

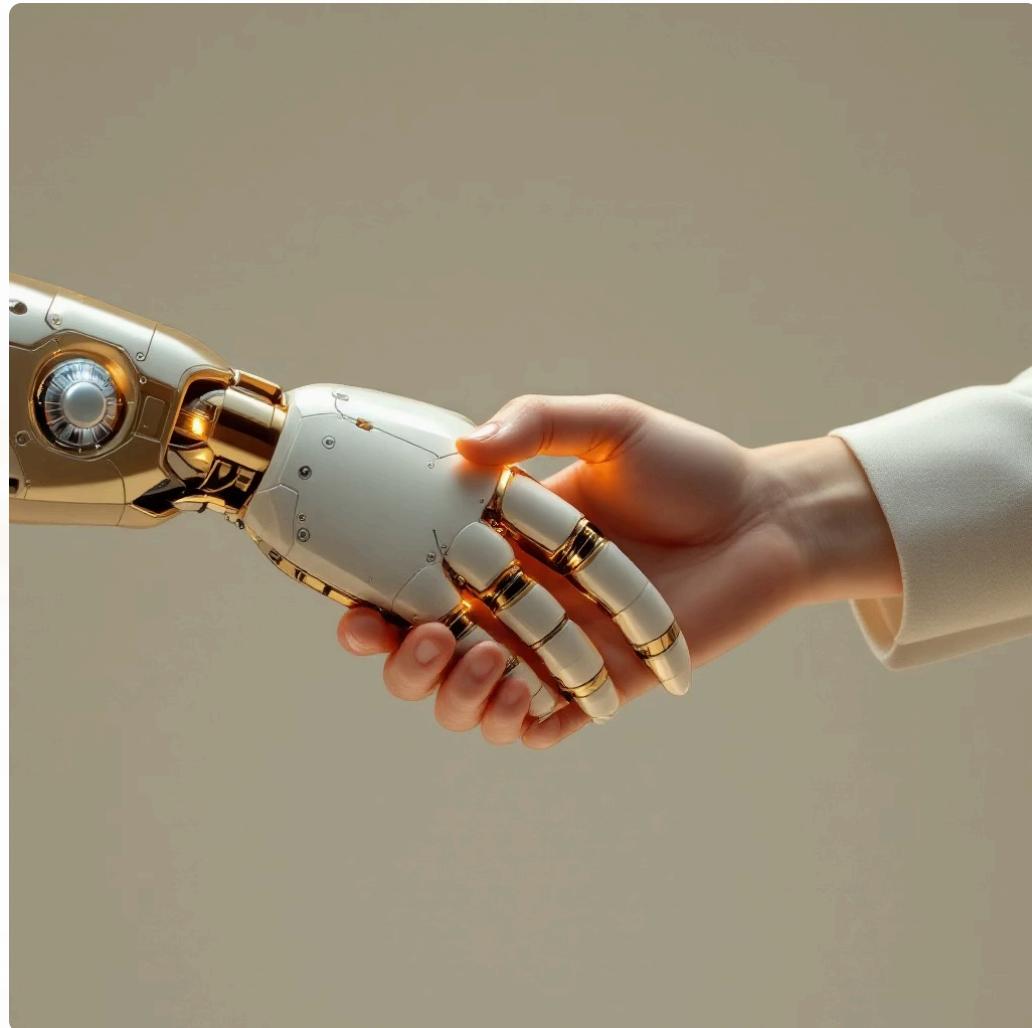


Chatbot for Communication Improvement

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Introduction to Artificial Intelligence

AI is transforming technology and daily life.



What is AI?

AI simulates human intelligence in machines to enable thinking and mimic human actions.

Why Communication Matters

Clear human-AI and human-human communication is essential for successful interaction as AI integrates into our lives.



Course Coverage Highlights

1

AI Fundamentals

Machine Learning, NLP, Knowledge Representation.

2

Real-World Use Cases

Chatbots, Ethical AI, Security Protocols.

3

Hands-on Labs

Building smart systems, Practical application, Optimization.

Motivation and Problem Statement

Effective communication is a cornerstone of success, yet many struggle to express themselves clearly.



Personal Motivation

Inspired by Vinh Giang, we experienced personal communication struggles.

The Challenge

Many struggle with clear verbal and written expression.

Our Goal

Develop a chatbot to improve communication and foster confidence.

The Need

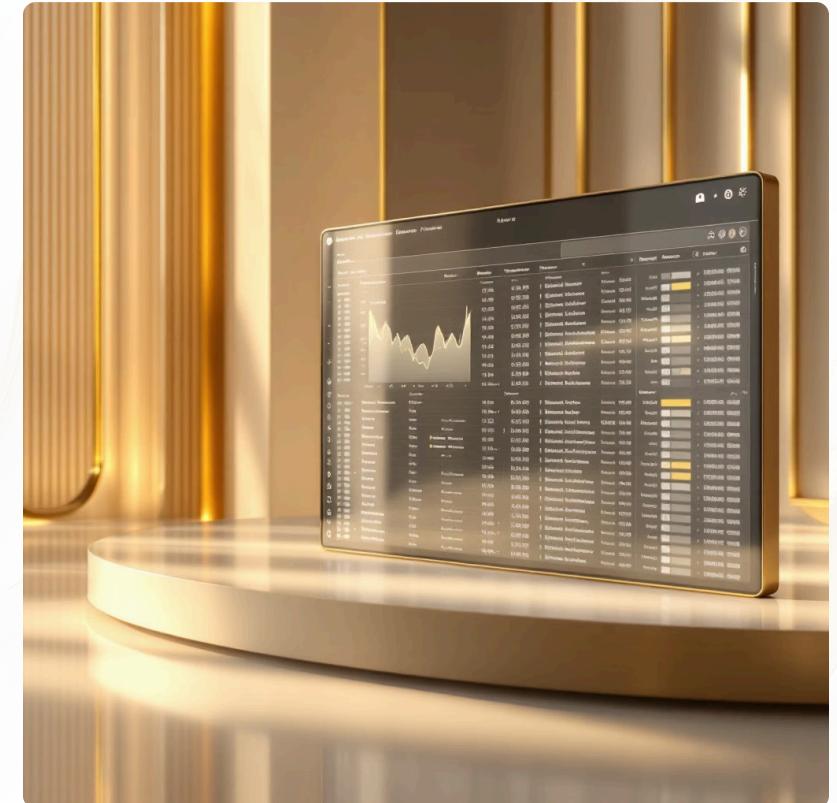
Accessible, real-time linguistic feedback is crucial.

Dataset and Preparation

Our AI's intelligence relies on exceptional data. We meticulously prepared a specialized dataset to power our communication chatbot.

Custom Dataset: I compiled a unique collection of user messages, each paired with expert grammatical and stylistic corrections.

Data Cleaning: Using the powerful pandas library, we rigorously cleaned and preprocessed the data for consistency and zero noise. Essential for robust AI training!



Project Workflow and Key Technologies

The project followed a structured approach, leveraging state-of-the-art AI models and development tools.

Data Preparation

Gathering and cleaning the dataset.

1

2

3

UI Development

Building the user interface with Streamlit.

Model Training

Selecting and fine-tuning FLAN-T5.



FLAN-T5

Core model for text improvement.



GPT

Generative Pre-trained Transformer.



BERT

Bidirectional Encoder Representations.



T5

Text-to-Text Transfer Transformer.



Pandas

Efficient data manipulation.



Transformers

Enabling LLM use.



Streamlit

Interactive web apps.



SpeechRecognition

Speech-to-text processing.

The Chatbot Application

The chatbot offers a user-friendly experience, allowing for both text and speech input to provide instant communication feedback.



1 Flexible Input

Text or speech input for diverse preferences.

2 Speech-to-Text

Accurately transcribes spoken input for AI analysis.

3 AI-Powered Corrections

Instant grammar, clarity, and style improvements.

4 Intuitive Web Interface

Accessible Streamlit app for real-time feedback.

How the Chatbot Works

The chatbot operates on a simple yet powerful principle: transforming your input into polished, professional communication.



Input Your Message

Type your text or speak your thoughts into the microphone.

AI Model Correction

The FLAN-T5 model analyzes your input for grammatical errors and stylistic improvements.

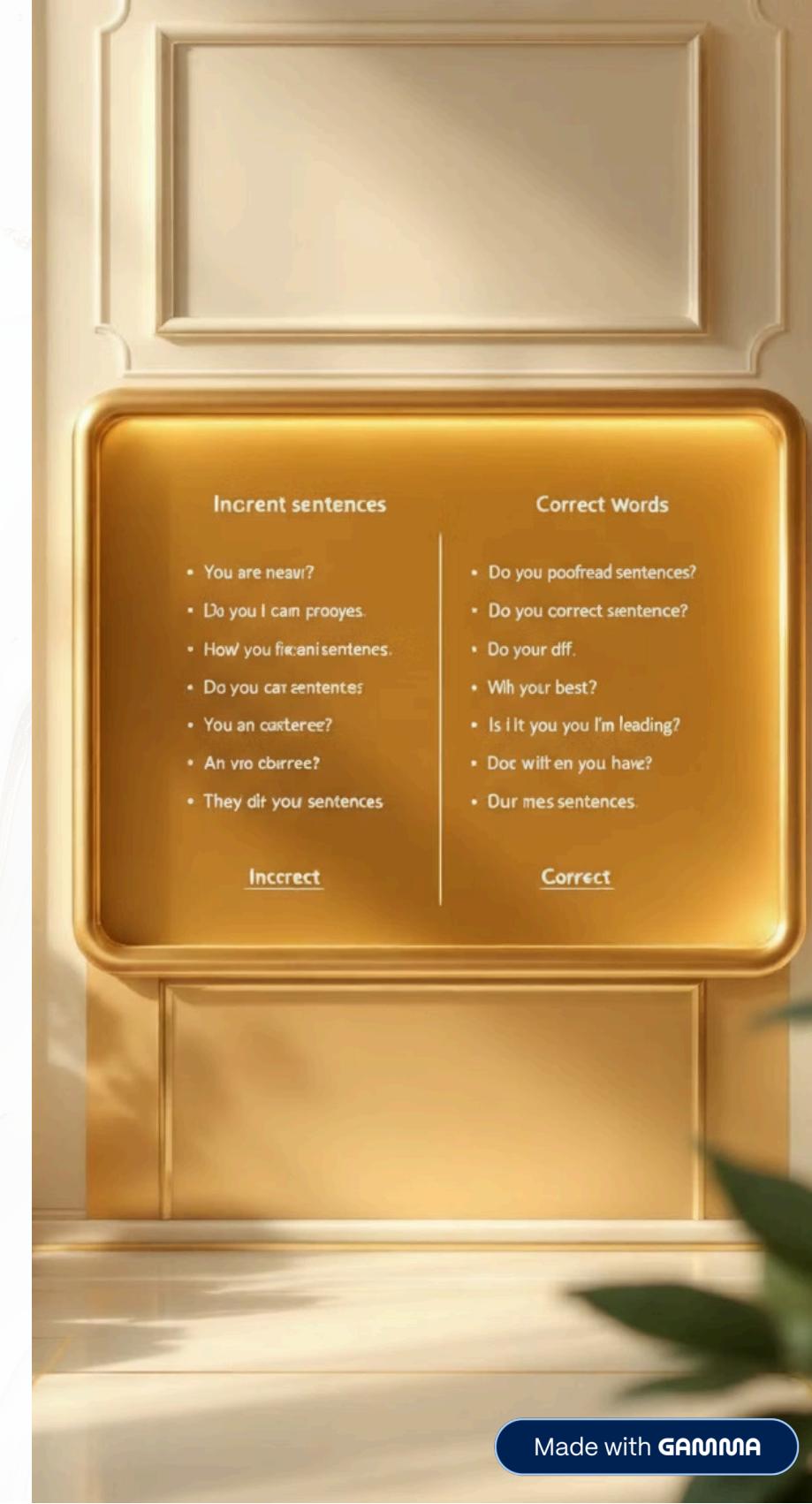
Improved Output

Receive instant, constructive feedback with suggested corrections.

Original: "We was late because of the traffic."

Improved: "We were late because of the traffic."

Both the original and improved versions are displayed, fostering a learning environment and enhancing user comprehension.



Benefits and Future Plans

The chatbot empowers seamless and confident communication.



Boost Confidence

Communicate clearly and confidently across all settings.

Scalable Language Support

Future support for multiple languages and communication contexts.



Advanced Input Features

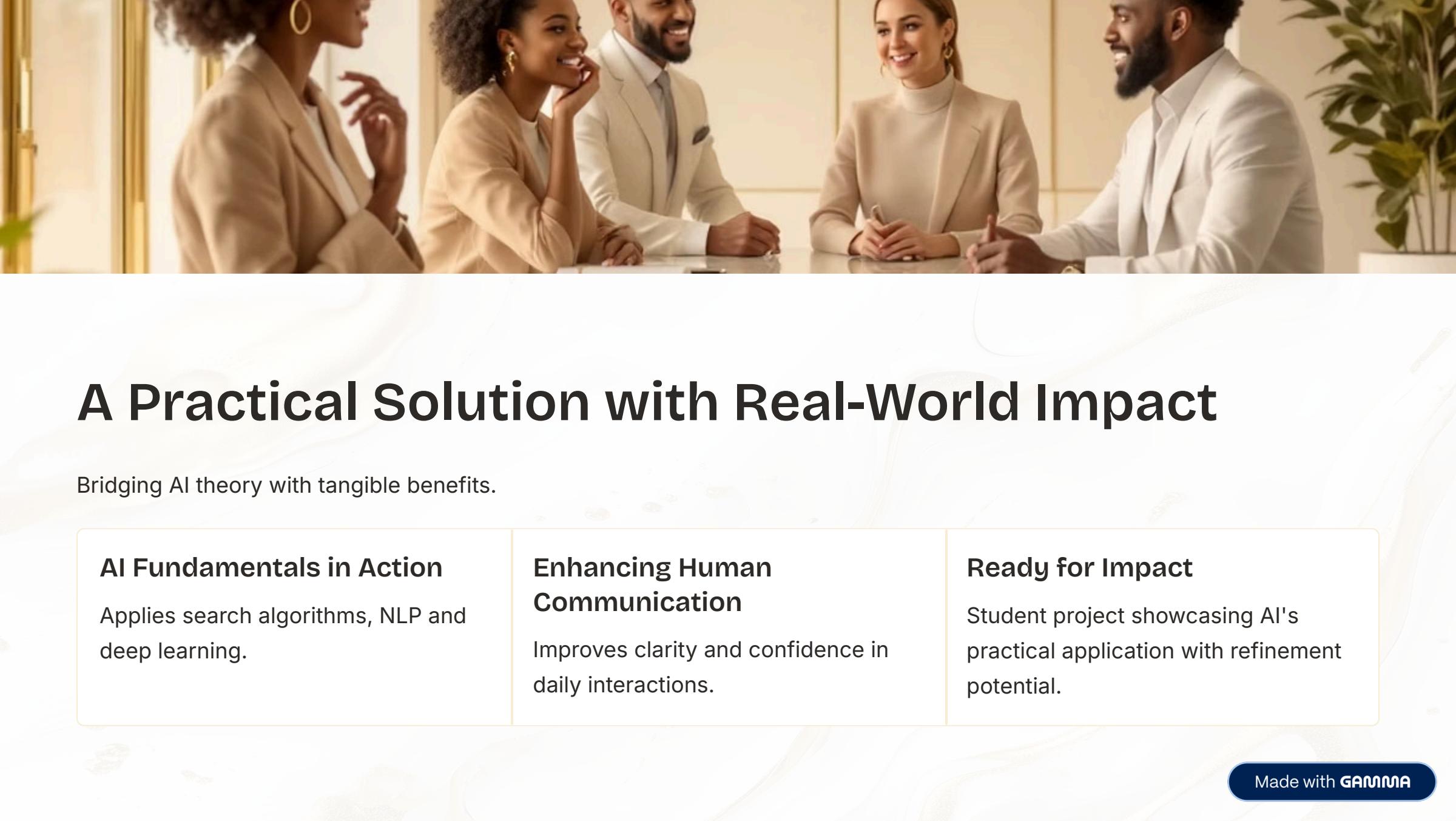
Integrate emotion and gesture recognition for non-verbal cues.



Mobile & Cloud Deployment

Expand availability via mobile apps and cloud platforms.





A Practical Solution with Real-World Impact

Bridging AI theory with tangible benefits.

AI Fundamentals in Action

Applies search algorithms, NLP and deep learning.

Enhancing Human Communication

Improves clarity and confidence in daily interactions.

Ready for Impact

Student project showcasing AI's practical application with refinement potential.