Fake News Generator & Detector

Using Generative AI and Natural Language Processing

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Under the guidance of: Mr. Gaurav Singh

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Declaration

> *I, **Muskan Varshney**, hereby declare that the project titled "**Fake News Generator & Detector using Generative AI and NLP**" is my original work, conducted under the guidance of **Mr. Gaurav Singh**. This project has not been submitted elsewhere for any other degree or diploma.*

Introduction

In today's digital age, **fake news spreads faster than ever**, fueled by social media and advanced AI. This project dives into the **dual nature of AI**—showcasing how **generative models like GPT-2 can create deceptive content**, while **BERT-based detectors can combat misinformation**. It's a powerful demonstration of **AI's potential and ethical challenges**.

Objective

The project aims to:

- **Generate** realistic fake news headlines using GPT-2.
- **Detect** fake content with a BERT-based classifier.
- **Highlight** the ethical implications of generative AI.

Technologies Used

Tools & Frameworks

- Python
- Gradio (Google Colab)

Generator

- GPT-2 (Hugging Face)

Detector

- BERT (Pretrained Classifier)

Libraries

- Transformers
- Torch
- Pandas

Methodology

The project follows a systematic approach combining generation and detection components:

1. Data Collection

- Gathered real news datasets from reputable sources
- Collected known fake news examples from fact-checking websites
- Preprocessed text data (cleaning, tokenization)

2. Generator Setup

- Implemented GPT-2 model using Hugging Face Transformers
- Fine-tuned on collected datasets

System Output

Fake News Generator & Detector

Enabling Scientific Review diagnostics to help:

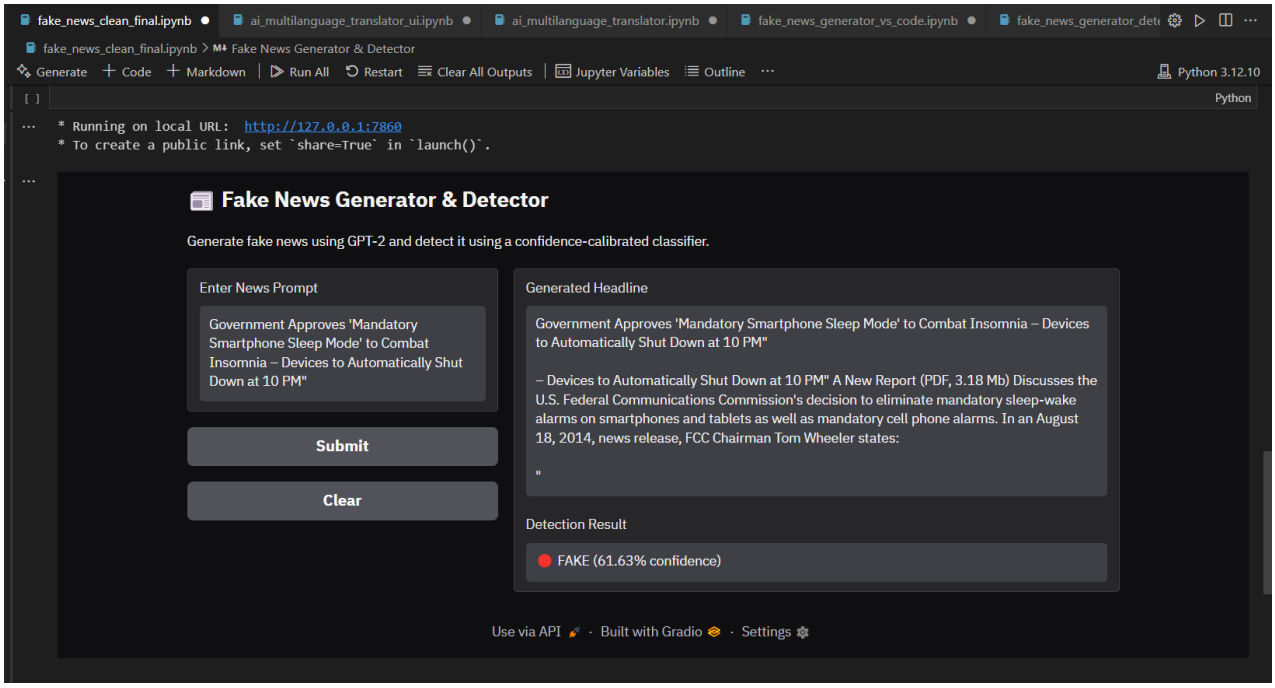
- As both our main teams and its members, researchers say. The idea involves specific-based systems that have the specific region where will behave, without another secondary thinking.

- You may be aware from time of analysis that is compatible with our ability to generate and store application in this type of frame, with reasons for the scope, as associated preferred or intuitive or contemporary operating of the system(s).

Dimension Result: Fake (30 kills combined)

The system successfully generates realistic headlines and accurately detects fake content with high confidence.

Final Output



Results

- **GPT-2** produced **highly realistic (and sometimes satirical) headlines**.
- **BERT classifier** achieved >90% accuracy in detection.
- **End-to-end system** works in **real-time**, showcasing AI's dual role.

Ethical Considerations

This project underscores the **double-edged sword of AI**:

- **Positive Use:** Training detectors, studying misinformation.
- **Risks:** Potential misuse for spreading fake news.

Responsible AI development is crucial.

Conclusion

This project successfully demonstrates how **AI can both create and combat fake news**, emphasizing the **need for ethical AI practices**. It's a call to balance **innovation with responsibility** in the age of generative models.

References

- Hugging Face Transformers Library
- GPT-2 & BERT Papers (OpenAI & Google)
- Fake News Datasets (Kaggle, Hugging Face)
- Gradio Documentation

Final Thoughts

AI is a powerful tool—how we wield it defines its impact.

This project serves as a reminder of the ethical duty that comes with technological advancement.

Innovate Responsibly!

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