

A low-angle, black and white photograph of several tall skyscrapers reaching towards the sky. The perspective creates a sense of height and scale. In the lower-left foreground, the back of a person's head and shoulders are visible, looking up at the buildings. A solid blue horizontal bar is positioned below the main title.

EARNINGS CALL ANALYZER

AI-Powered Insights for Earnings Transcripts

INSIGHT CONSULTANCY GROUP (ICG)



Carl Chern
Group Lead



Jean-Luc Saint-Fleur
Documentation Specialist



Florina Monroy
Communications Specialist



William Hall
Chief Data Engineer

ICG'S MISSION

Develop an AI prototype to streamline analysis of earnings call transcripts

- 1. Enhance decision-making and productivity by enabling users to query earnings call transcripts**
- 2. Provide AI-driven responses**

DATASET OVERVIEW

SOURCE: [API Ninja's Financial Transcript API](#)

FEATURES:

Industry, Ticker Symbol, Quarter, Year, Transcript Text, Transcript Date

DATA PREPROCESSING

PREPROCESSING STEPS

- API Data Extraction
- Text Cleaning & Standardization
- Metadata Structure

Sample Request [Live Demo!](#)

ticker MSFT

year 2024

quarter 2

<https://api.api-ninjas.com/v1/earningstranscript?ticker=MSFT>

Headers

X-API-Key

Log in or sign up to get your API Key

 Send Request

Sample Response

JSON

```
1 {
2   "date": "2024-01-30",
3   "transcript": "Operator: Greetings, and welcome to the I
4   "transcript_split": [
5     {
6       "speaker": "Operator",
7       "text": "Greetings, and welcome to the Microsoft Fi
8     },
9     {
10      "speaker": "Brett Iversen",
11      "text": "Good afternoon, and thank you for joining
12    },
13    {
14      "speaker": "Satya Nadella",
15      "text": "Thank you, Brett. It was a record quarter
16    },
17    "...
18  ]
19 }
```

METHODOLOGY

DATA COLLECTION AND PREPARATION

EXPLORATORY DATA ANALYSIS (EDA)

DATA CLEANING & PROCESSING

RETRIEVAL-AUGMENTED GENERATION

INTERACTIVE GRADIO-BASED USER INTERFACE

MODEL EVALUATION

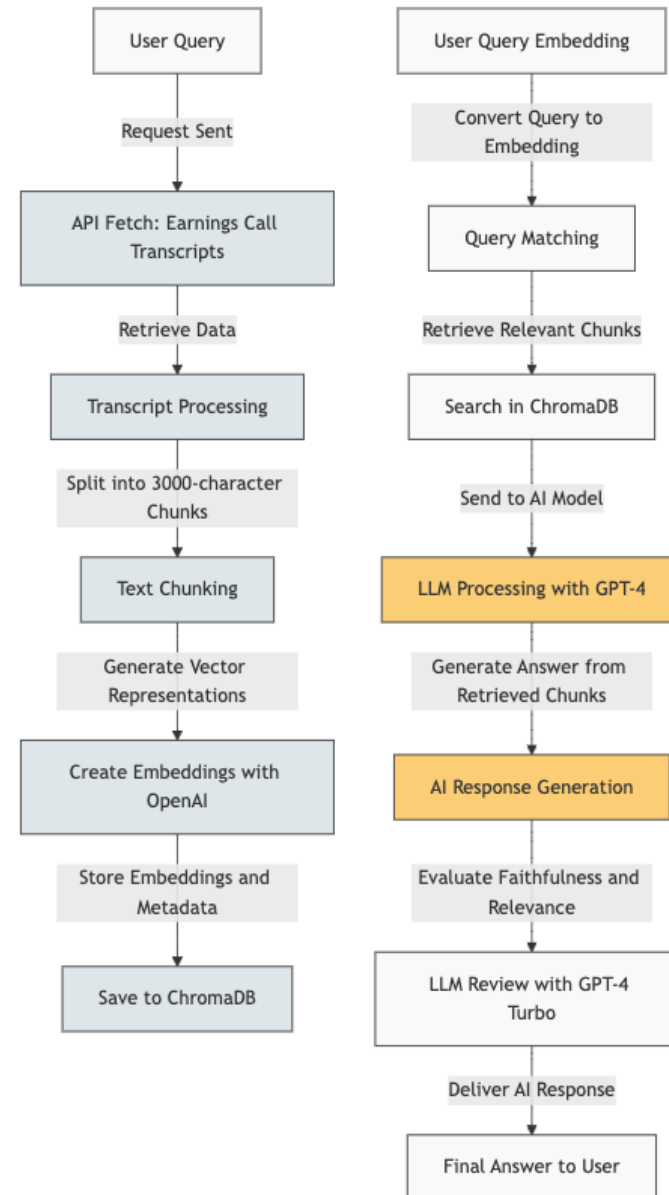
APPROACH

SYSTEM WORKFLOW

RETRIEVAL-AUGMENTED GENERATION

- Transcript Retrieval
- Text Chunking
- Vector Embeddings
- Query Matching
- Context Extraction
- LLM Processing
- Response Evaluation

Visual Representation of the Workflow



LLM as a JUDGE

FAITHFULNESS

- Ensures factual accuracy, grounded in original transcript data
- Reduces likelihood of AI-generated hallucinations

RELEVANCE

- Measures how closely response aligns with user query
- Prioritizes direct excerpts from transcripts

AI CONFIDENCE SCORE

- Evaluates reliability of AI-generated response
- Based on transcript matching percentage, financial data consistency, linguistic and contextual accuracy

RAG OPTIMIZATION

EMBEDDING MODEL SELECTION

Tested text-embedding-ada-002 vs text-embedding-3-large
Result: Performed similarly

CHUNK SIZE & OVERLAP ADJUSTMENTS

1000-character chunks, 200-char overlap
3000-character chunks, 500-char overlap
Result: Preserved more context and improved response quality

UPGRADING THE VECTOR DATABASE

Moved from FAISS to ChromaDB (supports metadata)
Allows filtering by Ticker, Year, Quarter
Result: More precise retrieval of transcript sections. Improved accuracy



PRODUCT DEMO

Earnings Call Analyzer

Gain insights into financial performance with AI-driven analysis.

Select Industry

AI-focused Tech ▼

Select Ticker

GOOGL I

✓ GOOGL

IBM

MSFT

Select Year

2024 ▼

Ask a question

Frequently Asked Questions

What was the company's total revenue? ▼

Analyze

Analysis Result

TEST CASES & RESULTS

USER QUERY TYPE

- Quantitative
- Qualitative
- Inference
- Off-topic

Test Cases and Results

To evaluate the effectiveness of the model, we tested five key question types:

Question Type	Actual Question	Results	Human Assessment (Pass/Fail)	Tool's Quality Score
Quantitative	What was the company's total revenue?	System retrieved relevant financial figures from the earnings transcript.	Partial Pass	Faithfulness: 4, Relevance: 2, Overall: 3
Quantitative	How did the company perform last quarter?	Model returned the latest financial report instead of the previous quarter, failing to distinguish between periods.	Fail	Faithfulness: 5, Relevance: 5, Overall: 5
Quantitative	How did the company perform this quarter?	Model correctly retrieved the latest financial report.	Pass	Faithfulness: 5, Relevance: 5, Overall: 5
Qualitative	What did the CEO say about revenue growth?	Provided a well-structured summary of the CEO's discussion on revenue.	Pass	Faithfulness: 5, Relevance: 5, Overall: 5
Inference	What was the main reason for revenue growth?	AI correctly inferred reasoning based on CEO statements and financial data.	Pass	Faithfulness: 5, Relevance: 5, Overall: 5
Off-Topic	What is the dinner special for today?	System correctly stated that no relevant data exists in the document. However, it incorrectly assigned a high relevance score, which does not align with the actual query's intent.	Fail	Faithfulness: 5, Relevance: 1, Overall: 3

ASSESSMENT

CAPABILITIES

- 1. Strong capabilities in retrieving relevant answers from transcripts**
- 2. Ensures user receive accurate, contextually appropriate responses**
- 3. Provides an intuitive and efficient UI for querying financial transcripts**
- 4. Proves to be a valuable tool for financial analysts and researchers**

FUTURE ENHANCEMENTS

The background of the slide features a dark, blurred image of a financial candlestick chart. The chart has several white bars of varying heights against a black background. In the upper right corner, the text '+12,00.50' is visible. In the middle left, '+11,00.00' is visible. The overall aesthetic is professional and tech-oriented.

MULTILINGUAL SUPPORT

SENTIMENT ANALYSIS

AUTOMATED TRANSCRIPT UPDATES

ADVANCED SEARCH CAPABILITIES

DASHBOARD INTEGRATION

THANK YOU!



QUESTIONS OR COMMENTS?

We would love to hear from you...

Carl Chern

Jean-Luc Saint-Fleur

Florina Monroy

William Hall



APPENDIX

LAUNCH THE UI

USER QUERY

Landing page provides a user-friendly input field for querying earnings call transcripts.

Questions entered in **natural language** to retrieve insights.

Earnings Call Analyzer

Gain insights into financial performance with AI-driven analysis.

 Industry

AI-focused Tech

 Ticker

AAPL

 Year

2024

 Quarter

Q1

 Ask a financial question:

Analyze

ENTER A QUERY

USER QUERY

Select the industry, company ticker, year and quarter

Enter a question

Earnings Call Analyzer

Gain insights into financial performance with AI-driven analysis.

Select Industry

AI-focused Tech ▼

Select Ticker

GOOGL ▼

Select Year

2024 ▼

Select Quarter

1 ▼

Ask a question

What did the CEO say about revenue growth?

Frequently Asked Questions

What was the company's total revenue? ▼

Analyze

PROCESSING & GENERATING RESULTS

SYSTEM RESPONSE

Searches database for relevant info

Displays analysis result

Displays transcript extracts

Analysis Result

The CEO reported strong growth in several areas. Google Services revenue increased 14% year-on-year with solid growth in the retail sector and a particularly strong performance from APAC-based retailers. YouTube Ads revenues were up 21% year-on-year, propelled by both brand and direct response growth. Revenues in subscriptions, platforms and devices increased 18% year-on-year, largely due to strong growth in YouTube subscriptions. The CEO also highlighted strong demand for Google Cloud infrastructure and Workspace productivity tools. The ongoing contribution from AI technologies was also noted as a significant driver across the business.

Transcript Extracts

release, we are very pleased to be adding a quarterly dividend of \$0.20 per share to our capital return program as well as a new \$70 billion authorization in share repurchases. The core of our capital allocation framework remains the same, beginning with investing aggressively in our business as you have heard us talk about today. Given the extraordinary opportunities ahead, we view the introduction of the dividend as further strengthening our overall capital return program. Thank you. Sundar, Philipp, and I will now take your questions. [Operator] [Operator Instructions] Our first question comes from Brian Nowak with Morgan Stanley. [Brian Nowak] I have two. The first one, I wanted to ask about overall search behavior. Philipp, I know you talked in the past about how overall query trends continue to grow. Can I ask you to drill a little bit more into monetizable and commercial query trends? Has there been any changes in sort of your commercial query trends growth. There's just been all these new entrants moving around in e-commerce. That is my first one. Then the second one for Ruth, when you talked about sort of more efforts to moderate expense growth from here, can you just sort of give us some examples of areas where you still see the potential for more optimization or work streams in place to continue to durably

QUALITY SCORE EVALUATION

LLM AS A JUDGE

System assigns a Quality Score for

- Faithfulness Score
- Relevance Score
- Overall Quality Score

Transcript Date

2024-04-25

Quality Score

1. Faithfulness: 5

The answer faithfully reports information present in the document context, accurately summarizing growth in different segments of the business. It correctly cites revenue increases and specific growth areas like Google Services, YouTube Ads, subscriptions, platforms and devices, and Google Cloud, corroborated by details in the document.

2. Relevance: 5

The answer is highly relevant to the user's query about what the CEO said regarding revenue growth. It provides detailed information regarding growth in specific areas and overall business performance as discussed by the CEO and other executives, thus directly addressing the user's interest in revenue growth specifics.

Overall Quality Score: 5

The response directly addresses the user's query with a detailed and accurate summary of the relevant statements from the CEO and document context concerning revenue growth and business