Lefapha la Boetsenere,
Tikologo ya Kago le Theknolotisi ya Tshedimošo

Capstone Project - MIT 808

Course Coordinators:
Dr. Vukosi Marivate (vukosi.marivate@cs.up.ac.za)
Abiodun Modupe (abiodun.modupe@cs.up.ac.za)

Scan me

