



# FrictionFreeAgent

**Agentic AI to Reduce Operational Friction**

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# Introductions



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# UHCP PAAN Team

## UnitedHealthcare Provider Prior Authorization and Notification



### UHCP PAAN Application

Internal tool designed to streamline the **prior authorization** process for UHC provider users

### Business Requirements

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#### Cost Control

Preventing unnecessary or overly expensive treatments

#### Patient Safety

Ensures treatments are clinically appropriate

#### Regulatory Compliance and Provider Accountability

Aligns with state guidelines and encourages adherence to evidence-based procedures

#### Operational Efficiency

Reduces downstream costs from inappropriate or unnecessary care

# Deviated Solution

**Automate and Validate the Lookup Process on Provider Portal**



**Increase efficiency and  
reduce time through  
automation**



**Eliminate manual  
lookup mistakes in  
PA information**



**Increase accuracy  
leveraging AI  
technology**



**Best solution to combat  
service unavailability  
and data discrepancy**

# FrictionFreeAgent



## Our Solution:

Leveraging agentic AI to proactively minimize operational friction

## Automate and Validate the Lookup Process on Provider Portal



### Precision Automation Code & Provider Lookups

Leverages AI-driven agents to automate and validate data with high accuracy—eliminating delays and reducing manual effort



### Error Elimination & Human Dependency Reduction

Replaces error-prone manual processes with intelligent workflows, minimizing lookup mistakes and freeing up valuable human resources



### Unified Data Consistency Across Multiple Sources

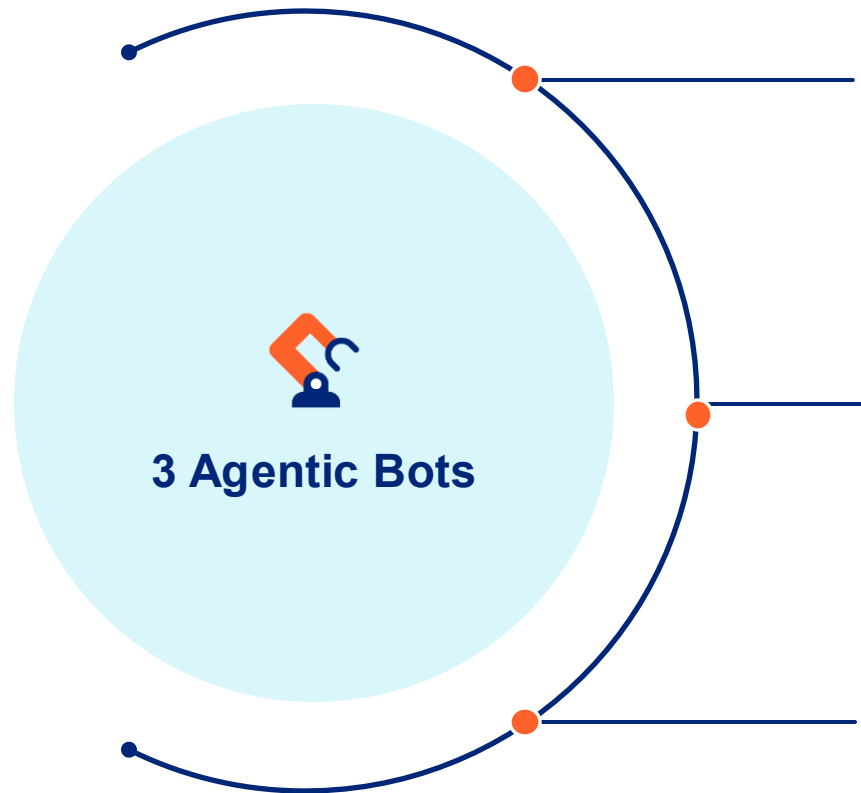
Integrates structured and unstructured data from APIs, PDFs, and databases to ensure consistent, reliable information across all lookup dimensions



### Enhanced User Experience Through Conversational AI

Delivers a seamless, intuitive portal experience using chatbots that guide users with real-time, context-aware responses—boosting satisfaction and efficiency

# Current Progress



## CPT Code Chatbot

- Chatbot integrated with custom CPT (procedure code) lookup API that can evaluate PA requirements

## CMS/POS Lookup

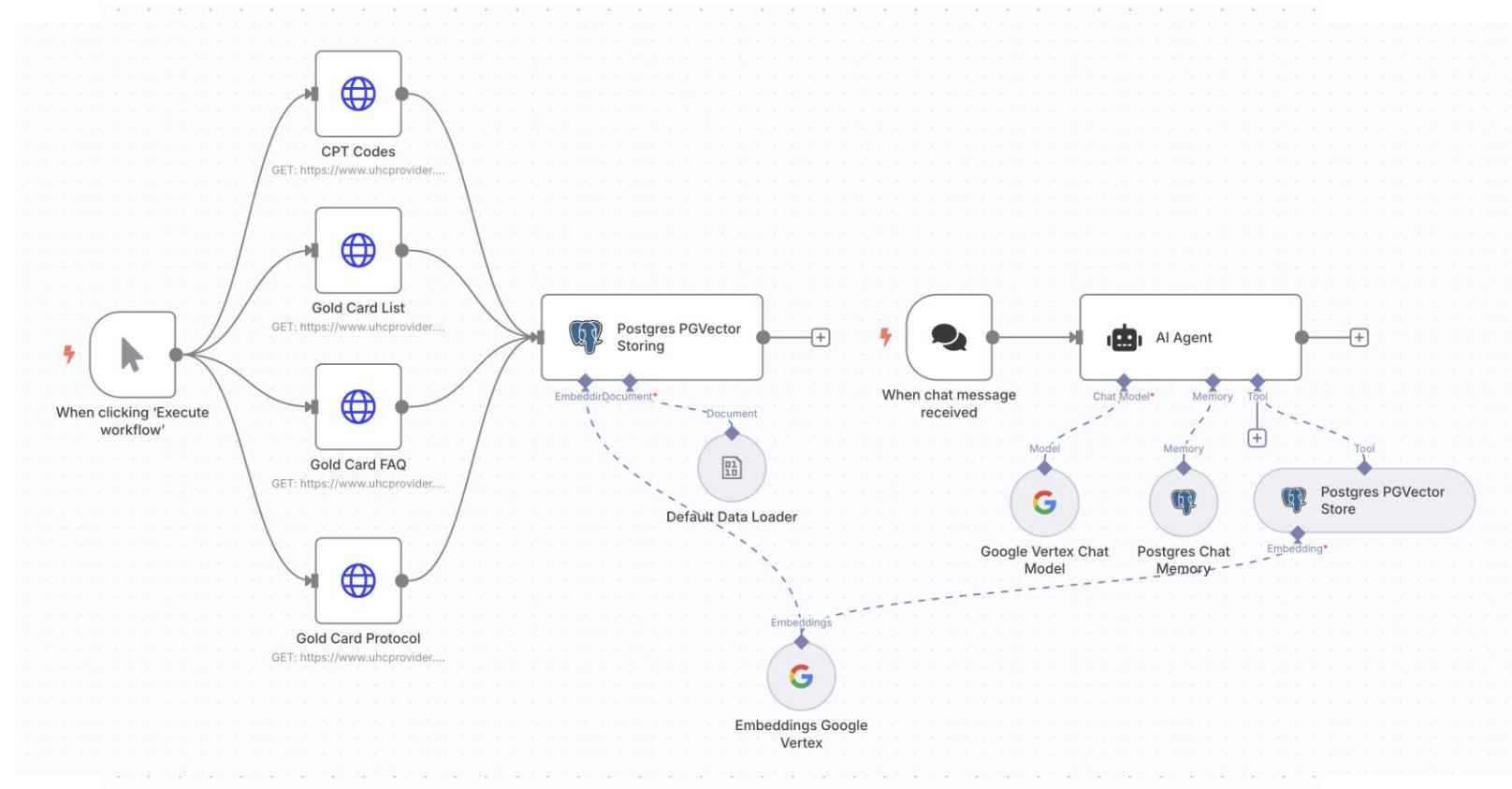
- Chatbot utilizing Postgres PGVector store, integrated with PDFs containing CMS (diagnosis code) and POS (Point of Service) information

## NPI Info Extraction Pipeline

- Workflow to return and cross-check information on providers based on an inputted NPI (provider ID)

## Custom API for Accuracy

- CPT data is incredibly large and hard for an AI model to vectorize and understand
- Vector storage for complicated PDFs struggle to obtain 90%+ accuracy
- Drag and drop limitations prevent full-fledged python integration
- Custom FastAPI CPT lookup API not only solves accuracy problem, but greatly reduces latency



# FastAPI

# NPI Lookup Workflow



## Optum Internal API

Provider information is accessed through an internal API after an OAuth token is generated, and then is converted from XML into JSON



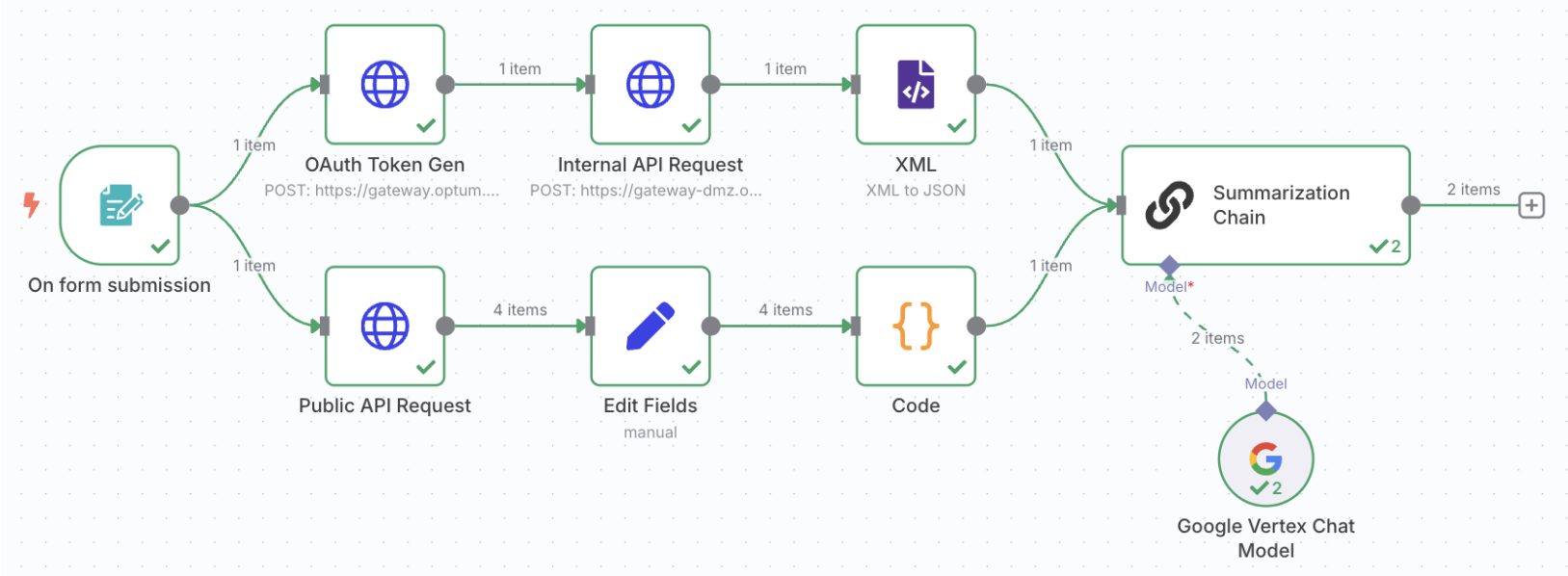
## Public API Request

The same NPI is also passed through a public National Institute of Health API, and then edited and formatted to filter out important info



## AI Summarization

Provider name, specialty, and service location information is summarized and formatted from both methods using Gemini






# NPI Lookup Workflow



NPI

Enter NPI: \*

Submit

Form automated with  n8n

## Internal:

### OUTPUT

**Name:** Michael John Garvis  
**Specialty:** Pediatrics  
**Location:** South Lake Pediatrics

## Public:

### OUTPUT

**Name:** Michael Garvis  
**Specialty:** Physician/Pediatric Medicine  
**Location:** 17705 HUTCHINS DR, MINNETONKA, MN 55345



## Additional Info Streams

Adding in additional streams of provider information to have extra sources as well as extra insurance in case of downtime



## Accuracy Scoring

Location information will be cross checked amongst sources with variable scoring on accuracy for PAAN application users

# Next steps

## Static data → Dynamic data

- API access to CMS/POS data
  - Captures real-time updates with fluid data
  - Increases information accuracy and reliability as opposed to PDF-stored/static data
  - Eliminates need for database storage, resulting in faster response time and decreased latency
- 

## Train all agentic models with data from Portal

- User interacts with Provider Portal
  - Pipeline to track user inputs and instantaneous locally stored data (verified using APIs)
  - Transfer and feed knowledge to respective bot
  - Inputted Portal data will be used to train the model, to increase data accuracy
  - High data accuracy benchmark reached for a given CPT, automated suggestions and data will be shared to the user on the portal
- 


## Populate accuracy score

- Each agent displays requested results from different modes simultaneously
  - Data collected from internal, external/public, and local copy of data
  - Cross-check all results to match and hit 100% accuracy for any given request
  - Display accuracy score between all requests, train model to increase accuracy score if discrepancies occur
-

# Existing Provider Portal

## PA Requirement Check for CPT Code

Currently Emulating



Search

Training & Support

Practice Management

TrackIt 79

Paan

Payer

87726 - UnitedHealthcare

Provider

Mercy Gilbert Medical Center

Eligibility

Claims & Payments

Referrals

Prior Authorizations

Clinical & Pharmacy

Documents & Reporting

Additional Tools

Commercial

Arizona

R221

Rash and other nonspecific skin eruption

This is paired with selected procedure codes

Inquiry response

Use the "Proceed with submission" button to proceed with a prior authorization submission for the services below that either require prior authorizations for all or require for some of the place of service settings.

Please note, specific procedures may not require additional authorization, however all inpatient admissions require notification.

Procedure code	Description	Inquiry summary
22206	Osteotomy of spine, posterior or posterolateral approach, 3 columns, 1 vertebral segment (eg, pedicle/vertebral body subtraction); thoracic	Notification/Prior Authorization is required for this service.
<div>Show place of service breakdown</div>		
11102	Tangential biopsy of skin (eg, shave, scoop, saucerize, curette); single lesion	Notification/Prior Authorization not required for this service.
<div>Show place of service breakdown</div>		

Return to search

Proceed with submission

The search executed is based on data that you have selected. Your search is not a request for prior authorization and is not notification to UnitedHealthcare. Prior authorization requirements vary by benefit plan and the provider's participation status. Your search does not guarantee coverage. Coverage determinations are based on the member's benefit plan and eligibility for benefits in addition to other criteria. This tool is intended to check requirements for Medical services only.

# Existing Provider Portal

## NPI Provider Info Lookup

Select your search criteria \*

NPI number

NPI number \*

1235101130

Search admitting/attending physician

Reset

Results Per Page

5

<

1 of 3

>

Showing 1-5 of 13 Results

Name	Address/phone	Network status	Specialty	TIN	Provider ID	Premium designation <a href="#">What is this?</a>	Actions
MICHAEL JOHN GARVIS	17705 HUTCHINS DR STE 100, MINNETONKA, MN 55345   T. 952-401-8300	In network	Pediatrics	411240834	14694670321285	Premium Care Physician ♥♥	Select
MICHAEL JOHN GARVIS	15535 34TH AVE N STE 100, MINNEAPOLIS, MN 55447   T. 952-401-8300	In network	Pediatrics	411240834	14694670321285	Premium Care Physician ♥♥	Select
MICHAEL JOHN GARVIS	17705 HUTCHINS DR STE 101, MINNETONKA, MN 55345   T. 952-401-8300	In network	Pediatrics	411240834	14694670321285	Premium Care Physician ♥♥	Select
MICHAEL JOHN GARVIS	12000 ELM CREEK BLVD N STE 250, MAPLE GROVE, MN 55369   T.	In network	Pediatrics	411240834	14694670321285	Premium Care Physician ♥♥	Select

# Existing Provider Portal

## POS Lookup

EPO

Commercial

Submitting provider details

Name

Mercy Gilbert Medical Center

Tax ID number

352263845

Select a different provider

NPI \*

1992735088

Submitting provider address

3555 S VAL VISTA DR, GILBERT, AZ 85297 | 501746689692814594

Service setting

Place of service \*

Acute Hospital

Ambulatory Surgical Center

Home

Inpatient Rehabilitation

Intensive Outpatient

Cancel

Continue

Contact Us

UHCProvider.com

Sign Out

# Existing Provider Portal

Error/Service Unavailability Example

Select admitting/attending physician \*

The doctor responsible for admitting a patient to a hospital or other inpatient health facility. You are able to select an Admitting/Attending Physician either from your favorites or perform a new search.

Search by: ☒ New admitting/attending physician search ☐ Your favorites


Select your search criteria \*

NPI number


NPI number

1811077175

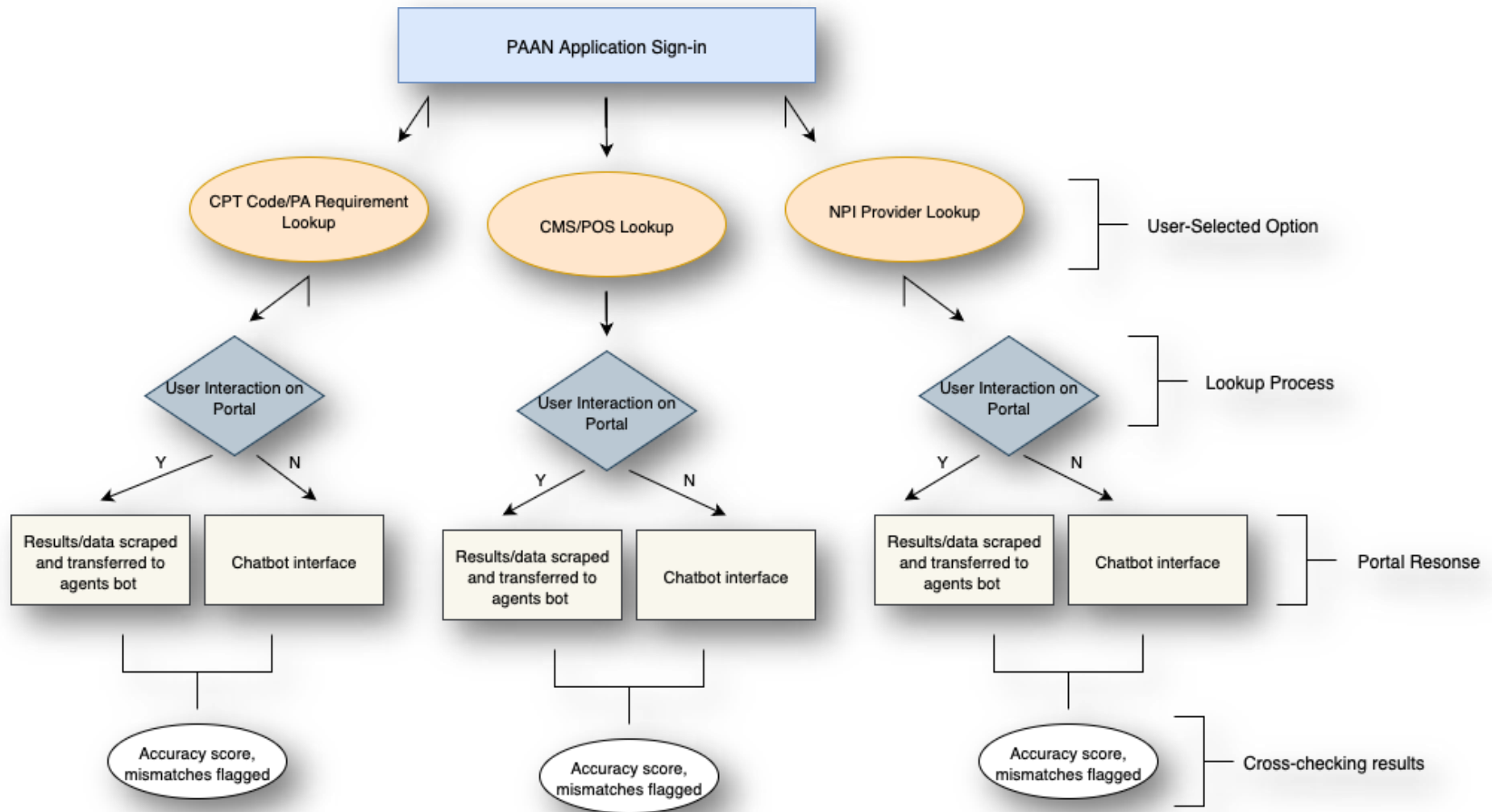
Search admitting/attending physician



Provider not found. Please refine your search.



# Impact within PAAN Application



# Live Demo



**Optum**

# Questions?

**Thank You!**

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