

Project Iris - Stevens AI and BI Software

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1. Executive Summary (What the system does)

Project Iris is an AI-powered enrollment analytics and intelligence platform built for Stevens CPE. It unifies Slate funnel data and Census headcount data into a single dashboard, and adds a conversational AI assistant for natural language exploration.

Key Capabilities

- **Enrollment funnel analytics**: Applications -> Admits -> Offers Accepted -> Enrollments
- **NTR tracking**: Goal progress, category and degree breakdowns, gap to goal
- **Program intelligence**: Heatmaps, top programs, YoY trends, comparisons
- **Corporate cohorts**: Partner headcount, distribution, and top cohort tracking
- **Historical YoY**: 3-year trends, conversion/yield trends over time
- **Ask Navs AI assistant**: Page-aware chat available as a floating widget and a dedicated page

2. System Architecture Overview (High level)

Aligned with Section 3 of `AI_SYSTEMS_TECHNICAL_DOSSIER.md`.

At a high level, the platform has four layers:

- **Ingestion**: Slate API + Census sources (including snapshot files)
- **Analytics**: Funnel metrics, program stats, NTR calculation, cohort summaries
- **AI layer**: Gemini-powered assistant grounded with structured context and guardrails
- **UI**: Streamlit pages plus an always-available floating chat assistant

3. Data Engineering Pipeline (Ingestion + snapshots + caching)

Aligned with Section 4 of `AI_SYSTEMS_TECHNICAL_DOSSIER.md`.

Data Sources

- ****Slate CRM****: Application funnel data via API or snapshot
- ****Census****: Headcount and credit-based attributes (used for continuing/returning and NTR)

Snapshot-first design

The app prioritizes `data/snapshots/` so local and cloud deployments are deterministic and do not depend on local file paths.

Caching and refresh

Data is cached to avoid repeated fetch and heavy processing, with explicit refresh controls and a periodic refresh window.

4. Analytics Layer (Funnel, yield, NTR, cohorts, YoY)

Aligned with Section 5 of `AI_SYSTEMS_TECHNICAL_DOSSIER.md`.

Core metrics

- ****Admit rate****: admits / applications
- ****Yield rate****: enrollments / admits
- ****Offer accept rate****: offers accepted / admits
- ****YoY change****: percent change vs prior year

NTR model

NTR is calculated using census attributes and credit load, producing:

- Total NTR and progress to goal
- New vs continuing components
- Category and degree breakdowns (where available)

5. AI Assistant System (Ask Navs, persona: Naveen)

Aligned with Section 6 of `AI_SYSTEMS_TECHNICAL_DOSSIER.md`.

Naming and roles

- ****Ask Navs****: The feature name and tab label
- ****Naveen****: The assistant persona inside Ask Navs

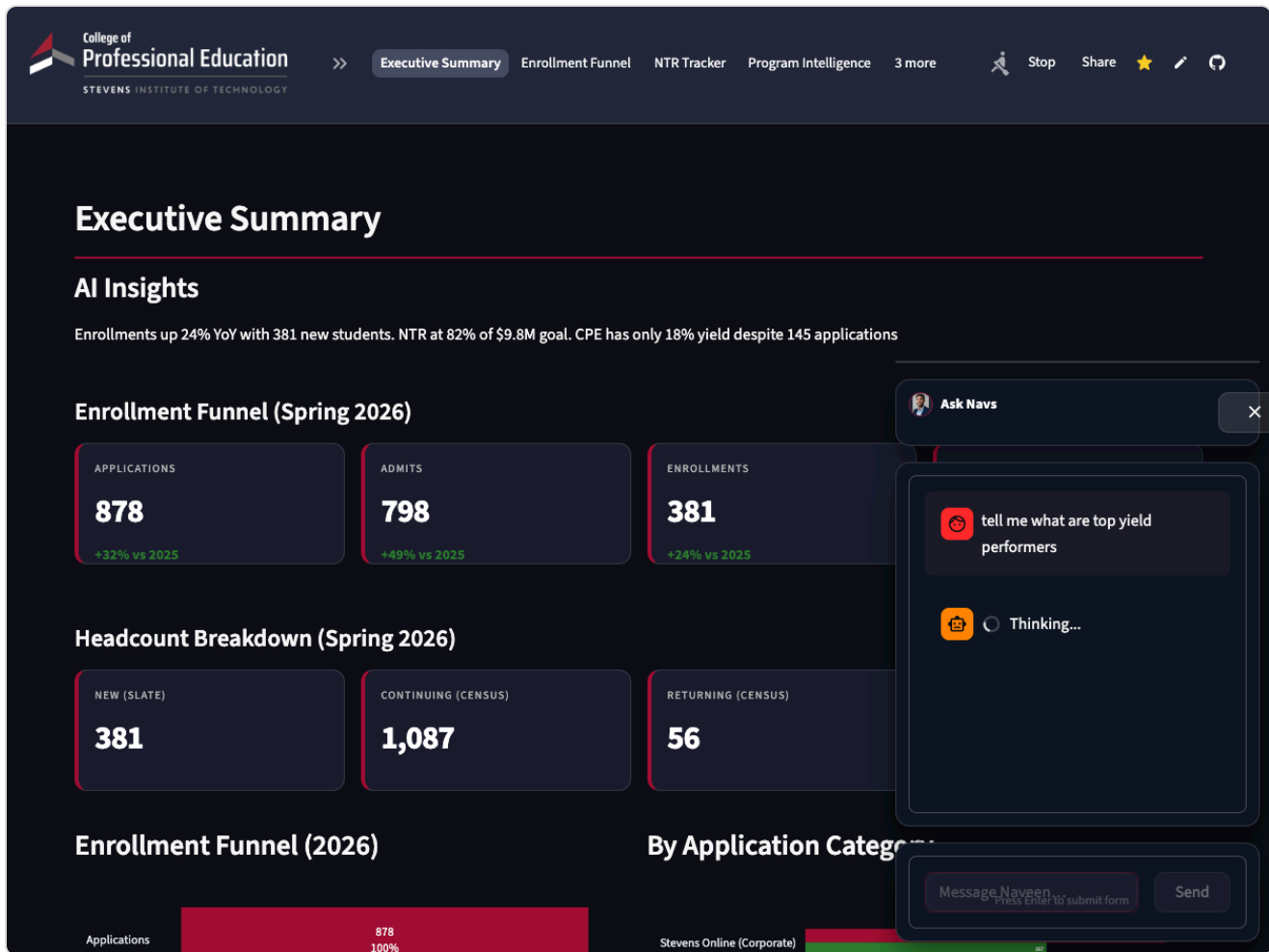
How it works (high level)

- Uses Google Gemini as the LLM
- Uses structured, data-grounded context with guardrails to avoid fabrication

- Uses a two-stage approach: first select relevant context categories, then build the final context and answer
- Maintains conversation memory via summarization

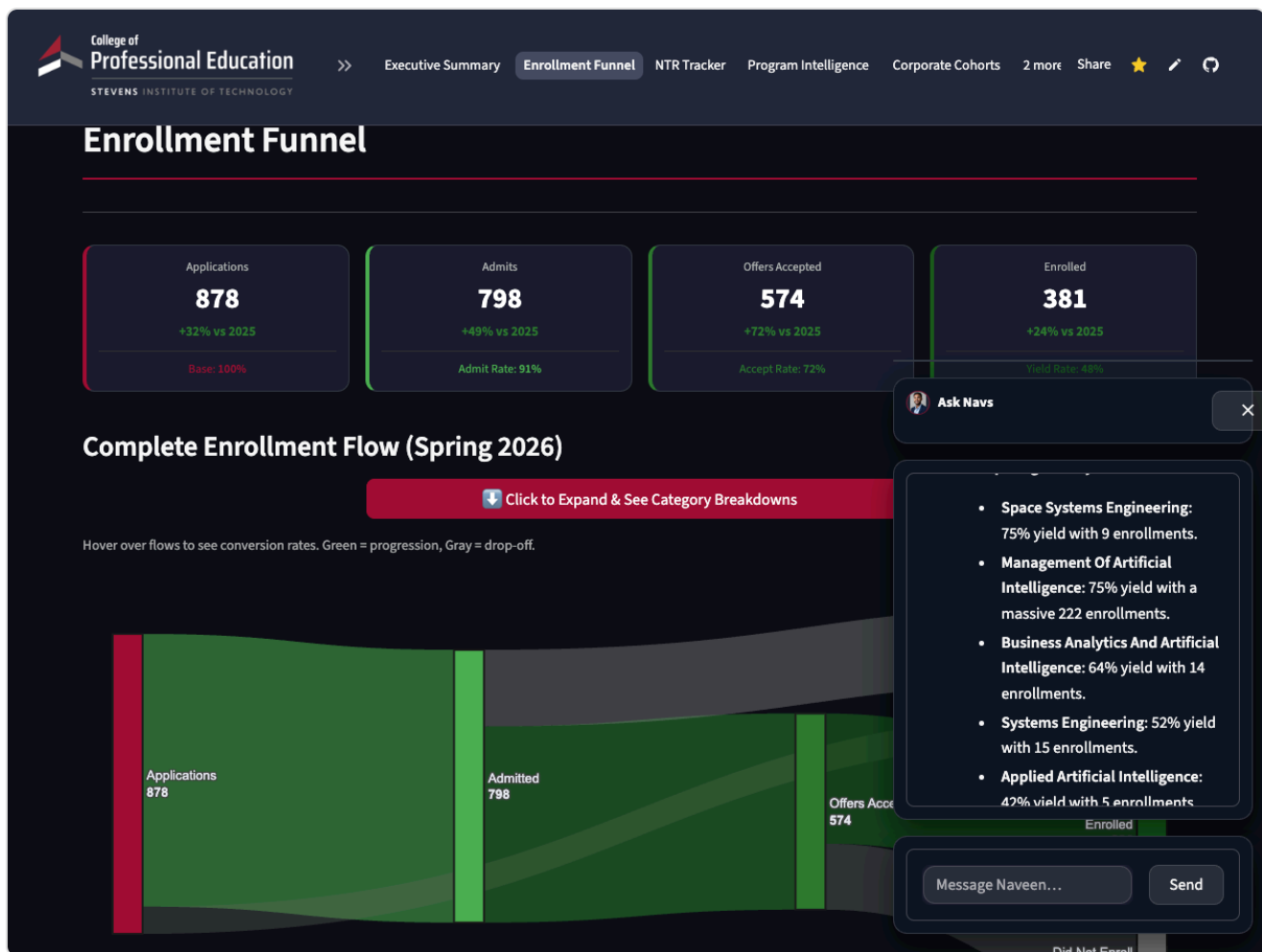
6. UI Walkthrough (Screenshots by page)

6.1 Executive Summary



- **AI Insights**: A concise, data-grounded narrative of the current state
- **Funnel KPIs**: Applications, admits, enrollments, and yield with YoY context
- **Headcount Breakdown**: New (Slate) plus continuing and returning (Census)
- **Ask Naveen widget**: Floating assistant for quick questions without leaving the page

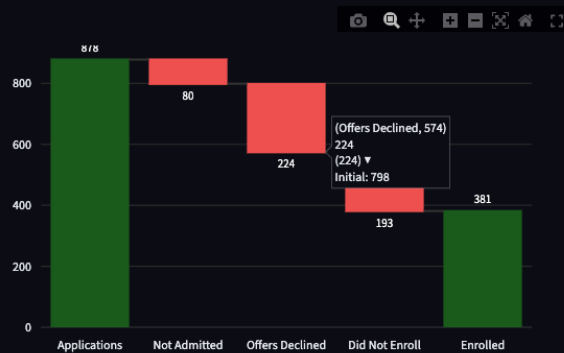
6.2 Enrollment Funnel



- ****Stage cards****: Applications, admits, offers accepted, enrolled
- ****Sankey flow****: Visual progression and drop-off through the funnel
- ****Expandable category breakouts****: Drill down by category when expanded

Conversion Waterfall

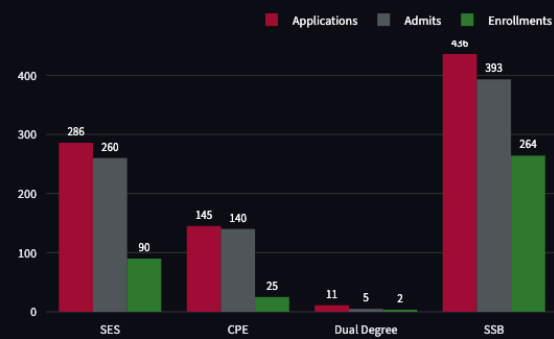
Student loss at each stage



Year-over-Year

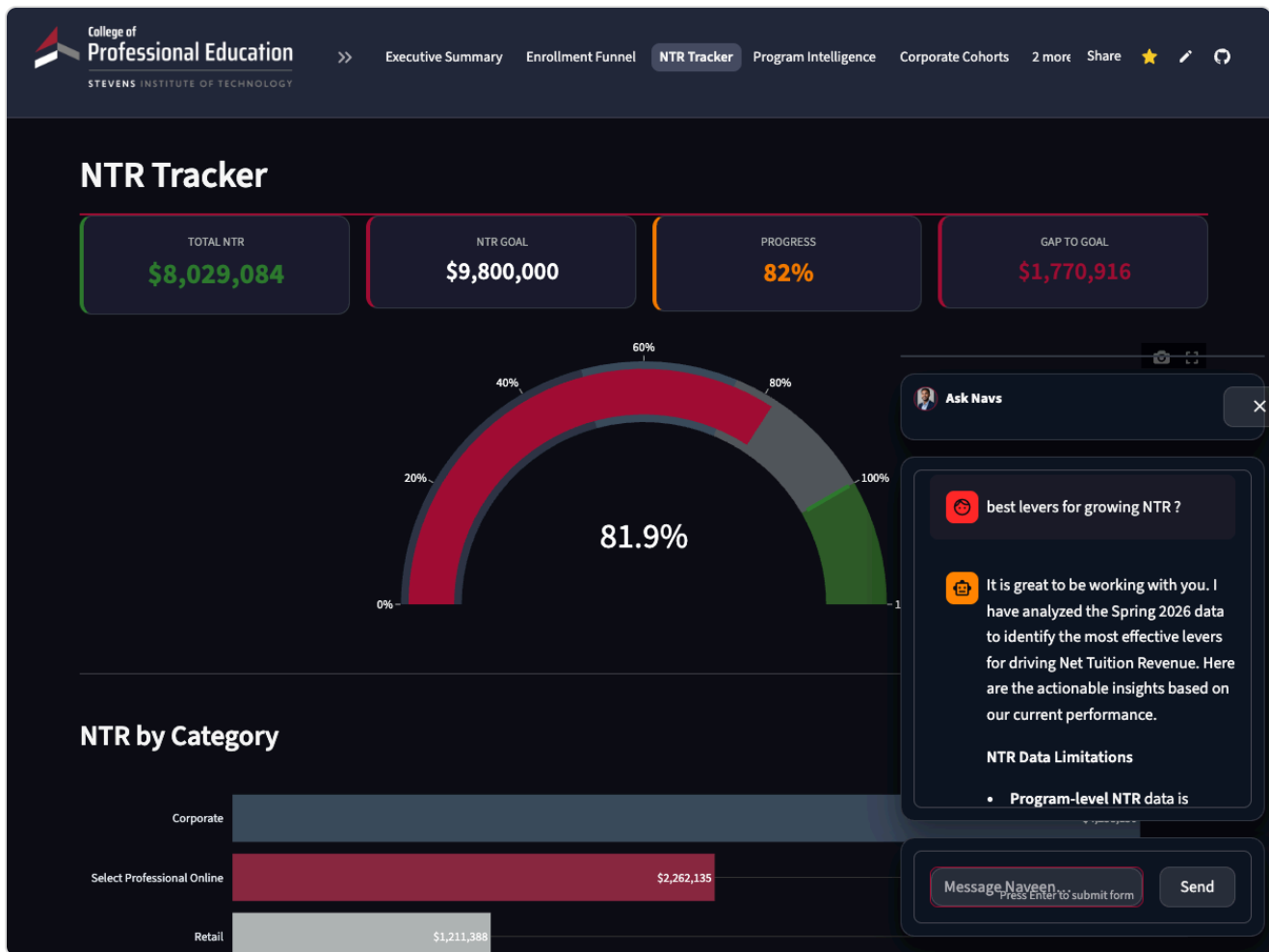
Year	Applications	Admits	Offers Accepted	Enrolled	Admit Rate	Yield Rate
2024	365	311	191	102	85%	33%
2025	667	534	334	308	80%	58%
2026	878	798	574	381	91%	48%
YoY	+32%	+49%	+72%	+24%	—	—

By School



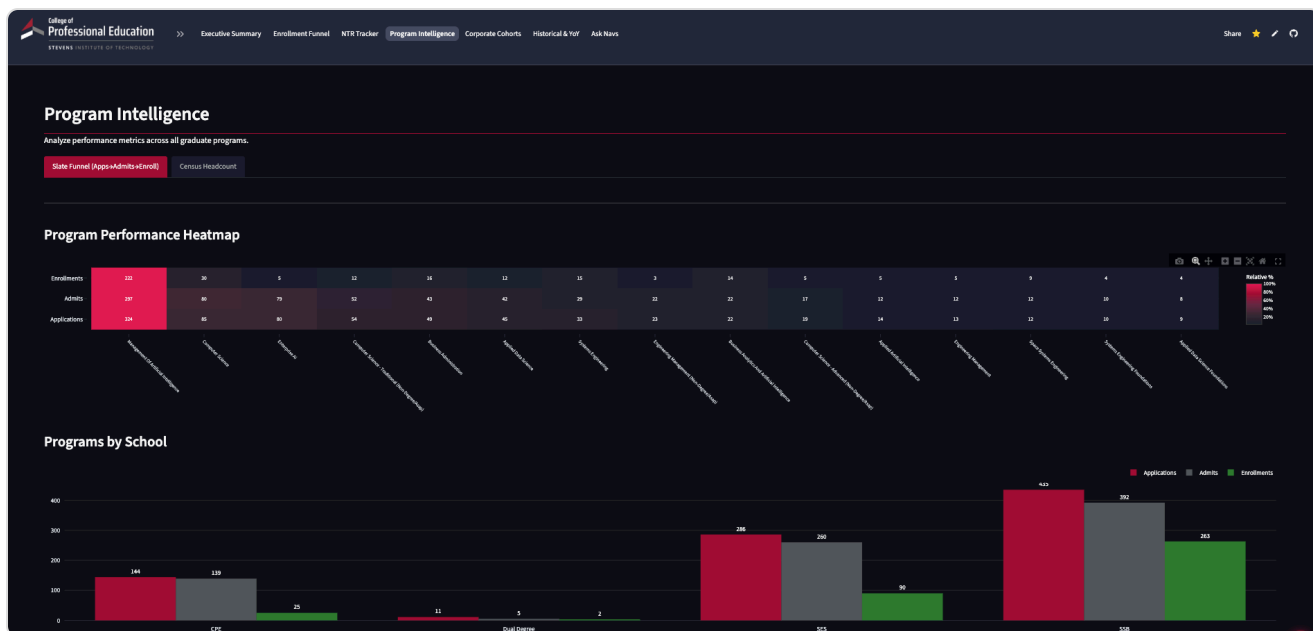
- **Conversion waterfall**: Where students drop at each stage
- **YoY table**: Quick comparison across 2024, 2025, 2026
- **By school**: Funnel volume by school

6.3 NTR Tracker

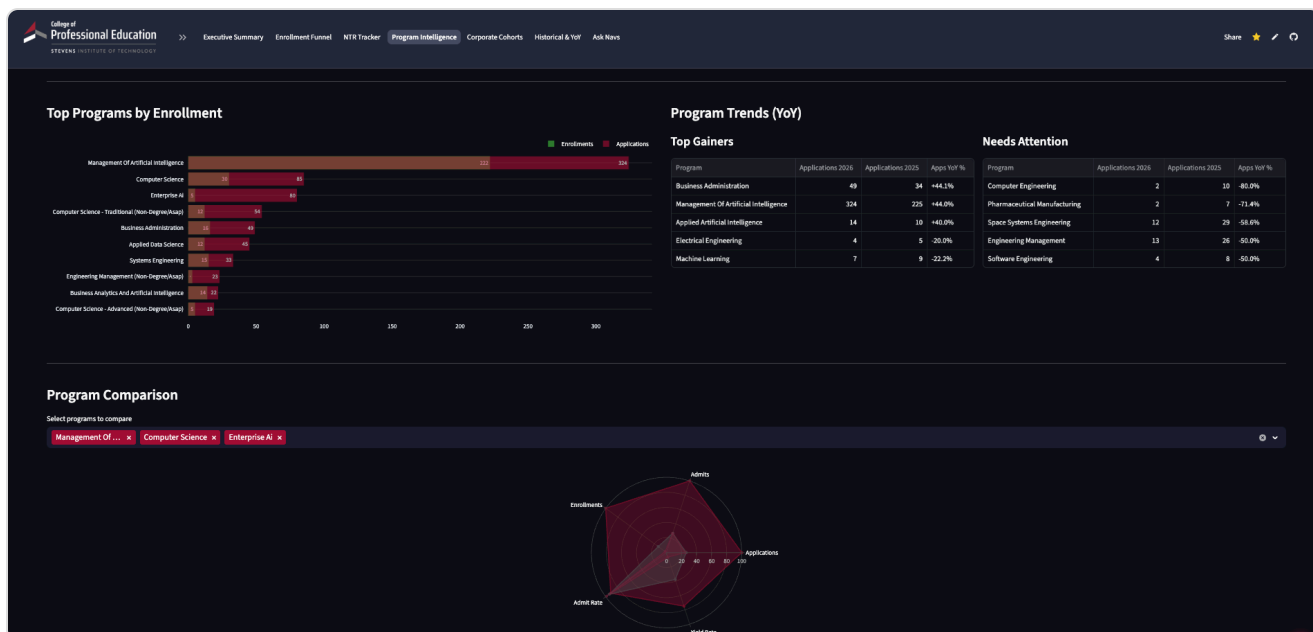


- **Goal tracking**: Total NTR, goal, progress percentage, gap to goal
- **Category breakdown**: NTR composition across enrollment categories
- **Ask Nave**: Ask for levers and action plan grounded in the current data

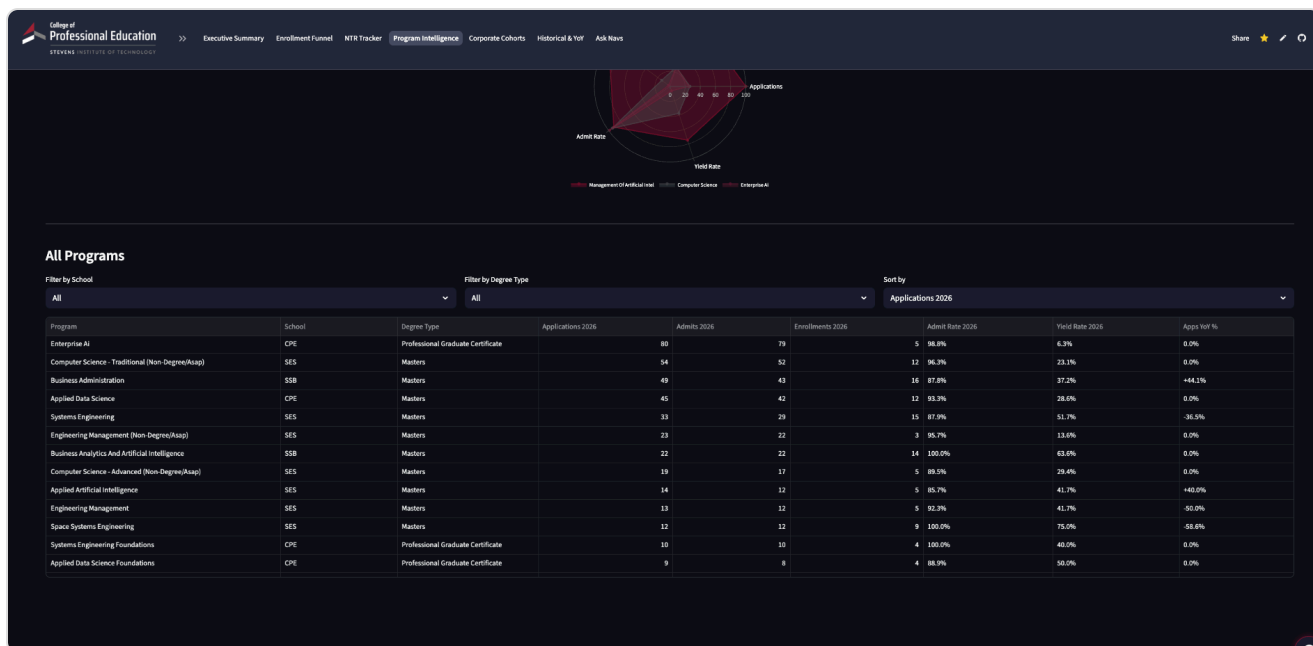
6.4 Program Intelligence



- **Heatmap**: Program performance across apps, admits, enrollments
- **Programs by school**: Distribution across schools

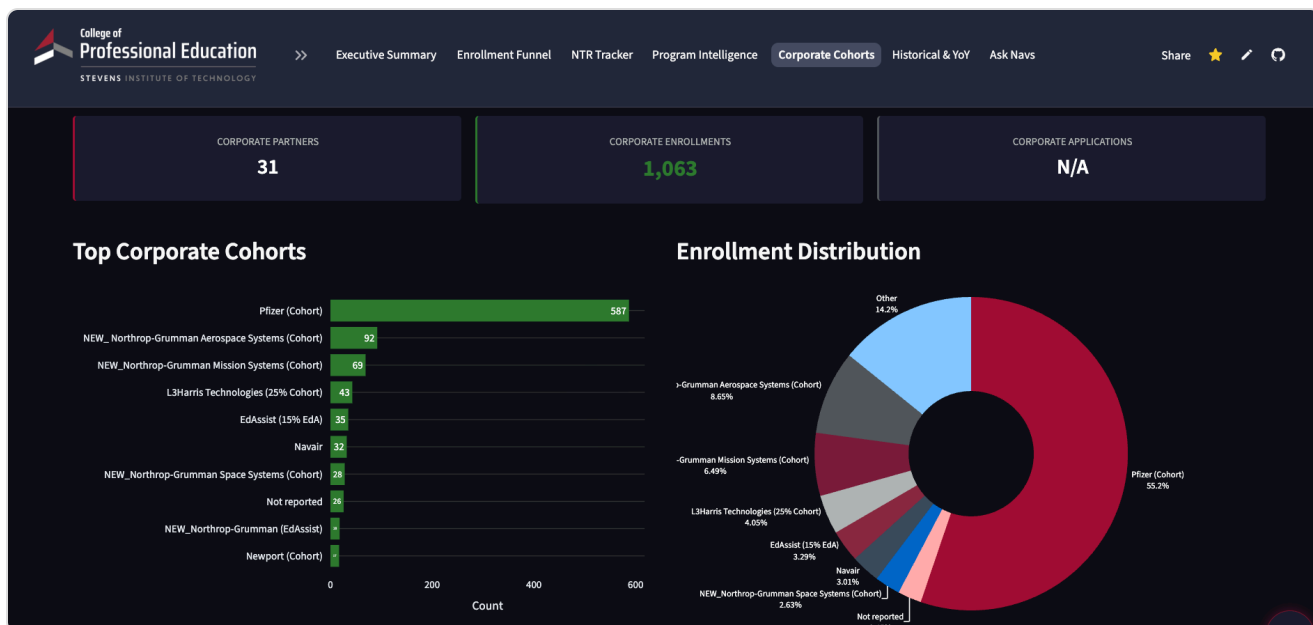


- **Top programs**: Highest enrollment contributors
- **Top gainers / needs attention**: YoY deltas for quick prioritization
- **Program comparison**: Radar chart for side-by-side analysis



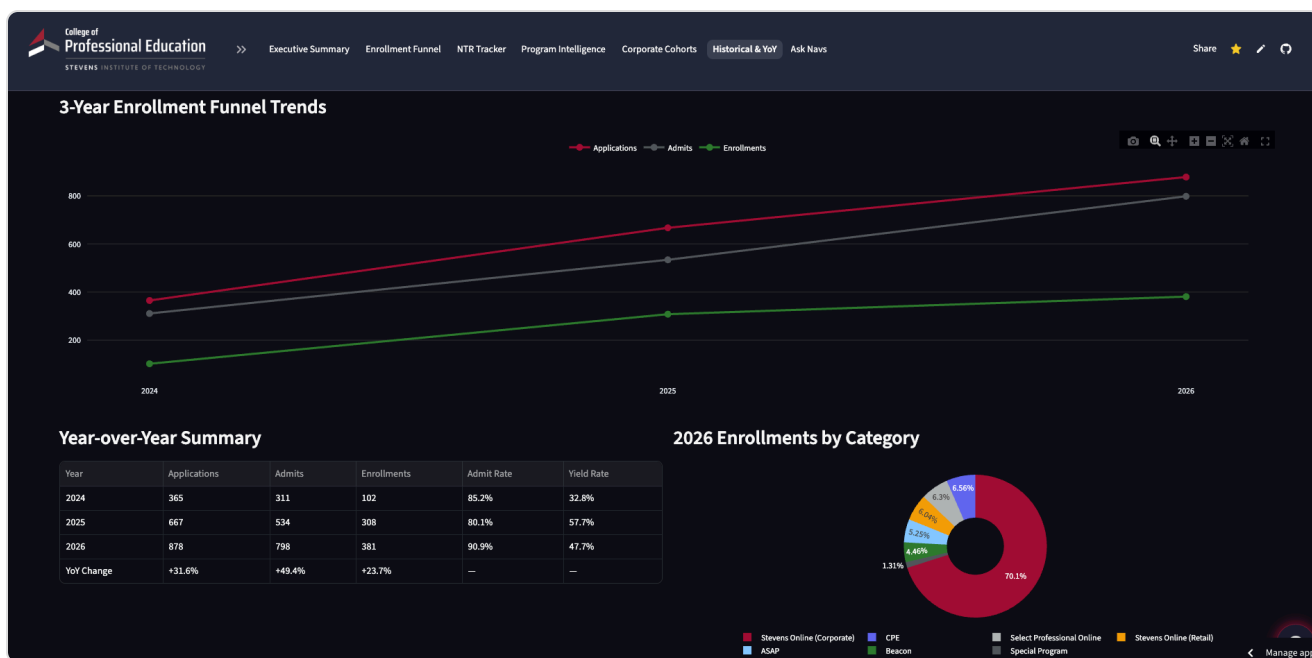
- ****Filters****: School and degree type
- ****Sort and scan****: Applications, admits, enrollments, yield, YoY

6.5 Corporate Cohorts

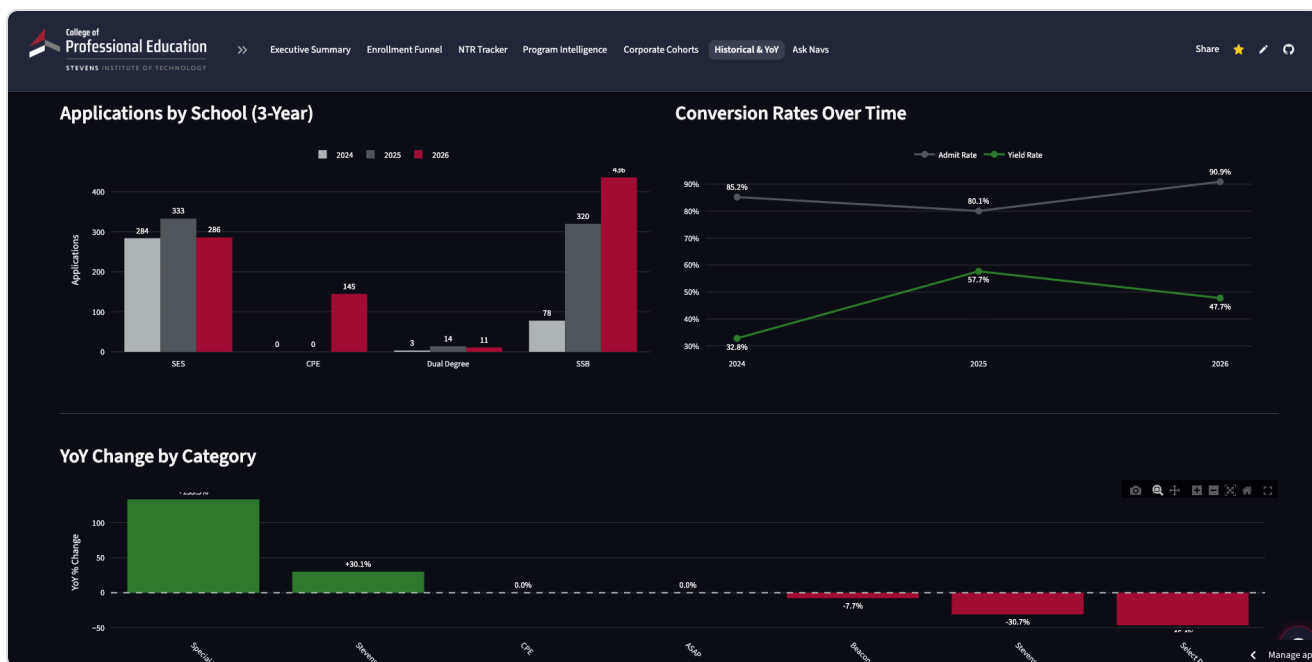


- ****Corporate partner view****: Partners, enrollments, distribution
- ****Top cohorts****: Who is driving corporate headcount

6.6 Historical and YoY

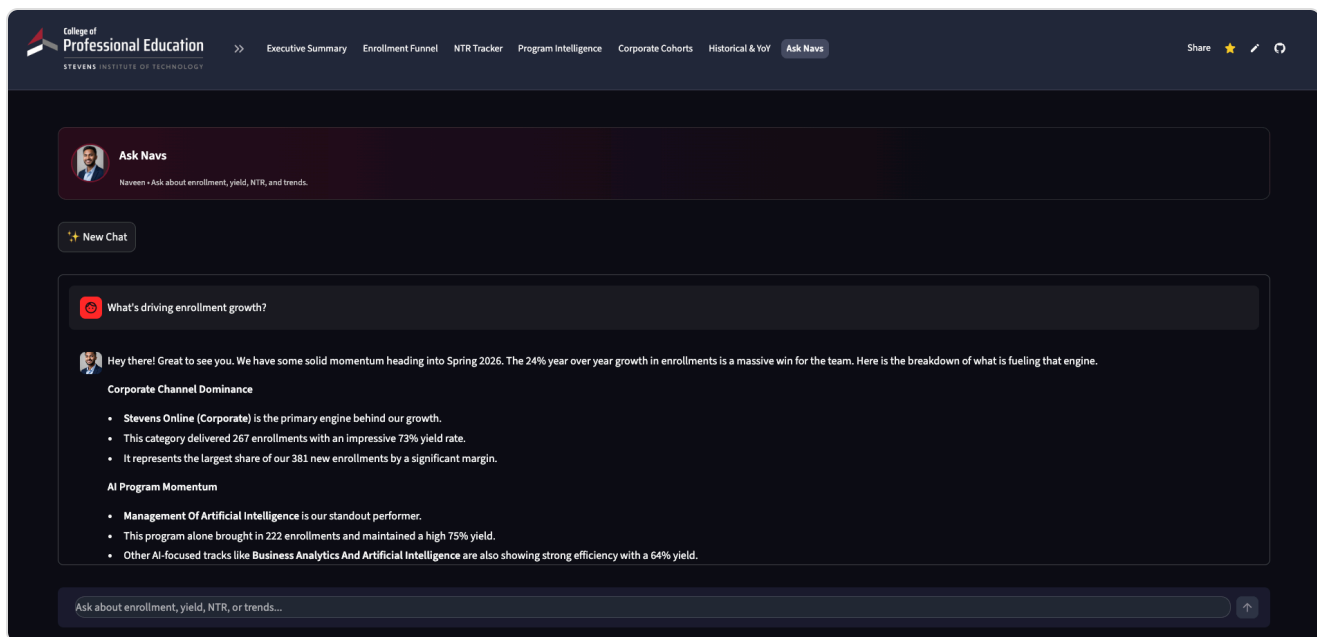


- ****3-year trends****: Applications, admits, enrollments
- ****YoY summary****: Table view for quick reference
- ****Category mix****: 2026 enrollment distribution by category



- ****School trend****: Applications by school across 3 years
- ****Conversion rates over time****: Admit rate and yield rate trends
- ****YoY change by category****: Where growth and decline is concentrated

6.7 Ask Navs (Dedicated AI page)



- **Natural language analytics**: Ask questions and get grounded answers
- **Actionable breakdowns**: Responses structured into short sections and bullets
- **Consistent voice**: Friendly and confident, but professional

7. Security and Deployment

Aligned with Sections 9 and 10 of `AI_SYSTEMS_TECHNICAL_DOSSIER.md`.

Security

- Password-protected access via Streamlit secrets
- API keys stored in secrets, not in code
- Aggregate analytics only (no student-level PII displayed in the UI)

January 2026.