PATENT EVALUATOR

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ROWAN
TECHNOLOGY ENABLED LEGAL SERVICES

I. Sponsor Background

ROWAN
TECHNOLOGY ENABLED LEGAL SERVICES

Rowan TELS provides technology-enabled services to help corporations & law firms navigate complex legal problems.
Rowan focuses on three major areas: **patents, anti-counterfeit,** and **legal management consulting.**

II. Problem Background

Time Consuming   **High Costs**   **Exhausting Process**

The current patent documentation process is an expensive and time consuming process.

III. Project Objective

Evaluate and predict if patent method claims (see example below) will be rejected using Natural Language Processing and machine learning models.

1. A device for monitoring food consumption comprising:

a wearable device that is configured to be worn on a person's wrist, hand, finger, arm, neck, and/or head;

a wearable sensor that is part of the wearable device; wherein this wearable sensor automatically collects primary data that is used to detect an eating event; and wherein the wearable sensor is an impedance sensor which automatically collects data concerning electromagnetic energy emitted transmitted through the person's body or a spectroscopic sensor which automatically collects data concerning light energy reflected from the person's body or absorbed by the person's body;

IV. Methodology

The provided dataset focused on patent method claims, which focuses on specific processes that are to be patented.

Data Pre-processing
The data provided to the team included dependent and independent patent method claim description and rejection classification.

Vectorization
The method claim text corpus was tokenized (breaking streams of text into elements/tokens)

Lemmatization/Stemming
Words were reduced to the base/root word. This step removes derivational affixes in the text corpus.

Exploratory Data Analysis
Team analysed the data using visualizations such as word clouds and statistic techniques

Model Building
We experimented with different models such as **Naïve Bayes, Logistic Regression, Convolutional Neural Network.** We also applied **Google's BERT** model to achieve accurate patent classification.

Model Evaluation
Using F1 score metric we analysed how precise and robust our classifier is.

V. Business Outcome

High accuracy in predicting method claims that have high chances of being rejected

Reduction in the guesswork of the method claim in patent application

Reduction in patent documentation effort and expense.

VI. Technology Stack & Libraries

Python · Jupyter · CO · learn · NLTK · K + TensorFlow · plotly · Google BERT · SciPy

Information School
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