

Intelligent Email Agent with n8n + OpenAI + Pinecone + Gmail

Overview

This project implements an **AI-powered email automation and retrieval system** using **n8n**, **OpenAI**, **Pinecone**, and **Gmail**.

The setup allows an intelligent agent to send context-aware, personalized emails while referencing prior communication or stored contact details from a **vector database**.

The workflow integrates multiple components:

- **n8n** orchestrates the pipeline.
 - **OpenAI** handles email generation and embeddings.
 - **Pinecone** stores and retrieves email-related vectors for memory and personalization.
 - **Gmail** delivers the final AI-generated messages.
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Workflow Architecture

1. Mails to Pinecone (Data Preparation)

- Retrieves documents or email archives from **Google Docs**.
- Splits content into small chunks (using the Recursive Character Text Splitter).
- Generates **OpenAI embeddings** for each chunk.
- Inserts them into a **Pinecone Vector Store** (`emailn8n` index, `n8nemails` namespace) for future retrieval.

2. Mail Agent to Pinecone (Main Chat + Retrieval Workflow)

- **Trigger:** Starts when a chat message is received in n8n.
- **AI Agent:** The agent's role is to compose and send polished, accurate, and personalized emails.
- **Retrieval:** Uses the Pinecone Vector Store as a tool (`vectorstore_mails`) to fetch recipient or context data.
- **Composing:** Generates the subject, greeting, and message body dynamically with the **OpenAI GPT-4o** model.
- **Email Sending:** Calls a secondary workflow (`Send Emails`) to deliver the message through Gmail.

3. Send Emails (Sub-Workflow)

- Executes when triggered by the main workflow.
 - Uses **OpenAI GPT-4o** to finalize the email content and formatting.
 - Sends the email automatically using the **Gmail API**.
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Key Features

- **Retrieval-Augmented Emailing:** The agent can reference prior data or contact info from Pinecone to craft contextually relevant messages.
 - **Dynamic Personalization:** Names and greetings are adapted automatically based on the retrieved data.
 - **Multi-workflow Design:** Separation of data ingestion, retrieval, and sending for modular scalability.
 - **Human-like Communication:** Emails maintain natural tone, structure, and clarity — signed as *“Best regards, Shub.”*
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Tech Stack

- **n8n** – Automation and orchestration platform
 - **OpenAI GPT-4o** – Natural language generation and embedding model
 - **Pinecone** – Vector database for semantic retrieval
 - **Google Docs API** – Source of contact or email text data
 - **Gmail API** – For sending messages through OAuth2 authentication
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Use Cases

- Automated outreach or follow-up systems
 - Customer-support email assistants
 - CRM-linked smart communication bots
 - Internal corporate communication with stored memory context
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Outcome

The **Mail Agent to Pinecone** workflow transforms n8n into an **intelligent, retrieval-based communication system**.

By combining **LLM reasoning**, **vector retrieval**, and **automation**, it enables fully automated

yet human-quality email correspondence — useful for any workflow requiring consistent, personalized communication at scale.