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RADIANT UI/UX Patterns, Styles, and Behaviors

Design System Documentation

Version: 1.1 | **Date:** January 19, 2026

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Overview

This document tracks all UI/UX patterns, styles, and behaviors used in RADIANT and Think Tank applications. It is **MANDATORY** to:

1. Review this document **BEFORE** making UI changes

2. Update this document when patterns are added, modified, or removed

Policy: See /.windsurf/workflows/ui-ux-patterns-policy.md

Design System Foundation

Source References

| Resource | URL | Usage |
|--------------------------------|---|--------------------------|
| shadcn/ui | https://ui.shadcn.com | Base component library |
| Radix UI | https://www.radix-ui.com | Accessible primitives |
| Tailwind CSS | https://tailwindcss.com | Utility-first styling |
| Material Design 3 | https://m3.material.io | Color theory, spacing |
| Atlassian Design System | https://atlassian.design | Enterprise patterns |
| Shopify Polaris | https://polaris.shopify.com | Admin dashboard patterns |
| GitHub Primer | https://primer.style | Developer-focused UI |
| Framer Motion | https://www.framer.com/motion | Animation library |

Category 1: Design Tokens

Color System

Source: shadcn/ui theming system with HSL CSS variables

| Token | Light Mode | Dark Mode | Usage |
|---------------|-------------------|-------------------|---------------------|
| --background | 0 0% 100% | 222.2 84% 4.9% | Page background |
| --foreground | 222.2 84% 4.9% | 210 40% 98% | Primary text |
| --primary | 262 83% 58% | 262 83% 68% | Brand purple |
| --secondary | 210 40% 96.1% | 217.2 32.6% 17.5% | Secondary elements |
| --muted | 210 40% 96.1% | 217.2 32.6% 17.5% | Muted backgrounds |
| --accent | 210 40% 96.1% | 217.2 32.6% 17.5% | Accent highlights |
| --destructive | 0 84.2% 60.2% | 0 62.8% 30.6% | Error/danger states |
| --border | 214.3 31.8% 91.4% | 217.2 32.6% 17.5% | Border color |
| --ring | 262 83% 58% | 262 83% 68% | Focus ring |

Files: - apps/admin-dashboard/app/globals.css - apps/thinktank-admin/app/globals.css

Thermal State Colors

Source: Custom RADIANT design for infrastructure status

| State | Color | Hex | Usage |
|-----------|--------|---------|-------------------|
| off | Gray | #6b7280 | Disabled/inactive |
| cold | Blue | #3b82f6 | Cold/standby |
| warm | Amber | #f59e0b | Warming up |
| hot | Red | #ef4444 | Active/hot |
| automatic | Purple | #8b5cf6 | Auto-managed |

Files: apps/admin-dashboard/tailwind.config.ts

Service Status Colors

| Status | Color | Hex | Usage |
|----------|-------|---------|-------------------|
| running | Green | #22c55e | Service healthy |
| degraded | Amber | #f59e0b | Partial issues |
| disabled | Gray | #6b7280 | Intentionally off |
| offline | Red | #ef4444 | Unavailable |

Files: apps/admin-dashboard/tailwind.config.ts

Typography

| Token | Value | Usage |
|-----------|------------------------------|-----------------|
| font-sans | Inter, system-ui, sans-serif | Body text |
| font-mono | JetBrains Mono, monospace | Code, technical |

Source: Inter from Google Fonts, JetBrains Mono for code

Category 2: Component Patterns

Button Variants

Source: shadcn/ui Button component with class-variance-authority

| Variant | Style | Usage |
|-------------|-------------------------------|---------------------------|
| default | Purple background, white text | Primary actions |
| destructive | Red background | Delete, dangerous actions |
| outline | Border only | Secondary actions |
| secondary | Gray background | Tertiary actions |
| ghost | No background until hover | Subtle actions |

| Variant | Style | Usage |
|---------|---------------------|------------------|
| link | Text with underline | Navigation links |

| Size | Height | Usage |
|---------|-------------|-------------------|
| default | h-10 (40px) | Standard buttons |
| sm | h-9 (36px) | Compact areas |
| lg | h-11 (44px) | Prominent CTAs |
| icon | h-10 w-10 | Icon-only buttons |

Files: apps/admin-dashboard/components/ui/button.tsx

Card Component

Source: shaden/ui Card component with Glass variant (v5.52.2)

| Part | Class | Purpose |
|----------------------|---|--------------|
| Card | rounded-xl border | Container |
| Card variant="glass" | bg-card shadow-sm bg-white/[0.04] backdrop-blur-lg border-white/[0.08] | Glass effect |
| CardHeader | flex flex-col space-y-1.5 p-6 | Title area |
| CardTitle | text-2xl font-semibold | Main heading |
| CardDescription | text-sm text-muted-foreground | Subtitle |

GlassCard Component (v5.52.2)

Source: Custom RADIANT glassmorphism component

| Part | Class | Purpose |
|--------------|---|-----------------|
| GlassCard | bg-white/[0.04] backdrop-blur-lg border-white/[0.08] rounded-xl | Glass container |
| GlassPanel | bg-white/[0.03] backdrop-blur-lg border-white/[0.06] rounded-2xl | Glass panel |
| GlassOverlay | fixed inset-0 bg-black/40 backdrop-blur-xl z-50 | Modal overlay |

Variants:

| Variant | Effect | Use Case |
|----------|--------------------|------------------|
| default | Subtle glass | Standard cards |
| elevated | Stronger shadow | Floating panels |
| inset | Inner shadow | Embedded content |
| glow | Ambient color glow | Featured content |

Intensity:

| Intensity | Background | Blur |
|-----------|-----------------|------------------|
| light | bg-white/[0.02] | backdrop-blur-md |
| medium | bg-white/[0.04] | backdrop-blur-lg |
| strong | bg-white/[0.08] | backdrop-blur-xl |

Glow Colors:

| Color | Shadow |
|---------|---|
| violet | shadow-[0_0_30px_rgba(139,92,246,0.15)] |
| fuchsia | shadow-[0_0_30px_rgba(217,70,239,0.15)] |
| cyan | shadow-[0_0_30px_rgba(34,211,238,0.15)] |
| emerald | shadow-[0_0_30px_rgba(52,211,153,0.15)] |
| blue | shadow-[0_0_30px_rgba(59,130,246,0.15)] |

Files: - apps/thinktank/components/ui/glass-card.tsx - apps/admin-dashboard/components/ui/glass-card.tsx
- apps/thinktank-admin/components/ui/glass-card.tsx - apps/curator/components/ui/glass-card.tsx

Stat Card Component

Source: Custom RADIANT component for metrics display

| Variant | Icon Background | Usage |
|---------|-----------------|------------------|
| default | bg-slate-100 | Neutral metrics |
| primary | bg-blue-100 | Key metrics |
| success | bg-emerald-100 | Positive metrics |
| warning | bg-amber-100 | Attention needed |
| danger | bg-red-100 | Critical metrics |

Files: - apps/admin-dashboard/components/ui/stat-card.tsx - apps/admin-dashboard/lib/design-tokens

Dialog/Modal Pattern

Source: Radix UI Dialog primitive + shadcn/ui styling

| Part | Purpose |
|---------------|------------------------------|
| DialogTrigger | Button to open |
| DialogContent | Modal container with overlay |
| DialogHeader | Title and description area |
| DialogFooter | Action buttons |
| DialogClose | Close button |

Behavior: - Focus trap inside modal - Escape key closes - Click outside closes - Scroll lock on body

Files: apps/admin-dashboard/components/ui/dialog.tsx

Toast Notifications

Source: Sonner toast library

| Type | Icon | Duration | Usage |
|---------|-------|----------|--------------------|
| success | Check | 4s | Successful actions |
| error | X | 6s | Errors |
| warning | Alert | 5s | Warnings |
| info | Info | 4s | Information |

Files: apps/admin-dashboard/components/ui/toaster.tsx

Category 3: Layout Patterns

Grid Layouts

Source: Custom RADIANT responsive grid system

| Pattern | Classes | Breakpoints |
|---------|---|---------------|
| stats2 | grid-cols-1 sm:grid-cols-2 | 1 → 2 columns |
| stats3 | grid-cols-1 sm:grid-cols-2 lg:grid-cols-3 | 1 → 2 → 3 |
| stats4 | grid-cols-1 sm:grid-cols-2 lg:grid-cols-4 | 1 → 2 → 4 |

| Pattern | Classes | Breakpoints |
|---------|---|-------------|
| stats5 | grid-cols-2 sm:grid-cols-3 lg:grid-cols-5 | 2 → 3 → 5 |
| cards2 | grid-cols-1 md:grid-cols-2 gap-6 | 1 → 2 |
| cards3 | grid-cols-1 md:grid-cols-2 lg:grid-cols-3 gap-6 | 1 → 2 → 3 |

Files: apps/admin-dashboard/lib/design-tokens.ts

Sidebar Layout

Source: shadcn/ui Sidebar component pattern

| State | Width | Behavior |
|-----------|--------------|-----------------|
| Expanded | 256px | Full navigation |
| Collapsed | 64px | Icons only |
| Mobile | Full overlay | Sheet pattern |

Files: apps/admin-dashboard/components/layout/

Container Pattern

Source: Tailwind CSS container with custom config

```
container: {
  center: true,
  padding: '2rem',
  screens: { '2xl': '1400px' }
}
```

Files: apps/admin-dashboard/tailwind.config.ts

Resizable Panels

Source: react-resizable-panels library

| Pattern | Usage |
|---------------------|----------------------------|
| ResizablePanelGroup | Container for panels |
| ResizablePanel | Individual panel |
| ResizableHandle | Drag handle between panels |

Files: apps/admin-dashboard/components/ui/resizable.tsx

Category 4: Animation Patterns

Framer Motion Animations

Source: Framer Motion library

| Animation | Properties | Usage |
|-----------------|------------------------|--------------------|
| Fade In | opacity: 0 → 1 | Element appearance |
| Slide In | translateX/Y + opacity | Panel transitions |
| Scale | scale: 0.95 → 1 | Modal appearance |
| Stagger | staggerChildren: 0.05 | List items |

Files: - apps/admin-dashboard/components/thinktank/magic-carpet/ - apps/admin-dashboard/components

CSS Animations (Tailwind)

| Animation | Keyframes | Duration | Usage |
|---------------------|---------------------|----------|--------------------|
| accordion-down | Height 0 → auto | 0.2s | Accordion expand |
| accordion-up | Height auto → 0 | 0.2s | Accordion collapse |
| fade-in | Opacity 0 → 1 | 0.2s | Element appearance |
| slide-in-from-right | TranslateX 100% → 0 | 0.3s | Sheet/drawer |
| pulse-slow | Opacity 1 → 0.5 → 1 | 2s loop | Loading states |
| shimmer | Background position | 2s loop | Skeleton loading |

Files: apps/admin-dashboard/tailwind.config.ts

Category 5: Interaction Behaviors

Focus Management

Source: Radix UI accessibility patterns + WCAG 2.1

| Pattern | Behavior |
|----------------------|---|
| Focus Ring | ring-2 ring-ring ring-offset-2 on focus |
| Focus Trap | Tab cycles within modals/dialogs |
| Focus Restore | Returns focus when modal closes |
| Skip Links | Hidden link to main content |

Files: apps/admin-dashboard/app/globals.css (.focus-ring class)

Keyboard Navigation

Source: Radix UI primitives

| Component | Keys |
|------------------|-----------------------------------|
| Dialog | Escape to close |
| Dropdown | Arrow keys, Enter, Escape |
| Tabs | Arrow keys to switch |
| Accordion | Space/Enter to toggle |
| Select | Arrow keys, Enter, Type to search |

Loading States

| Pattern | Visual | Usage |
|-----------------|---------------------------|-------------------------|
| Skeleton | Gray animated placeholder | Content loading |
| Spinner | Rotating icon | Action in progress |
| Progress | Bar with percentage | File upload, long tasks |
| Shimmer | Gradient animation | Card/list loading |

Files: - apps/admin-dashboard/components/ui/skeleton.tsx - apps/admin-dashboard/components/ui/progress

Empty States

Source: Custom RADIANT pattern

| Element | Purpose |
|-------------|------------------|
| Icon | Visual indicator |
| Title | What's empty |
| Description | Why/what to do |
| Action | CTA button |

Files: apps/admin-dashboard/components/ui/empty-state.tsx

Category 6: Form Patterns

Form Layout

Source: react-hook-form + shadcn/ui Form component

| Pattern | Usage |
|----------------|-------------------------------|
| Stacked | Label above input, full width |
| Inline | Label beside input |
| Grid | Multiple fields in columns |

Validation

Source: Zod schema validation + @hookform/resolvers

| State | Visual |
|-----------------|----------------------------|
| Default | Gray border |
| Focus | Ring highlight |
| Error | Red border + error message |
| Success | Green border (optional) |
| Disabled | Reduced opacity |

Input Types

| Component | Radix Primitive | Usage |
|-----------|--------------------------|-----------------------|
| Input | Native | Text, email, password |
| Textarea | Native | Multi-line text |
| Select | @radix-ui/react-select | Dropdown selection |
| Checkbox | @radix-ui/react-checkbox | Boolean toggle |
| Switch | @radix-ui/react-switch | On/off toggle |
| Slider | @radix-ui/react-slider | Range selection |

Category 7: Data Display Patterns

Tables

Source: shadcn/ui Table component

| Part | Class | Purpose |
|-------------|----------------------|----------------|
| Table | Full width container | Wrapper |
| TableHeader | Sticky header | Column names |
| TableBody | Scrollable | Data rows |
| TableRow | Hover state | Individual row |
| TableCell | Padding, alignment | Cell content |

Files: apps/admin-dashboard/components/ui/table.tsx

Charts

Source: Recharts library

| Chart Type | Usage |
|------------|------------------|
| LineChart | Trends over time |
| BarChart | Comparisons |

| Chart Type | Usage |
|------------|-----------------|
| AreaChart | Volume/quantity |
| PieChart | Proportions |

Chart Colors (CSS variables): - `--chart-1`: Primary (purple) - `--chart-2`: Teal - `--chart-3`: Dark blue - `--chart-4`: Yellow - `--chart-5`: Orange

Interactive Report Charts (v5.42.0):

| Property | Value | Usage |
|---------------------|-----------------|--|
| CHART_COLORS | 8-color palette | ['#3b82f6', '#10b981', '#f59e0b', '#ef4444', '#8b5cf6', '#ec4899', '#06b6d4', '#84cc16'] |
| Tooltip formatter | K/M suffixes | Auto-format large numbers |
| ResponsiveContainer | 100% width | Adapts to panel size |
| Cell coloring | Index-based | Each bar/pie slice unique color |

Files: `apps/admin-dashboard/app/(dashboard)/reports/page.tsx`

Smart Insights Panel (v5.42.0)

Source: Custom RADIANT component for AI-powered report insights

| Insight Type | Border Color | Icon | Background |
|----------------|--|---------------|------------------------------|
| trend | Blue (<code>border-1-blue-500</code>) | TrendingUp | <code>bg-blue-50/50</code> |
| anomaly | Amber (<code>border-1-amber-500</code>) | AlertTriangle | <code>bg-amber-50/50</code> |
| achievement | Green (<code>border-1-green-500</code>) | Target | <code>bg-green-50/50</code> |
| recommendation | Purple (<code>border-1-purple-500</code>) | Zap | <code>bg-purple-50/50</code> |
| warning | Red (<code>border-1-red-500</code>) | AlertCircle | <code>bg-red-50/50</code> |

Severity Badge Colors: | Severity | Border | Text | | `low` | `border-green-500` | `text-green-600` | | `medium` | `border-amber-500` | `text-amber-600` | | `high` | `border-red-500` | `text-red-600` |

Layout: Card with `border-1-4`, flex row with insight details left and confidence score right.

Files: `apps/admin-dashboard/app/(dashboard)/reports/page.tsx`, `apps/thinktank-admin/app/(dashboard)`

Brand Kit Panel (v5.42.0)

Source: Custom RADIANT component for report branding customization

| Element | Component | Behavior |
|---------------|--|--|
| Logo Upload | <code><input type="file"></code> hidden + dashed border dropzone | FileReader → data URL |
| Company Name | Input | Bound to <code>brandKit.companyName</code> |
| Tagline | Input | Bound to <code>brandKit.tagline</code> |
| Color Pickers | <code><input type="color"></code> | Native HTML5 color picker |
| Font Selector | Select | Header and body font dropdowns |
| Quick Presets | Color circle buttons | One-click theme colors |
| Preview Card | Card with inline styles | Live preview of branding |

Default Brand Kit:

```
{
  logoUrl: null,
  primaryColor: '#3b82f6',
  secondaryColor: '#64748b',
  accentColor: '#10b981',
  fontFamily: 'Inter, system-ui, sans-serif',
  headerFont: 'Inter, system-ui, sans-serif',
  companyName: 'RADIANT',
  tagline: 'AI-Powered Insights',
}
```

Files: `apps/admin-dashboard/app/(dashboard)/reports/page.tsx`, `apps/thinktank-admin/app/(dashboard)`

Badges

Source: `shadcn/ui` Badge + custom variants

| Variant | Colors | Usage |
|--------------------------|----------------|------------------|
| <code>default</code> | Primary colors | Standard |
| <code>secondary</code> | Gray | Less emphasis |
| <code>destructive</code> | Red | Errors, warnings |
| <code>outline</code> | Border only | Subtle |

Tier Badges (custom): | Tier | Colors | |——|——| | `free` | Slate | | `pro` | Blue | | `team` | Purple | | `enterprise` | Amber |

Status Badges (custom): | Status | Colors | |——|——| | `active` | Emerald | | `inactive` | Slate | | `suspended` | Red | | `archived` | Amber |

Files: - `apps/admin-dashboard/components/ui/badge.tsx` - `apps/admin-dashboard/lib/design-tokens.ts`

Category 8: Navigation Patterns

Tabs

Source: Radix UI Tabs primitive

| Pattern | Usage |
|-------------------|------------------|
| Horizontal | Page sections |
| Vertical | Settings sidebar |
| Contained | Card-style tabs |

Files: `apps/admin-dashboard/components/ui/tabs.tsx`

Breadcrumbs

| Pattern | Format |
|------------------|-----------------------|
| Standard | Home / Section / Page |
| Truncated | Home / ... / Page |

Dropdown Menu

Source: Radix UI Dropdown Menu primitive

| Part | Purpose |
|------------------------------------|----------------|
| <code>DropdownMenuTrigger</code> | Button to open |
| <code>DropdownMenuContent</code> | Menu container |
| <code>DropdownMenuItem</code> | Clickable item |
| <code>DropdownMenuSeparator</code> | Visual divider |
| <code>DropdownMenuSub</code> | Nested submenu |

Files: - `apps/admin-dashboard/components/ui/dropdown-menu.tsx` - `apps/thinktank/components/ui/dropd`
(v5.52.16 - glassmorphism variant)

Think Tank Variant (v5.52.16): | Property | Value | |———|———| | Background |
bg-slate-900/95 backdrop-blur-xl | | Border | border-white/[0.08] | | Item hover |
focus:bg-white/[0.08] | | Text color | text-slate-300 (hover: text-white) | | Border radius |
rounded-xl | | Shadow | shadow-xl shadow-black/20 |

Category 9: Think Tank Consumer Chat Patterns

Source: Custom Think Tank design with shadcn/ui and Framer Motion

Advanced Mode Toggle

Toggle between Auto and Advanced modes with animated transition.

| State | Appearance |
|---------------|----------------------------------|
| Auto Mode | Sparkles icon, subtle styling |
| Advanced Mode | Zap icon, violet glow background |

Keyboard Shortcut: +Shift+A

Files: `apps/thinktank/components/chat/AdvancedModeToggle.tsx`

Message Bubble

Enhanced chat message component with metadata support.

| Feature | Auto Mode | Advanced Mode |
|------------------|-----------|---------------|
| Avatar | | |
| Content | | |
| Streaming cursor | | |
| Model used | | |
| Token count | | |
| Latency | | |
| Cost estimate | | |
| Rating buttons | | |

Files: `apps/thinktank/components/chat/MessageBubble.tsx`

Chat Input

Smart auto-resizing textarea with model selector integration.

| Feature | Description |
|-------------------|------------------------------|
| Auto-resize | Grows up to 200px |
| Attachment button | File upload |
| Voice button | Voice input |
| Model selector | Shows in Advanced Mode |
| Send button | Gradient styling when active |

Files: `apps/thinktank/components/chat/ChatInput.tsx`

Sidebar with Date Grouping

Conversation list grouped by time period.

| Group | Conversations |
|-------------|--------------------------|
| Today | Conversations from today |
| Yesterday | Previous day |
| Last 7 Days | Past week |
| Older | Everything else |

Files: `apps/thinktank/components/chat/Sidebar.tsx`

Brain Plan Viewer

Collapsible execution plan display for Advanced Mode.

| Element | Purpose |
|-----------------|----------------------------|
| Mode badge | Shows orchestration mode |
| Domain badge | Detected knowledge domain |
| Progress bar | Step completion percentage |
| Step list | Individual execution steps |
| Model selection | Selected model with reason |

Files: `apps/thinktank/components/chat/BrainPlanViewer.tsx`

Model Selector Dialog

Full-featured model picker with search and categories.

| Feature | Description |
|-------------|-----------------------------------|
| Search | Filter by name/description |
| Categories | Filter by model category |
| Model cards | Shows capabilities, cost, latency |
| Auto option | “Let Cato decide” option |

Files: `apps/thinktank/components/chat/ModelSelector.tsx`

Language Selector

Component for selecting preferred UI language from API-provided list.

| Variant | Description |
|-----------------|--|
| dropdown | Compact dropdown with current language |
| list | Full list for settings page |

| Feature | Description |
|--------------|-----------------------------------|
| Native names | Shows language in its own script |
| RTL support | Respects text direction |
| API-driven | Languages loaded from Radiant API |
| Persisted | Saves to localStorage |

Files: apps/thinktank/components/ui/language-selector.tsx

Category 10: Localization Patterns

Source: Custom Think Tank design

Translation Hook Pattern

React hook pattern for accessing translations.

```
const { t } = useTranslation();
return <span>{t(T.common.save)}</span>;
```

| Export | Purpose |
|-----------------|---------------------------|
| useTranslation | Get t function only |
| useLanguage | Get language + setter |
| useLocalization | Full context access |
| T | Translation key constants |

Files: apps/thinktank/lib/i18n/localization-context.tsx

Translation Key Pattern

Centralized key constants for type safety.

| Category | Prefix | Example Key |
|----------|-------------------|------------------|
| Common | thinktank.common. | T.common.save |
| Chat | thinktank.chat. | T.chat.send |
| Errors | thinktank.errors. | T.errors.network |

Files: - apps/thinktank/lib/i18n/translation-keys.ts - apps/thinktank/lib/i18n/default-translation

Parameter Interpolation Pattern

Support for dynamic values in translations.

```
// Translation: "Delete {{count}} items"
t(T.history.deleteSelectedConfirm, { count: 5 })
// Output: "Delete 5 items"
```

Files: apps/thinktank/lib/i18n/localization-context.tsx

Category 11: Magic Carpet Patterns (Think Tank Admin)

Source: Custom RADIANT/Think Tank design

Spatial Glass Card

Glassmorphism effect with backdrop blur.

| Property | Value |
|------------|----------------------------------|
| Background | bg-white/80 dark:bg-slate-900/80 |
| Backdrop | backdrop-blur-xl |
| Border | border border-white/20 |

Files: apps/admin-dashboard/components/thinktank/magic-carpet/spatial-glass-card.tsx

AI Presence Indicator

Animated indicator showing AI activity state.

| State | Animation |
|------------|--------------|
| Idle | Subtle pulse |
| Thinking | Faster pulse |
| Responding | Wave effect |

Files: apps/admin-dashboard/components/thinktank/magic-carpet/ai-presence-indicator.tsx

Reality Scrubber Timeline

Time-travel UI for conversation history.

| Element | Purpose |
|----------|-----------------------|
| Timeline | Visual history |
| Scrubber | Drag to point in time |
| Markers | Key moments |
| Preview | Hover state preview |

Files: apps/admin-dashboard/components/thinktank/magic-carpet/reality-scrubber-timeline.tsx

Quantum Split View

Parallel conversation comparison view.

| Feature | Purpose |
|-------------|---------------------------|
| Split panes | Side-by-side views |
| Sync scroll | Optional linked scrolling |
| Merge | Combine best parts |

Files: apps/admin-dashboard/components/thinktank/magic-carpet/quantum-split-view.tsx

Pre-Cognition Suggestions

AI-powered predictive suggestions.

| Animation | Timing |
|-----------|---------------------|
| Fade in | 0.2s |
| Slide up | 0.3s |
| Stagger | 0.05s between items |

Files: apps/admin-dashboard/components/thinktank/magic-carpet/pre-cognition-suggestions.tsx

Pattern Modification History

| Date | Pattern | Change | Reason | Modified By |
|------------|----------------------|------------------|--|-------------|
| 2024-01-01 | Initial | Document created | Baseline | System |
| 2026-01-19 | Advanced Mode Toggle | New component | Think Tank Auto/Advanced mode switching | Cascade |
| 2026-01-19 | Message Bubble | Enhanced | Added metadata display, rating actions, streaming cursor | Cascade |
| 2026-01-19 | Chat Input | Enhanced | Added model selector integration, auto-resize | Cascade |
| 2026-01-19 | Sidebar | New component | Conversation list with search, date grouping | Cascade |
| 2026-01-19 | Brain Plan Viewer | New component | Displays AGI execution plan with step progress | Cascade |

| Date | Pattern | Change | Reason | Modified By |
|------------|-----------------------|---------------|---|-------------|
| 2026-01-19 | Model Selector Dialog | New component | Full model picker with categories and search | Cascade |
| 2026-01-19 | Language Selector | New component | Dropdown/list language picker with native names | Cascade |
| 2026-01-19 | Localization System | New pattern | useTranslation hook, T keys, API-based i18n | Cascade |
| 2026-01-19 | GlassCard | New component | Glassmorphism card with blur, glow, hover effects | Cascade |
| 2026-01-19 | GlassPanel | New component | Frosted glass container panel | Cascade |
| 2026-01-19 | AuroraBackground | New component | Animated aurora gradient effect for backgrounds | Cascade |
| 2026-01-19 | InteractiveTimeline | New component | Vertical timeline with grouped history navigation | Cascade |
| 2026-01-19 | HorizontalTimeline | New component | Horizontal scrollable timeline preview | Cascade |
| 2026-01-19 | ViewRouter | New component | Polymorphic UI morphing with Sniper/War Room modes | Cascade |
| 2026-01-19 | ModernChatInterface | New component | 2026+ chat UI with glassmorphism, advanced mode | Cascade |
| 2026-01-19 | Design Tokens | New system | Complete design token system for colors, spacing, animation | Cascade |

| Date | Pattern | Change | Reason | Modified By |
|------------|---------------------------|-------------|--|-------------|
| 2026-01-23 | Responsive Grids | Enforced | All stats grids must use <code>md:grid-cols-2</code> <code>lg:grid-cols-4</code> pattern | Cascade |
| 2026-01-23 | Toast Notifications | Enforced | All mutation actions must show toast feedback | Cascade |
| 2026-01-23 | useQuery Typing | Enforced | All useQuery hooks must use generic typing <code>useQuery<T>()</code> | Cascade |
| 2026-01-23 | Magic Carpet Interactions | Implemented | Bookmark, branch, prediction handlers with toast feedback | Cascade |
| 2026-01-23 | Collaborative Session | Implemented | Invite, permission, remove participant handlers with state | Cascade |
| 2026-01-23 | Reply/Edit Actions | Implemented | Reply populates input with @mention, edit populates content | Cascade |
| 2026-01-23 | Living Parchment | Implemented | War Room advisor analysis, Council session conclusion via API | Cascade |
| 2026-01-23 | Geographic Map | Implemented | Region click handler with toast and selection state | Cascade |
| 2026-01-23 | Report Edit | Implemented | Edit report handler opens dialog with report configuration | Cascade |

| Date | Pattern | Change | Reason | Modified By |
|------------|---------------------------|---------------|---|-------------|
| 2026-01-23 | ViewRouter State | Implemented | View/mode state tracking for polymorphic UI transitions | Cascade |
| 2026-01-24 | Activity Heatmap | New component | GitHub-style yearly activity visualization | Cascade |
| 2026-01-24 | Enhanced Activity Heatmap | New component | AI insights, breathing animation, streaks, sound | Cascade |
| 2026-01-24 | Generic Heatmap | New component | 2D grid with 5 color schemes | Cascade |
| 2026-01-24 | Latency Heatmap | New component | Geographic AWS region latency map | Cascade |
| 2026-01-24 | CBF Violations Heatmap | New component | Content boundary rule violation analytics | Cascade |

Category 13: Heatmap Components (v5.52.1)

Source: Custom RADIANT visualization components for data density display

Activity Heatmap

GitHub-style contribution graph for user activity tracking.

| Property | Value |
|---------------|--|
| Location | <code>apps/thinktank/components/ui/activity-heatmap.tsx</code> |
| Color Schemes | <code>violet, green, blue</code> |
| Layout | 52 weeks × 7 days grid |
| Animation | Framer Motion staggered fade-in |

Usage:

```
<ActivityHeatmap
  data={[{ date: '2026-01-24', count: 5 }]}
  year={2026}
  colorScheme="violet"
/>
```

Enhanced Activity Heatmap

Industry-leading activity visualization with AI features.

| Feature | Description |
|---------------------|--|
| Breathing Animation | Cells pulse based on activity intensity (0.5s cycle) |
| AI Insights | Pattern detection, anomaly alerts, trend predictions |
| Streak Tracking | Current/longest streak badges with icons |
| Sound Feedback | Web Audio API pitch varies with intensity |
| Accessibility Mode | Full narrative summary for screen readers |
| Predictions | Future cells with dashed borders |

Props: | Prop | Type | Default | Description | | | | | | | | data | ActivityDay[]
| required | Activity data | | year | number | current year | Display year | | colorScheme | 'violet'
\\ 'green' \\ 'blue' \\ 'fire' \\ 'ocean' | 'violet' | Color theme | | enableBreathing
| boolean | true | Enable pulse animation | | enableSound | boolean | false | Enable audio
feedback | | enableAIInsights | boolean | true | Show AI analysis | | showStreaks | boolean |
true | Highlight streak days |

Files: apps/thinktank/components/ui/enhanced-activity-heatmap.tsx

Generic Heatmap

2D grid visualization for correlation matrices and patterns.

| Property | Value |
|---------------|--|
| Location | apps/admin-dashboard/components/charts/heatmap.tsx |
| Color Schemes | blue, red, green, purple, diverging |
| Cell Sizes | sm (32px), md (48px), lg (64px) |
| Animation | Framer Motion staggered scale-in |

Usage:

```
<Heatmap
  data={[{ row: 'Model A', col: 'Mon', value: 42 }]}
  rows={['Model A', 'Model B']}
  cols={['Mon', 'Tue', 'Wed']}
  colorScheme="blue"
  showValues={true}
  cellSize="md"
/>
```

Files: apps/admin-dashboard/components/charts/heatmap.tsx

Latency Heatmap

Geographic visualization of AWS region latencies.

| Property | Value |
|------------|--|
| Location | apps/admin-dashboard/components/geographic/lat |
| Regions | 17 AWS regions with SVG positioning |
| Thresholds | <50ms (green) → >500ms (red) |
| Animation | Pulse for critical regions |

Latency Colors: | Threshold | Color | Label | |————|——|——| | <50ms | #22c55e | Excellent
| | <100ms | #84cc16 | Good | | <200ms | #eab308 | Fair | | <500ms | #f97316 | Slow | | >500ms
| #ef4444 | Critical |

Files: apps/admin-dashboard/components/geographic/latency-heatmap.tsx

CBF Violations Heatmap

Content Boundary Framework rule violation analytics.

| Property | Value |
|----------|---|
| Location | apps/admin-dashboard/components/analytics/cbf |
| Grouping | By category (content_safety, pii_detection, etc.) |
| Severity | low (blue), medium (yellow), high (orange), critical (red) |
| Trends | Up/down arrows for violation direction |

Category Icons: | Category | Icon | |————|——| | content_safety | | | data_privacy | | |
pii_detection | | | harmful_content | | | jailbreak | | | prompt_injection | |

Files: apps/admin-dashboard/components/analytics/cbf-violations-heatmap.tsx

Category 12: Think Tank Consumer App 2026+ Patterns

Source: Custom RADIANT/Think Tank design (2026+ UI/UX trends)

Glassmorphism Components

Modern glass effect components with depth and blur.

GlassCard

| Property | Value |
|-------------|---|
| Background | bg-white/[0.02-0.08] based on intensity |
| Backdrop | backdrop-blur-md/1g/x1 based on intensity |
| Border | border-white/[0.06-0.12] |
| Variants | default, elevated, inset, glow |
| Glow Colors | violet, fuchsia, cyan, emerald |


```
<GlassCard variant="glow" glowColor="violet" hoverEffect>
  Content
</GlassCard>
```

Files: apps/thinktank/components/ui/glass-card.tsx

GlassPanel Container panel with frosted glass effect.

```
<GlassPanel blur="lg" className="p-4">
  Content
</GlassPanel>
```

Files: apps/thinktank/components/ui/glass-card.tsx

Aurora Background

Animated gradient background with floating color blobs.

| Property | Options |
|-----------|------------------------------|
| Colors | violet, cyan, emerald, mixed |
| Intensity | subtle, medium, strong |
| Animate | true/false |

Files: apps/thinktank/components/ui/aurora-background.tsx

Interactive Timeline

Grouped vertical timeline for history browsing.

| Feature | Description |
|------------|--|
| Grouping | Today, Yesterday, This Week, This Month, Older |
| Animation | Item entrance, hover scale, selection glow |
| Indicators | Favorite stars, mode badges, domain hints |

Files: apps/thinktank/components/ui/timeline.tsx

Horizontal Timeline

Scrollable horizontal timeline preview.

| Feature | Description |
|-----------|----------------------------|
| Scroll | Drag or button navigation |
| Cards | Compact conversation cards |
| Selection | Glow effect on selected |

Files: apps/thinktank/components/ui/timeline.tsx

Polymorphic View Router

UI that morphs based on task and mode.

| Mode | View | Description |
|----------|----------------|---------------------------------|
| Sniper | Fast execution | Single model, quick responses |
| War Room | Deep analysis | Multi-agent, full orchestration |

| View Type | Purpose |
|----------------|---------------------------|
| chat | Standard conversation |
| terminal | Command center |
| canvas | Infinite canvas/mindmap |
| dashboard | Analytics view |
| diff_editor | Verification split-screen |
| decision_cards | Human-in-the-loop |

Files: `apps/thinktank/components/polymorphic/view-router.tsx`

Modern Chat Interface

2026+ chat UI with all advanced features.

| Feature | Visibility |
|------------------|---------------|
| Mode badge | Always |
| Model selector | Advanced mode |
| Metadata display | Advanced mode |
| Voice input | Advanced mode |
| File attachments | Advanced mode |
| Rating actions | On hover |

Files: `apps/thinktank/components/chat/ModernChatInterface.tsx`

Design Token System

Comprehensive design tokens for consistent styling.

| Category | Examples |
|-----------|--|
| Colors | <code>glass.light</code> , <code>aurora.violet</code> , <code>glow.cyan</code> |
| Spacing | 0.5 to 24 rem scale |
| Radius | <code>sm</code> to <code>full</code> |
| Shadows | <code>glass</code> , <code>glassHover</code> , <code>innerGlow</code> |
| Animation | <code>spring.gentle</code> , <code>easing.elastic</code> |
| Blur | <code>sm</code> to <code>glass</code> (20px) |

Files: `apps/thinktank/lib/design-system/tokens.ts`

Modern Polish Components (2026+)

Super-modern UI polish components for consumer experience.

Page Transitions Smooth fade and slide transitions between pages.

```
import { PageTransition, StaggerContainer, StaggerItem, FloatingElement } from '@components/ui';

// Wrap page content
<PageTransition>
  <YourPageContent />
</PageTransition>

// Staggered list animation
<StaggerContainer>
  {items.map(item => (
    <StaggerItem key={item.id}>{item}</StaggerItem>
  ))}
</StaggerContainer>

// Floating decoration
<FloatingElement delay={0.5}>
  <Icon />
</FloatingElement>
```

Files: apps/thinktank/components/ui/page-transition.tsx

Skeleton Loaders Shimmer effect skeleton components for loading states.

| Component | Purpose |
|-------------------------------|--------------------------------|
| <code>Skeleton</code> | Basic shimmer element |
| <code>SkeletonText</code> | Multiple line text placeholder |
| <code>SkeletonCard</code> | Card with avatar and text |
| <code>SkeletonMessage</code> | Chat message placeholder |
| <code>SkeletonChatList</code> | Full chat loading state |
| <code>SkeletonSidebar</code> | Sidebar loading state |
| <code>SkeletonGrid</code> | Grid of cards |
| <code>SkeletonStats</code> | Stats row loading |

```
import { Skeleton, SkeletonCard, SkeletonChatList } from '@components/ui';

<Skeleton className="h-4 w-full" />
<SkeletonCard />
<SkeletonChatList />
```

Files: apps/thinktank/components/ui/skeleton.tsx

Gradient Text & Glow Effects Animated text effects for modern styling.

| Component | Purpose |
|----------------|---|
| GradientText | Animated gradient text (violet, cyan, rainbow, gold, emerald) |
| GlowText | Text with drop shadow glow |
| AnimatedNumber | Counter animation for stats |
| Typewriter | Typing effect for text |

```
import { GradientText, GlowText, AnimatedNumber, Typewriter } from '@components/ui';
```

```
<GradientText gradient="violet" animate>Think Tank</GradientText>
<GlowText color="cyan">Glowing</GlowText>
<AnimatedNumber value={1234} suffix="+" />
<Typewriter text="Hello, I'm Cato..." />
```

Files: apps/thinktank/components/ui/gradient-text.tsx

Typing Indicators Animated indicators for AI thinking state.

| Variant | Description |
|----------|-------------------------------|
| dots | Bouncing dots (default) |
| pulse | Single pulsing dot with text |
| wave | Audio waveform style |
| thinking | Full “Cato is thinking” panel |

```
import { TypingIndicator, StreamingIndicator } from '@components/ui';
```

```
<TypingIndicator variant="thinking" />
<StreamingIndicator />
```

Files: apps/thinktank/components/ui/typing-indicator.tsx

Empty States Beautiful empty state illustrations with actions.

| Type | Icon | Description |
|-----------|---------------|---------------------------|
| chat | MessageSquare | Start conversation prompt |
| history | History | No conversations yet |
| artifacts | Layers | No artifacts created |
| search | Search | No results found |
| rules | Star | No rules configured |

```
import { EmptyState, WelcomeHero } from '@components/ui';
```

```
<EmptyState
  type="chat"
  action={{ label: "Start", onClick: handleStart }}
/>
```

```
<WelcomeHero onStart={handleStart} />
```

Files: apps/thinktank/components/ui/empty-state.tsx

Modern Buttons Enhanced buttons with glow and micro-interactions.

| Component | Variants |
|--------------|--|
| ModernButton | primary, secondary, ghost, glow, outline |
| IconButton | default, ghost, glow |
| PillButton | Active/inactive pill for filters |

```
import { ModernButton, IconButton, PillButton } from '@components/ui';
```

```
<ModernButton variant="glow" leftIcon={<Zap />}>  
  Get Started  
</ModernButton>
```

```
<IconButton icon={<Star />} label="Favorite" variant="glow" />
```

```
<PillButton isActive={selected}>Category</PillButton>
```

Files: apps/thinktank/components/ui/modern-button.tsx

Tailwind Animations Custom animations added to `tailwind.config.js`:

| Animation | Class | Usage |
|------------|---------------------------------|---------------------|
| Shimmer | <code>animate-shimmer</code> | Skeleton loading |
| Gradient X | <code>animate-gradient-x</code> | Animated gradients |
| Pulse Glow | <code>animate-pulse-glow</code> | Pulsing glow effect |
| Float | <code>animate-float</code> | Floating decoration |
| Spin Slow | <code>animate-spin-slow</code> | Slow rotation |

Adding a New Pattern

When adding a new UI/UX pattern:

1. **Document the source** - Where did the pattern come from?
 2. **Categorize it** - Which category does it belong to?
 3. **Include all details** - Properties, variants, usage
 4. **Add file references** - Where is it implemented?
 5. **Update this document** - Add to appropriate section
-

Modifying a Pattern

When modifying an existing pattern:

1. **Review existing documentation** - Understand current pattern
2. **Document the change** - Add to “Pattern Modification History”
3. **Update pattern details** - Modify the relevant section
4. **Test across apps** - Ensure consistency

Policy: This document is maintained under `/.windsurf/workflows/ui-ux-patterns-policy.md`