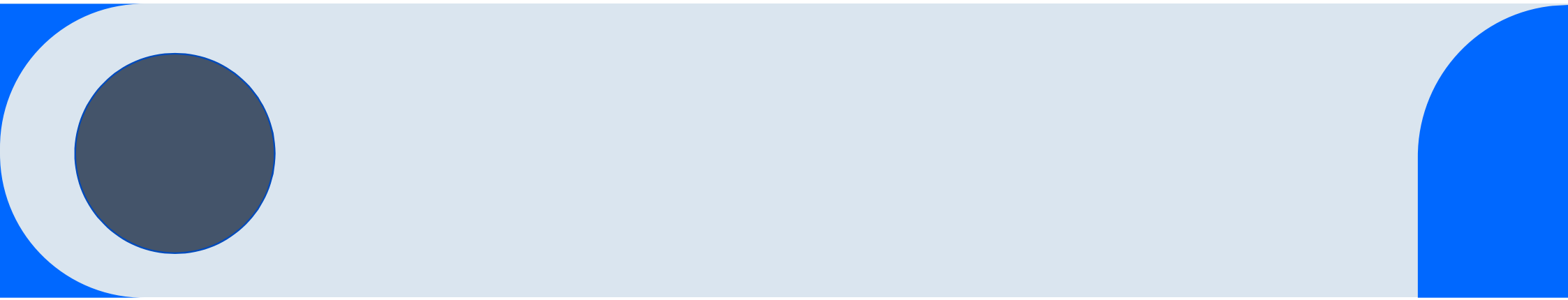




Keren J

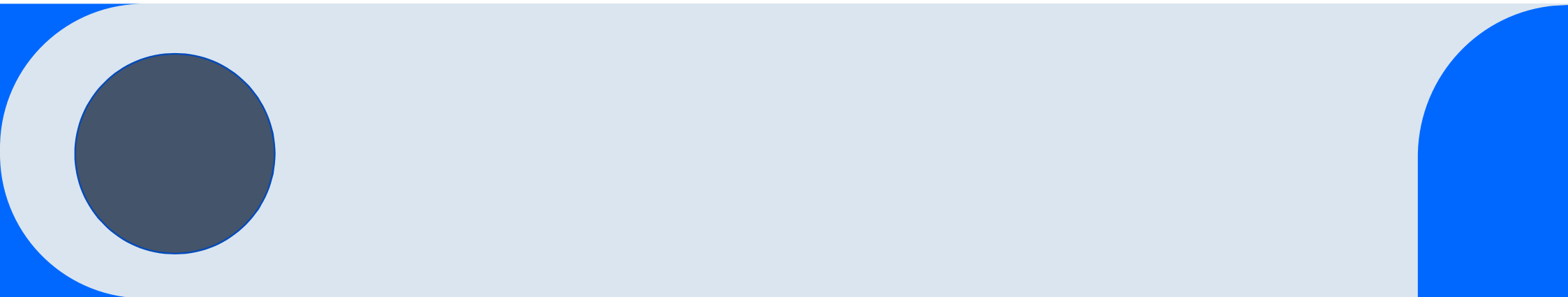
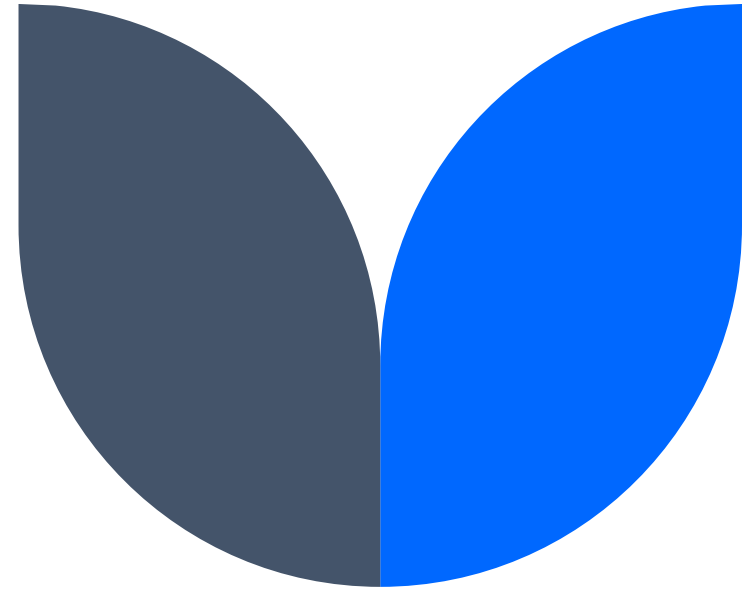
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Custom Summarization App

using generative AI





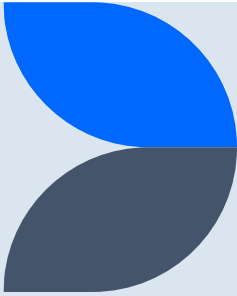
Agenda

- Problem statement
- Project overview
- End users
- Solution
- modelling

Problem statement:

In today's information-rich environment, individuals are inundated with vast amounts of textual data from various sources such as news articles, research papers, and online content. However, the challenge lies in efficiently extracting relevant information from these texts, as traditional summarization methods often fail to capture the nuances and key insights of the content accurately.

Project overview:



- One of my favorite applications of modern Large Language Models is to create summaries of PDFs.
- More than just any summary, I want the *ability to create customizable summaries* that can fit any research or learning need.
- This app will allow users to create custom prompts to summarize PDF files using AI-powered language models like ChatGPT and GPT-4

End users:

- **Students:** Students could use the app to summarize lengthy texts, articles, or academic papers for study purposes, allowing them to grasp key concepts more efficiently.
- **Researchers:** Researchers could utilize the app to quickly generate summaries of relevant literature for their own research projects, saving time and effort in sifting through large volumes of information
- **Professionals:** Professionals in various fields such as journalism, law, or business could benefit from the app by summarizing documents, reports, or legal briefs, helping them to extract essential information rapidly.
- **Educators:** Educators could employ the app to create concise summaries of educational materials for classroom use or to aid in preparing lesson plans.



Solution:

- We develop an app called “custom summarization app” as a solution
- Using AI-powered language models like chatgpt and gpt4, users will be able to construct personalized prompts for summarizing PDF files with this app.
- The goal is to offer an interface through which users can create personalized summaries from any PDF files
- This application should make advantage of natural language processing and machine learning algorithms to generate brief, cohesive and customized summaries that faithfully convey the main ideas of the source material

Modelling:

Steps:

- i. Import dependencies
- ii. Define the helper functions
- iii. Create a responsive user interface with Streamlit.
- iv. Running the App

Import dependencies:

We import the required modules and libraries for implementing the app. They include openai's GPT models, streamlit for the user interface and some custom classes and functions for processing text using langchain

Define the helper functions:

- **setup_documents** function is responsible for loading, extracting, splitting the text
- **custom_summary** function takes the document, prompt and creates a summarization chain
- **color_chunks** function is responsible for creating a visually appealing HTML representation of text chunks with overlaps



Create a responsive user interface with Streamlit.

- In the `main()` function, we implement the user interface of the app using streamlit. We set the page configuration, create titles, and provide options for users to select the language model, chain type, chunk size, and chunk overlap values.
- Based on the inputs, the app either displays the interactive text chunk visualizer when the user enables the “Debug chunk size” option or generates a custom summary from PDF file using the user-selected language model and the custom prompt



Running the app:

- **Create the conda environment:**
conda env create -f environment.yml
- **You can also just install the required libraries using the following command:**
Pip install -r requirements.txt
- **Open a terminal and navigate to the app directory and run the script**
python ai.py
- Open a web browser and navigate to <http://localhost:7850/>.

Custom Summarization App

Interactive Text Chunk Visualization

Input Text

Given the enormous number of instructional videos available online, learning a diverse array of multi-step task models from videos is an appealing goal. We introduce a new pre-trained video model, VideoTaskformer, focused



Chunk Size



Overlap Size



Given the enormous number of instructional videos available online, learning a diverse array of multi-step task models from videos is an appealing goal. We introduce a new pre-trained video model, VideoTaskformer, focused on representing the semantics and structure of instructional videos. We pre-train VideoTaskformer using a simple and effective objective: predicting weakly supervised textual labels for steps that are randomly masked out from an instructional video (masked step modeling). Compared to prior work which learns step representations locally, our approach involves learning them globally, leveraging video of the entire surrounding task as context. From these learned representations, we can verify if an unseen video correctly executes a given task, as well as forecast which steps are likely to be taken after a given step. We introduce two new benchmarks for detecting mistakes in instructional videos, to verify if there is an anomalous step and if steps are executed in the right order. We also introduce a long-term forecasting benchmark, where the goal is to predict long-range future steps from a given step. Our method outperforms previous baselines on these tasks, and we believe the tasks will be a valuable way for the community to measure the quality of step representations. Additionally, we evaluate VideoTaskformer on 3 existing benchmarks—procedural activity recognition, step classification, and step forecasting—and demonstrate on each that our method outperforms existing baselines and achieves new state-of-the-art performance. 1 Introduction Picture this, you're trying to build a bookshelf by watching a YouTube video with several intricate steps. You're annoyed by the need to repeatedly hit pause on the video and you're unsure if you have gotten all the steps right so far. Fortunately, you have an interactive assistant that can guide you through the task at your own pace, verifying each step at your own pace, verifying each





Thank you

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