UNIVERSITY CO-PILOT

PRESENTATION

AGENDA

Introduction

Goal

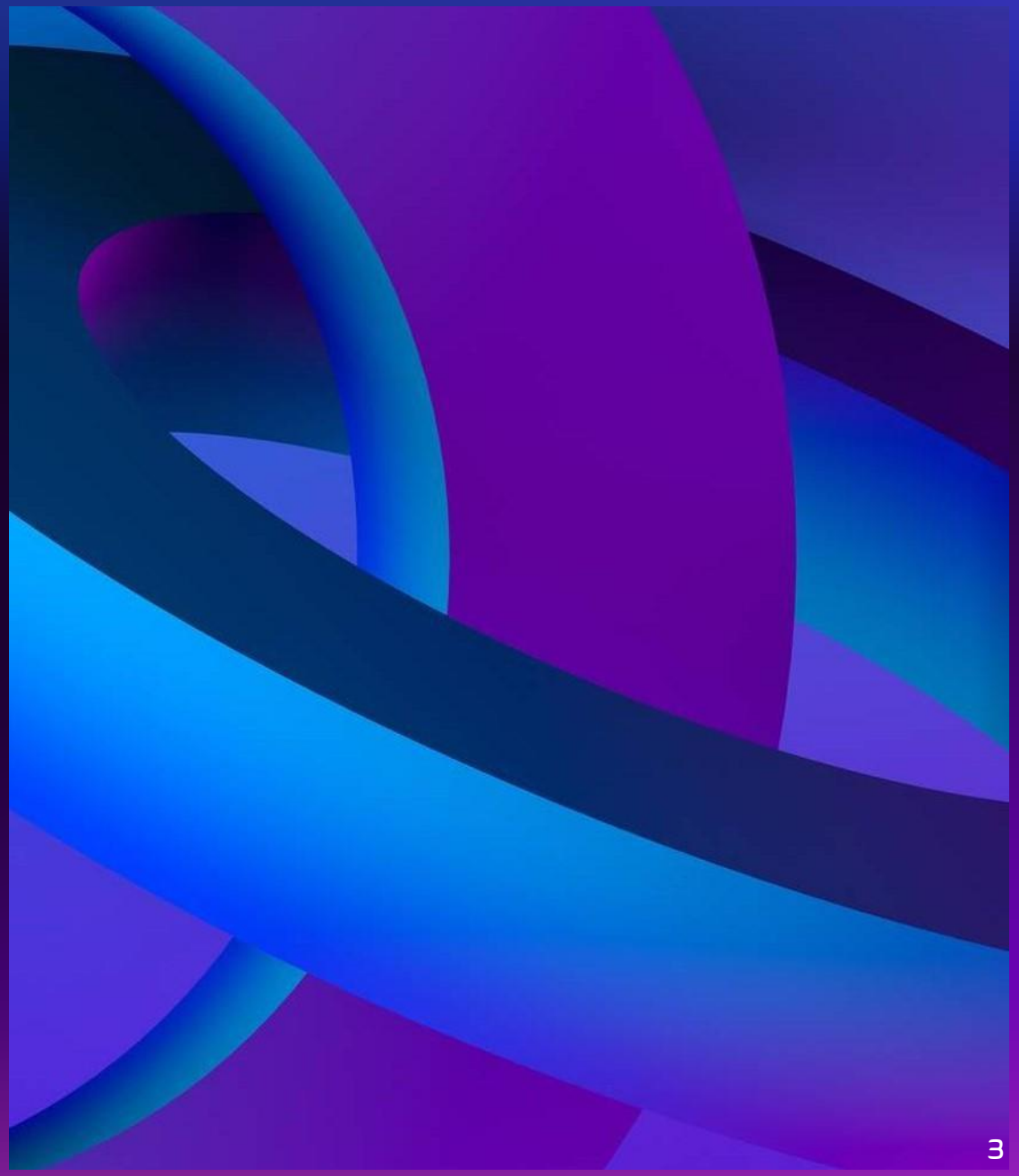
Search Ai

How it works

Future Plans

OVERCOMING

NERVOUSNESS



GOAL

The end goal is to make the journey from high school to university seamless. As a future feature, we plan to guide students who do not meet initial university requirements by providing information on matric upgrades and rewrites. This will include guiding them toward adult education institutions in South Africa that can help them meet the necessary criteria for their desired degrees, ensuring no student is left without a clear path forward.

WHAT IS AZURE AI SEARCH AGENT?

- A feature of **Azure AI Search** (formerly Cognitive Search) that combines **retrieval-augmented generation (RAG)** with **Large Language Models (LLMs)**.
- Acts as an **“agent”** that can answer questions by searching enterprise data sources, then using an LLM to generate contextual, natural-language responses.
- Integrates with **Azure OpenAI** for reasoning and generation.

HOW IT WORKS?

- **Data Ingestion**
- PDFs (and other documents like Word, HTML, JSON) are uploaded into a search index.
- Azure AI Search enriches them with metadata and embeddings (vector representations).
- Optionally, AI skills (OCR, key phrase extraction, entity recognition) can extract structure from unstructured PDFs.
- **Indexing**
- The PDF content is chunked into passages or sections.
- Each chunk gets indexed in both:

HOW IT WORKS?

- Each chunk gets indexed in both:
- **Full-text search index** (keywords, filters).
- **Vector index** (semantic embeddings for similarity search).
- **Query Processing**
- A user query comes in (e.g., *“Summarize the safety procedures in section 3 of themanual”*).
- The system uses **hybrid search**:
- **Keyword search** finds exact text matches.
- **Vector search** finds semantically similar passages.

HOW IT WORKS?

- **Contextualization (RAG loop)**
  - The agent retrieves the most relevant PDF passages.
  - These passages are injected into the prompt for the LLM (Azure OpenAI).
  - The LLM generates a coherent answer using both the query and theretrievedcontext.
- **Response Delivery**
- The user receives a **grounded, context-aware answer**.
  - Optionally, citations are included pointing back to the original PDF passages.

FUTURE PLANS

We aim to make the high school → university journey seamless. Planned features include:

- Guidance for students who don’t meet entry requirements.
- Support for **matric upgrades and rewrites**.
- Referrals to adult education institutions in South Africa.