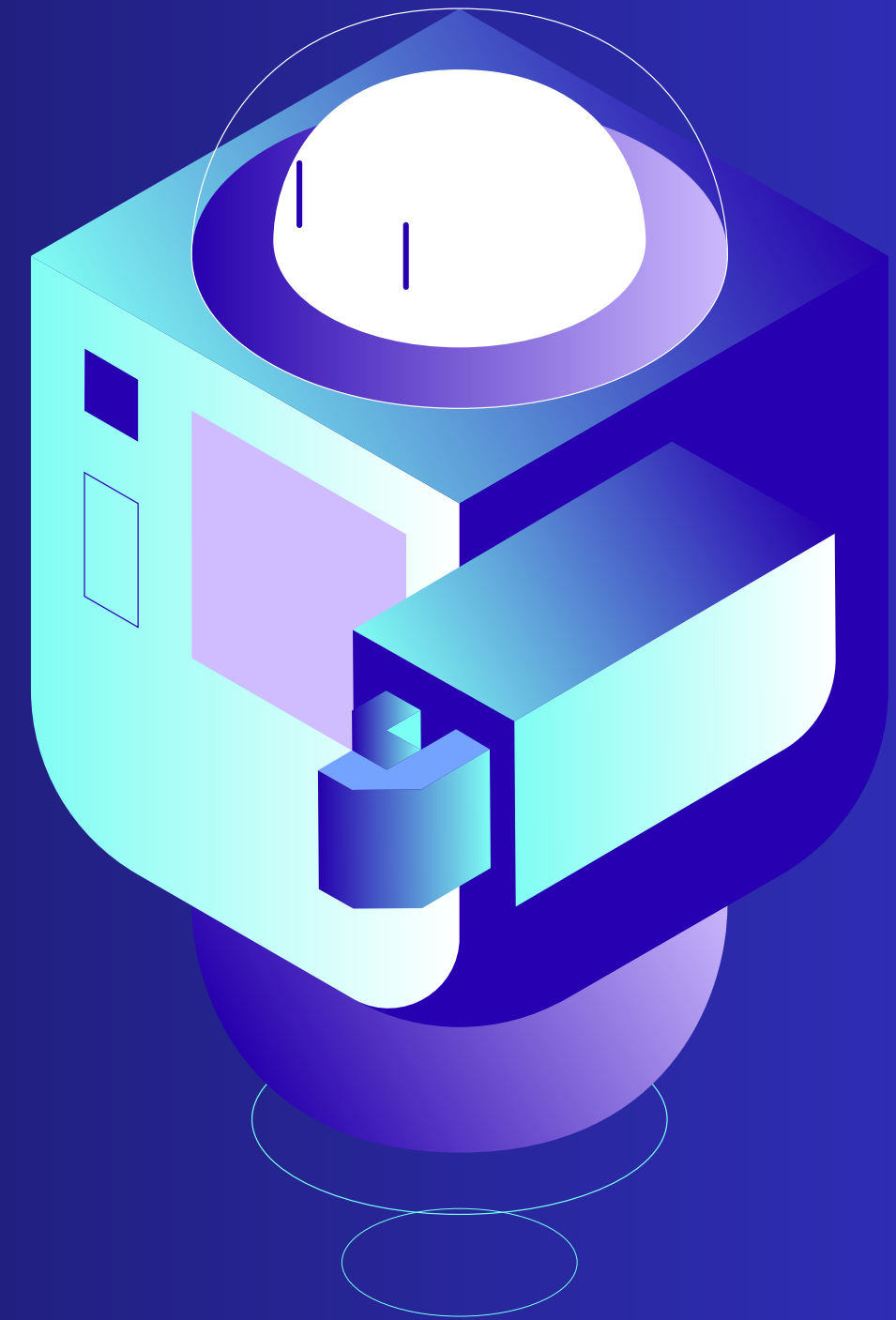




AI-POWERED NEWS SUMMARIZER

Saud Al-Mutawa





PROJECT OVERVIEW:

A complete text summarization system built using the T5-small Transformer model, featuring data preprocessing, EDA, fine-tuning on the CNN/DailyMail dataset, and real-time deployment through a Gradio interface.

GOAL:

The goal is to build a high-quality, efficient, and user-friendly summarization pipeline capable of generating accurate and concise summaries from lengthy news articles using state-of-the-art Transformer-based techniques.



DATASET OVERVIEW

CNN/DAILYMAIL DATASET

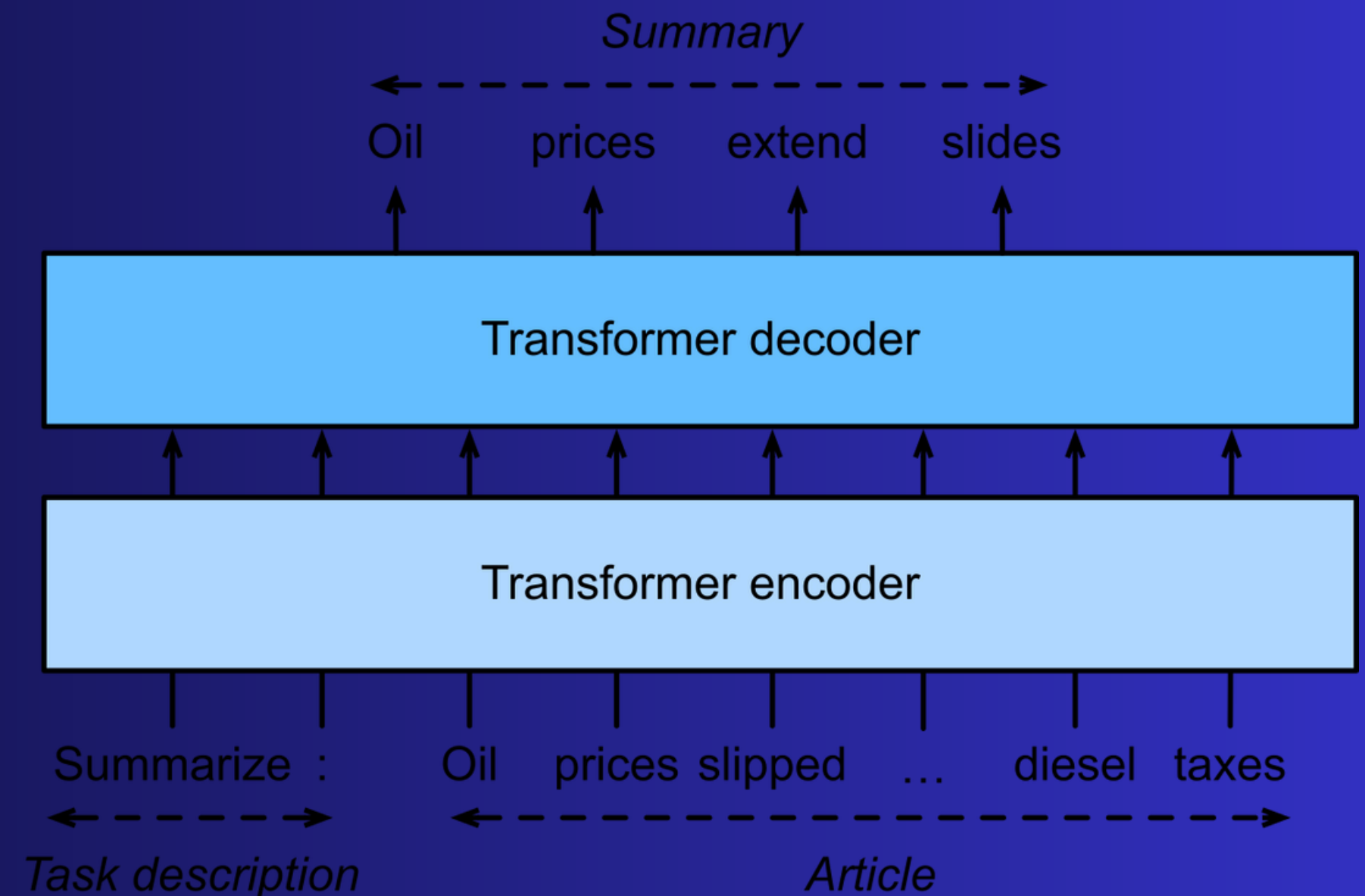
Source	CNN and Daily Mail news websites
Language	English
Size	~300,000 articles



T5 Model Architecture

T5 Properties

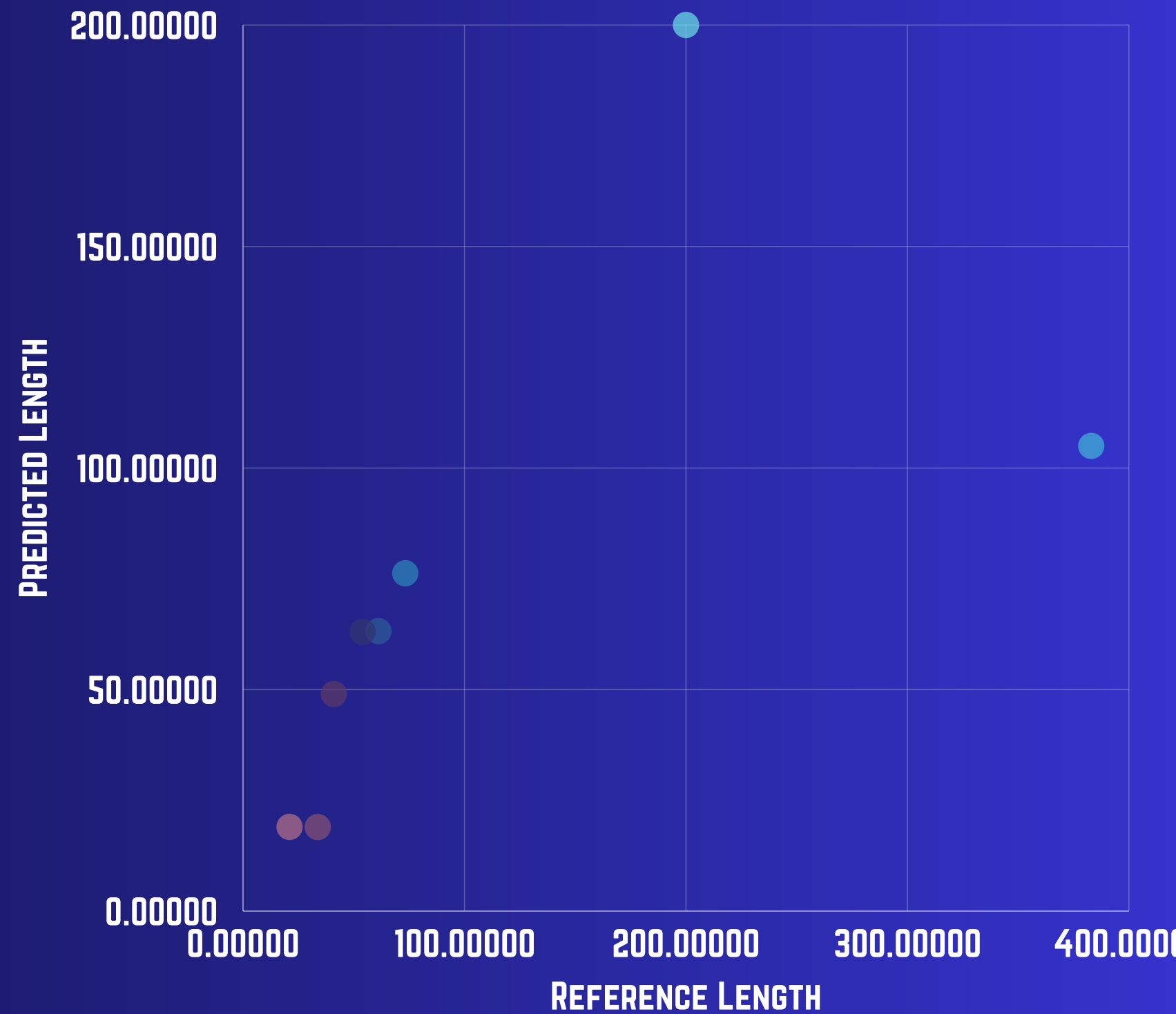
Encoder layers	6
Decoder Layers	6
Attention Heads	8
Feed-Forward Layer Dimension	2048

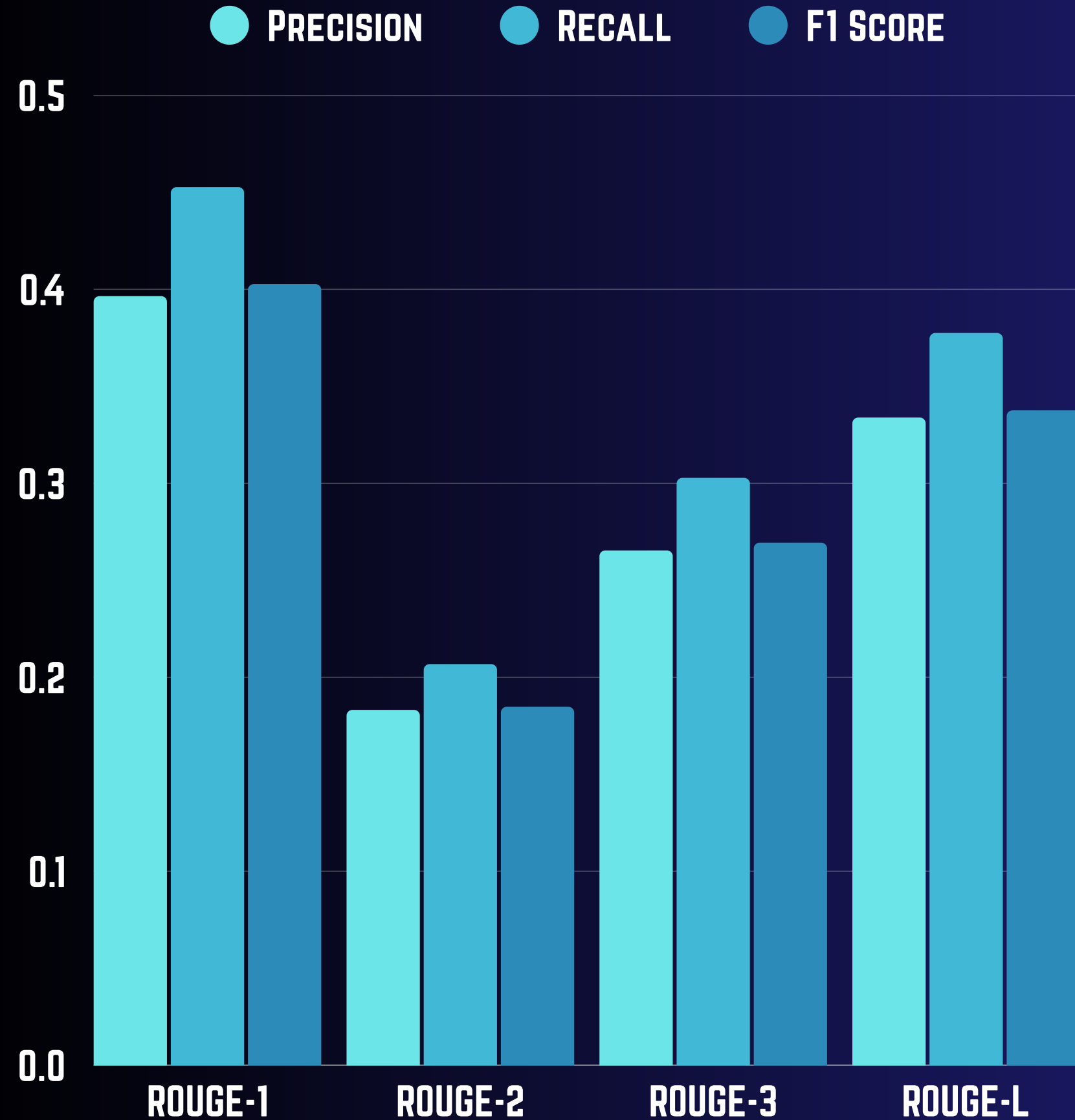




RESULTS

Metric	Reference Length	Predicted Length	Compression Ratio
Count	200.00	200.00	200.00
Mean	61.16	63.19	1.19
Std	33.75	18.97	0.51
Min	21.00	19.00	0.16
0.25	41.00	49.00	0.79
0.50	54.00	63.00	1.11
0.75	73.25	76.25	1.52
Max	383.00	105.00	2.52





EVALUATION

ROGUE \approx 0.3 is considered moderate. I had to limit the maximum length of prediction to 128 tokens because of Google Colab Limitations.

The Summarization model demonstrates moderate effectiveness. ROUGE-1 and ROUGE-L scores indicate decent coverage and fluency in capturing key ideas. However, lower ROUGE-2 and ROUGE-3 scores reflect limited ability to preserve multi-word sequences. Precision and recall suggest room for improvement in both relevance and completeness of the generated summaries.



DEPLOYMENT

I used Gradio to deploy my summarization project because it provides a simple, interactive interface for users to input text and instantly view the generated summary. This is especially helpful for demonstrating the model’s capabilities in real-time, collecting feedback, and making the tool accessible without needing technical knowledge or a local environment. Gradio also supports easy integration with Hugging Face, Colab, and sharing via public links, making it ideal for presenting ML projects effectively.

T5-Small News Summarizer

Summarize articles using your custom fine-tuned T5 model. Tweak the input length, output length, and beam width to control generation.

Input Article

Title: Global Efforts Intensify as Climate Crisis Drives Extreme Weather Worldwide

Date: June 24, 2025

By: Laura Chen, Global News Network

Geneva, Switzerland – In the wake of record-breaking heatwaves, catastrophic floods, and prolonged droughts across multiple continents, global leaders and climate scientists are issuing urgent calls for accelerated climate action.

The World Meteorological Organization (WMO) released a report on Tuesday confirming that the past 12 months have been the hottest on record, with average global temperatures exceeding the pre-industrial baseline by 1.5°C. This threshold, long considered a red line by the scientific community, signals a heightened risk of irreversible climate tipping points.

"This is not a future scenario. The climate crisis is now," said WMO Secretary-General Petteri Taalas. "We are seeing the consequences in real-time—rising sea levels, melting glaciers, and the increased intensity of storms and wildfires."

In South Asia, monsoon rains triggered deadly floods in Bangladesh and northern India, displacing over three million people. Meanwhile, in the Western United States, a combination of heat and drought has led to one of the most destructive wildfire seasons on record, with over 12 million acres burned so far.

To address the United Nations is convening a special climate summit next month in Nairobi, aimed at fast-tracking the

Generated Summary

The past 12 months have been the hottest on record, with average global temperatures exceeding the pre-industrial baseline by 1.5°C. This threshold signals a heightened risk of irreversible climate tipping points, says WMO Secretary-General Petteri Taalas. In South Asia, monsoon rains triggered deadly floods in Bangladesh and northern India, displacing over three million people.

Flag

Max Input Length

128 1024

Max Summary Length

32 256

Beam Width

1 8

Clear

Submit

Use via API · Built with Gradio · Settings

THANK YOU

